

360iResearch

Integrated In-Rack CDUs Market

Global Forecast 2026-2032

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Table of Contents

1. Preface 6
   1.1. Objectives of the Study 6
   1.2. Market Definition 6
   1.3. Market Segmentation & Coverage 7
   1.4. Years Considered for the Study 10
   1.5. Currency Considered for the Study 10
   1.6. Language Considered for the Study 10
   1.7. Key Stakeholders 10
2. Research Methodology 12
   2.1. Introduction 12
   2.2. Research Design 12
      2.2.1. Primary Research 13
      2.2.2. Secondary Research 13
   2.3. Research Framework 14
      2.3.1. Qualitative Analysis 14
      2.3.2. Quantitative Analysis 15
   2.4. Market Size Estimation 15
      2.4.1. Top-Down Approach 15
      2.4.2. Bottom-Up Approach 15
   2.5. Data Triangulation 16
   2.6. Research Outcomes 16
   2.7. Research Assumptions 17
   2.8. Research Limitations 17
3. Executive Summary 18
   3.1. Introduction 18
   3.2. CXO Perspective 18
   3.3. New Revenue Opportunities 20
   3.4. Next-Generation Business Models 20
   3.5. Industry Roadmap 21
4. Market Overview 23
   4.1. Introduction 23
   4.2. Key Growth Contribution 24
   4.3. Industry Ecosystem & Value Chain Analysis 25
      4.3.1. Supply-Side Analysis 26
      4.3.2. Demand-Side Analysis 26
      4.3.3. Stakeholder Analysis 27
   4.4. Market Dynamics 28
      4.4.1. Key Drivers 28
         4.4.1.1. Liquid-cooled computing platforms link cooling procurement to hardware selection 28
         4.4.1.2. Rack-local offerings provide differentiated retrofit routes 28

4.4.1.3. Integrated rack packages organize purchasing and support responsibility....29
4.4.2. Key Restraints....29
4.4.2.1. Power access and financing constrain executable procurement....29
4.4.2.2. Integration approval and warranty boundaries constrain substitution....30
4.4.2.3. Alternative cooling architectures limit conversion into in-rack purchases....30
4.4.3. Key Opportunities....30
4.4.3.1. Rack-local cooling within accepted installed environments....30
4.4.3.2. Accountable rack programs with explicit delivered scope....31
4.4.3.3. Destination-specific lifecycle accountability....31
4.4.3.4. Commercially accepted replacement and support continuity....32
4.4.4. Key Challenges....32
4.4.4.1. Coordinating acceptance across customer, OEM and facility provider....32
4.4.4.2. Translating equipment resilience into enforceable local support....32
4.4.4.3. Maintaining product-specific qualification across the accepted categories....33
4.5. Porter's Five Forces Analysis....33
4.6. PESTLE Analysis....34
4.7. Market Outlook....35
4.7.1. Near-Term Market Outlook (0-2 Years)....36
4.7.2. Medium-Term Market Outlook (3-5 Years)....37
4.7.3. Long-Term Market Outlook (5-10 Years)....37
4.8. Go-to-Market Strategy....38
5. Market Insights....41
5.1. Consumer Insights & End-User Perspective....41
5.2. Consumer Experience Benchmarking....41
5.3. Opportunity Mapping....42
5.4. Distribution Channel Analysis....44
5.5. Pricing Trend Analysis....45
5.6. Regulatory Compliance & Standards Framework....46
5.7. ESG & Sustainability Analysis....47
5.8. Disruption & Risk Scenarios....48
5.9. Return on Investment & Cost-Benefit Analysis....50
6. Cumulative Impact of Artificial Intelligence 2026....52
7. Integrated In-Rack CDUs Market, by Heat Rejection Interface....54
7.1. Liquid-to-Liquid CDUs....56
7.2. Liquid-to-Air CDUs....57
8. Integrated In-Rack CDUs Market, by Coolant Phase....59
8.1. Single-Phase CDUs....61
8.2. Two-Phase CDUs....62
9. Integrated In-Rack CDUs Market, by Rack Platform....64
9.1. 19-Inch Standard Racks....67
9.2. OCP Open Rack....69
9.3. System-Specific Computing Racks....70
9.4. Project Scorpio Racks....72
10. Integrated In-Rack CDUs Market, by Cooling Application....74

10.1. Direct-to-Chip Cooling 77
10.2. Rack Air Heat-Exchanger Cooling 78
10.3. Combined Cold-Plate and Rack Air Cooling 80
11. Integrated In-Rack CDUs Market, by Workload 82
11.1. Artificial Intelligence 85
11.2. Scientific and Engineering Computing 86
11.3. Mixed Workloads 88
11.4. General-Purpose Computing 89
12. Integrated In-Rack CDUs Market, by End User 91
12.1. Cloud, AI, and Internet Platform Operators 95
12.2. Enterprise IT Operators 96
12.3. Colocation Operators 98
12.4. Government, Academic, and Research Institutions 99
12.5. Telecommunications Operators 101
13. Integrated In-Rack CDUs Market, by Integration Model 103
13.1. Full Rack Integration 105
13.2. Independent CDU Supply 107
13.3. Partial Rack Integration 108
14. Integrated In-Rack CDUs Market, by Project Purpose 110
14.1. Retrofit & Expansion 112
14.2. New-Build Deployment 114
14.3. CDU Replacement 115
15. Integrated In-Rack CDUs Market, by Sales Channel 117
15.1. Rack & Server OEM Sales 119
15.2. Direct End-User Sales 121
15.3. Distributor & Integrator Sales 122
16. Integrated In-Rack CDUs Market, by Cooling Capacity 124
16.1. Lower Capacity 126
16.2. Intermediate Capacity 128
16.3. Higher Capacity 129
17. Integrated In-Rack CDUs Market, by Pump Redundancy 131
17.1. Redundant Pumping 133
17.2. Nonredundant Pumping 134
18. Integrated In-Rack CDUs Market, by Region 136
18.1. North America 140
18.2. Asia-Pacific 144
18.3. Europe 147
18.4. Latin America 152
18.5. Middle East 155
18.6. Africa 159
19. Integrated In-Rack CDUs Market, by Group 162
19.1. NATO 166

19.2. G7 171
19.3. BRICS 174
19.4. European Union 178
19.5. ASEAN 183
19.6. GCC 187
20. Integrated In-Rack CDUs Market, by Country 191
20.1. United States 197
20.2. China 200
20.3. Japan 203
20.4. Germany 206
20.5. United Kingdom 209
20.6. France 212
20.7. Canada 215
20.8. South Korea 218
20.9. Australia 221
20.10. Italy 224
20.11. India 227
20.12. Spain 229
20.13. Brazil 232
20.14. Russia 235
20.15. Mexico 238
21. Competitive Landscape 242
21.1. Market Share Analysis, 2025 242
21.2. Market Concentration Analysis, 2025 245
21.3. Recent Developments & Impact Analysis, 2025 247
21.4. Product Portfolio Analysis, 2025 249
21.5. Benchmarking Analysis, 2025 254
22. Company Profiles 257
22.1. Vertiv 257
22.2. CoolIT Systems 258
22.3. Nidec 259
22.4. Lenovo 259
22.5. ZutaCore 261
22.6. Coolcentric 261
22.7. Dell Technologies 262
22.8. Koolance 263
22.9. Bull 264
22.10. Alexander Schneider 265
22.11. DC ASIA Ltd. 267
23. Companies Covered 269
24. Key Experts 292

1. Preface

1.1. Objectives of the Study

- Which offering attributes qualify an Integrated In-Rack CDU for the relevant heat-rejection interface, coolant phase, rack platform and cooling application, and what evidence supports compatibility rather than category association alone?
- Who specifies, purchases, integrates and accepts the CDU across the included end-user groups, and how do warranty, service and continuity responsibilities affect supplier qualification?
- How do installed-rack compatibility, facility interfaces and support commitments affect switching decisions across New-Build Deployment, Retrofit & Expansion and CDU Replacement?
- What capabilities and responsibilities distinguish Independent CDU Supply, Partial Rack Integration and Full Rack Integration, and how do those delivery models interact with direct, OEM and distributor or integrator sales?
- Which product, integration, service and geographic-access capabilities can suppliers substantiate for the buyer's intended deployment, and what must be verified before treating an announced offering as a procurement option?
- How do workload, project purpose, capacity position and pump redundancy shape buyer requirements without assuming that a workload category alone establishes CDU adoption or commercial attractiveness?
- Which applicable institutional requirements and site-specific commercial constraints affect qualification and delivery within the Global market, and where should conclusions remain specific to a buyer, product or location?
- How can independent and integrated CDU offerings be compared within a consistent product boundary without equating the CDU with a complete rack, computing system or facility cooling project?

1.2. Market Definition

The Global Integrated In-Rack CDUs market covers finished coolant distribution unit offerings intended for integration within computing racks. It includes separately supplied in-rack CDUs, CDUs delivered with partial rack integration, and CDUs delivered within fully integrated rack solutions. Independent supply is an included delivery model, not a separate facility-level product boundary.

The accepted offering scope includes Liquid-to-Liquid CDUs and Liquid-to-Air CDUs, Single-Phase CDUs and Two-Phase CDUs, and the specified rack platforms and cooling applications. The buyer scope comprises Cloud, AI, and Internet Platform Operators; Colocation Operators; Enterprise IT Operators; Telecommunications Operators; and Government, Academic, and Research Institutions. Workload, project purpose, sales channel, cooling

capacity and pump redundancy provide additional commercial classifications of these offerings.

The finished in-rack CDU is distinct from separately supplied upstream components and coolant materials, computing hardware, rack air heat exchangers and facility-wide cooling equipment. Those adjacent offerings remain relevant to compatibility, integration and procurement responsibility, but their presence in a solution does not make the entire solution equivalent to the CDU. Room-level or row-level equipment that is not intended for in-rack integration is outside this product boundary.

1.3. Market Segmentation & Coverage

The segmentation provides eleven independent commercial lenses on the same Global Integrated In-Rack CDUs market. Together they describe the offering, its rack and cooling context, the operating buyer, and the route and purpose of deployment. They are not additive markets.

Heat Rejection Interface includes Liquid-to-Liquid CDUs and Liquid-to-Air CDUs. This axis organizes the relationship between the CDU offering and the receiving heat-rejection infrastructure, making interface suitability a distinct buyer-qualification question.

Coolant Phase includes Single-Phase CDUs and Two-Phase CDUs. These are included offering categories whose commercial comparison requires support for the relevant cooling arrangement; the phase classification does not establish interchangeability.

Rack Platform includes xx.xx-Inch Standard Racks, OCP Open Rack, Project Scorpio Racks and System-Specific Computing Racks. The axis places qualification within the intended platform context and separates platform association from product-specific compatibility.

Cooling Application includes Direct-to-Chip Cooling, Rack Air Heat-Exchanger Cooling and Combined Cold-Plate and Rack Air Cooling. These categories identify the CDU's role in the supported rack cooling arrangement rather than expanding the offering boundary to every element of that arrangement.

Workload includes Artificial Intelligence, Scientific and Engineering Computing, General-Purpose Computing and Mixed Workloads. This axis frames computing-use requirements separately from the identity of the operating buyer and from evidence of a procurement commitment.

End User includes Cloud, AI, and Internet Platform Operators; Colocation Operators; Enterprise IT Operators; Telecommunications Operators; and Government, Academic, and Research Institutions. It organizes operating responsibilities and procurement exposure without presuming that the operator purchases directly from the CDU supplier.

Integration Model includes Independent CDU Supply, Partial Rack Integration and Full Rack Integration. Separately supplied in-rack offerings remain affirmatively included. The categories distinguish delivery integration and the allocation of responsibilities without equating the CDU with every item delivered in a rack solution.

Project Purpose includes New-Build Deployment, Retrofit & Expansion and CDU Replacement. The axis distinguishes the commercial reason for procurement and the relevance of installed-system dependencies, deployment responsibility and continuity requirements.

Sales Channel includes Direct End-User Sales, Rack & Server OEM Sales and Distributor & Integrator Sales. It identifies the commercial route separately from end-user identity and integration level, allowing channel participation and product qualification to be assessed on their own terms.

Cooling Capacity includes Lower Capacity, Intermediate Capacity and Higher Capacity. These positions organize capacity-oriented comparison within the accepted scope; defensible product comparisons require a comparable rating basis and relevant configuration.

Pump Redundancy includes Nonredundant Pumping and Redundant Pumping. This axis frames resilience-oriented qualification and maintenance responsibility separately from capacity. Neither category alone establishes suitability for an operator's continuity requirements.

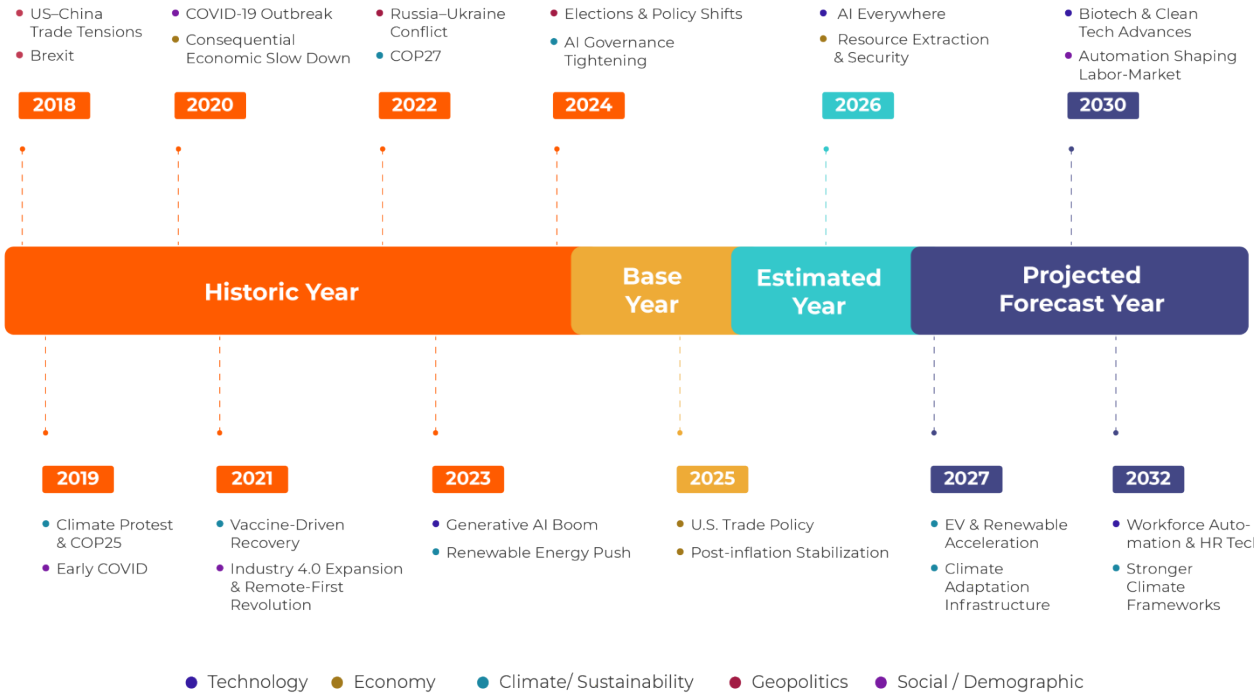
Table 1. Global Integrated In-Rack CDUs Market Segmentation & Coverage

Segmentation	Coverage
Coolant Phase	• Single-Phase CDUs • Two-Phase CDUs
Cooling Application	• Direct-to-Chip Cooling • Rack Air Heat-Exchanger Cooling • Combined Cold-Plate and Rack Air Cooling
Cooling Capacity	• Lower Capacity • Intermediate Capacity • Higher Capacity
End User	• Cloud, AI, and Internet Platform Operators • Enterprise IT Operators • Colocation Operators • Government, Academic, and Research Institutions • Telecommunications Operators
Heat Rejection Interface	• Liquid-to-Liquid CDUs • Liquid-to-Air CDUs
Integration Model	• Full Rack Integration • Independent CDU Supply • Partial Rack Integration
Project Purpose	• Retrofit & Expansion • New-Build Deployment • CDU Replacement
Pump Redundancy	• Redundant Pumping • Nonredundant Pumping
Rack Platform	• xx.xx-Inch Standard Racks • OCP Open Rack • System-Specific Computing Racks • Project Scorpio Racks
Sales Channel	• Rack & Server OEM Sales • Direct End-User Sales • Distributor & Integrator Sales
Workload	• Artificial Intelligence • Scientific and Engineering Computing • Mixed Workloads • General-Purpose Computing

1.4. Years Considered for the Study

The study horizon spans 2024-2032. The historical year is 2024, the base year is 2025, the estimated year is 2026, and the forecast endpoint is 2032. These roles distinguish historical and base-year assessment from estimated and forward-looking interpretation.

Figure 1. Global Integrated In-Rack CDUs Market, Years Considered for the Study



1.5. Currency Considered for the Study

Monetary market values are reported in U.S. dollars (USD) on an absolute-value scale. USD is the common reporting denomination for the Global study.

1.6. Language Considered for the Study

The report is published in American English.

1.7. Key Stakeholders

- Cloud, AI, and Internet Platform Operators: Evaluate CDU fit with intended computing racks, cooling arrangements and deployment responsibilities, including the support commitments required for the selected integration model.
- Colocation Operators: Assess the division of rack, facility-interface and service responsibilities between the operator, tenant and suppliers before accepting a CDU-supported deployment.

- Enterprise IT Operators: Compare qualification, support and continuity implications when introducing in-rack CDUs into new facilities, changing installed infrastructure or replacing an existing CDU.
- Telecommunications Operators: Examine compatibility with the relevant computing environment, maintenance responsibilities and location-specific delivery and service access.
- Government, Academic, and Research Institutions: Evaluate procurement requirements, supported computing platforms and supplier accountability for scientific, engineering and other included workloads.
- CDU suppliers and upstream supply partners: Substantiate finished-offering eligibility, supported configurations and integration commitments while distinguishing the CDU business role from separate component or material supply.
- Rack and server OEMs: Determine how CDU selection fits the delivered computing platform and how qualification, integration, warranty and support responsibilities are allocated within partial or full rack offerings.
- Distributors and integrators: Evaluate channel authorization, supported configurations, delivery scope and service accountability before representing an offering as suitable for a buyer's project.
- Engineering advisers and facility-project participants: Assess the commercial interface between rack-level cooling requirements and surrounding facility infrastructure, particularly where retrofit and expansion decisions affect existing responsibilities.
- Investors and corporate strategists: Assess evidenced product participation, access dependencies, integration exposure and support obligations without treating every included category as an equally accessible opportunity.
- Public authorities and platform or standards organizations: Consider how applicable requirements and platform expectations affect product qualification, procurement and deployment choices without presuming uniform conditions across the Global market.

2. Research Methodology

2.1. Introduction

The study examines Integrated In-Rack CDUs through the relationship between the finished offering, the computing rack and the buyer's deployment setting. Its approach connects accepted product categories with qualification requirements, procurement responsibility, installed-system dependencies and commercial delivery models within the Global boundary.

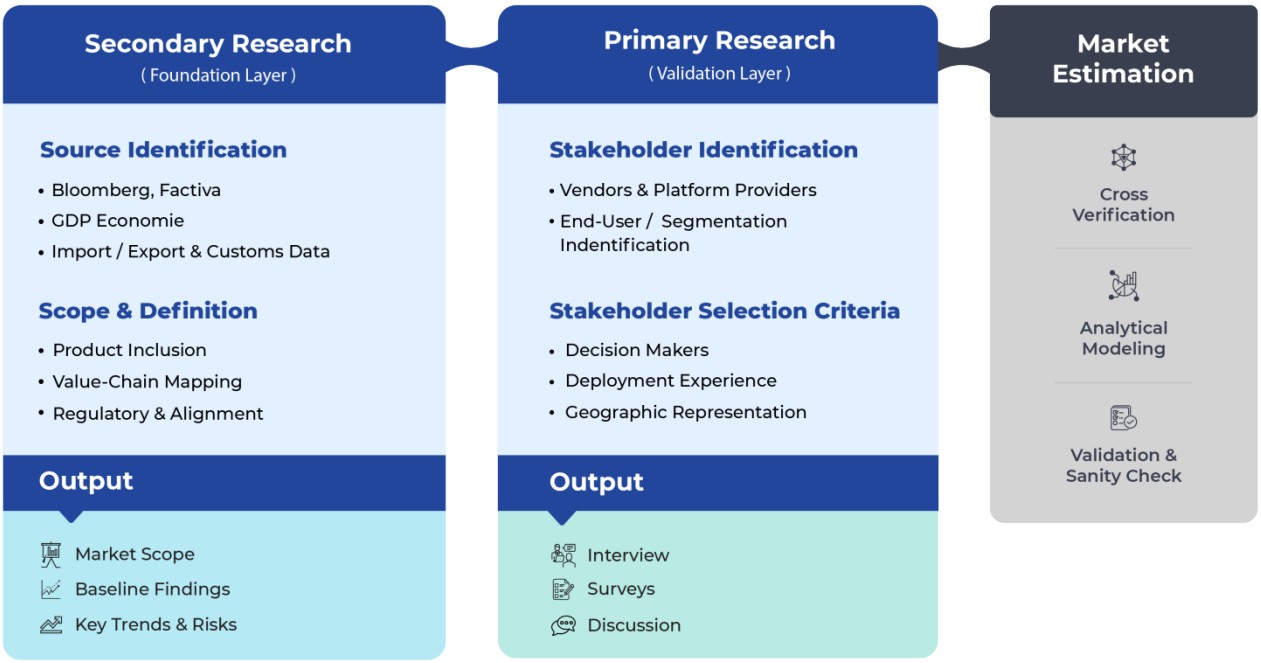
Market interpretation distinguishes documented commercial observations from analytical explanations and conditional expectations. The qualitative challenge layer tests the plausibility of assumptions and mechanisms, while quantitative interpretation requires independently supported facts and comparable measurement boundaries.

2.2. Research Design

Coverage follows the complete accepted hierarchy rather than using one workload, rack platform, cooling application or sales channel as a proxy for Integrated In-Rack CDUs. Product characteristics are interpreted alongside end-user responsibilities, integration models and project purposes so that comparisons address commercially comparable settings.

The design assigns evidence a bounded role. An observation about a product supports the attributes it directly establishes, while an observation about a deployment applies to its documented setting. Neither automatically establishes participation across all included categories, qualification for other buyers or availability throughout the Global market. Qualitative challenge research and secondary commercial evidence inform interpretation without substituting for independent numerical support.

Figure 2. Global Integrated In-Rack CDUs Market, Research Design



2.2.1. Primary Research

The analyst team conducted primary research as a qualitative challenge layer for market definition, segmentation, demand conditions, adoption barriers, and competitive interpretation. This work tested analytical assumptions and sharpened explanations of market mechanisms without serving as standalone support for numerical estimates.

The qualitative challenge layer is evaluated alongside secondary evidence within the accepted market scope. It informs conditional market explanations and hypotheses for subsequent quantitative analysis. Numerical estimates require their own supporting evidence, and a forecast derived from a qualitative assumption does not independently validate that assumption. Final interpretation must reconcile the qualitative findings with the completed quantitative results.

2.2.2. Secondary Research

Secondary research provides documentary grounding for offering identity, public commercial status, supplier and channel roles, buyer conditions and applicable institutional requirements. Broad portfolio descriptions require offering-specific support before they can establish participation in Integrated In-Rack CDUs.

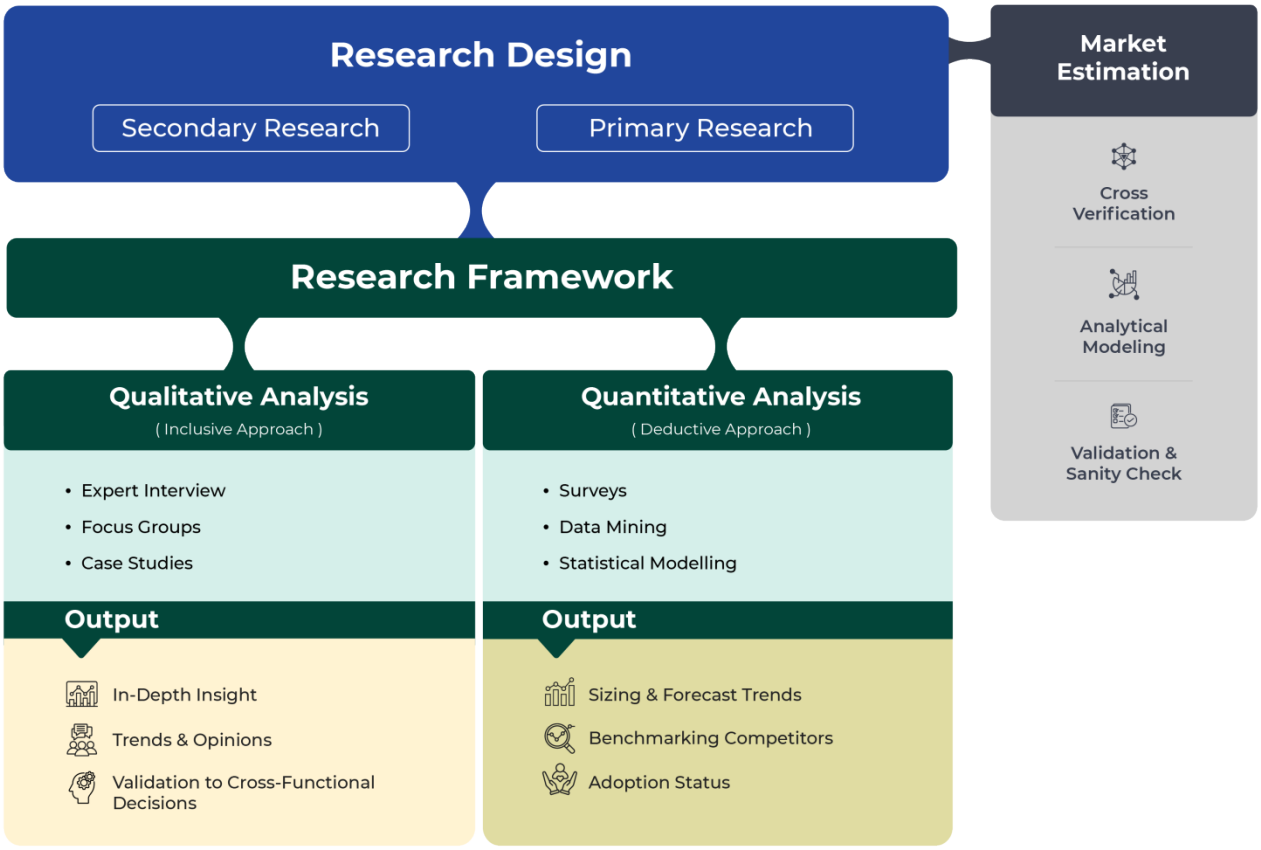
Interpretation considers the authority, direct relevance, timing and underlying scope of each commercial fact. Announced offerings, marketed products and completed deployments have different meanings. An example from a particular product configuration or location supports that setting rather than an unrestricted claim about category coverage or Global availability.

2.3. Research Framework

The framework connects the accepted market definition and taxonomy with evidenced supplier participation, buyer requirements, comparable measurement and competition among eligible offerings. Category inclusion establishes study coverage; supplier participation and the ability to satisfy a particular buyer remain separate questions requiring direct support.

Commercial choices are then examined through rack fit, heat-rejection compatibility, integration responsibility, procurement route and project purpose. This connection keeps competitive interpretation tied to the offering and buyer setting instead of treating broad participation in data center cooling as proof of access to every in-rack CDU opportunity.

Figure 3. Global Integrated In-Rack CDUs Market, Research Framework



2.3.1. Qualitative Analysis

The qualitative framework examines how buyer requirements translate into commercial qualification and access conditions. Relevant questions concern who specifies and accepts the CDU, who integrates it into the rack solution, which platform and facility dependencies constrain selection, and how warranty and service responsibilities affect procurement.

Switching is evaluated through potential changes in compatibility, integration responsibility, support arrangements and operational continuity. These conditions are considered within the relevant project purpose and delivery model; neither workload association nor inclusion in a product category establishes that switching is commercially attractive.

2.3.2. Quantitative Analysis

Quantitative interpretation requires consistent product eligibility, period, geography, reporting currency and integration boundaries. Evidence concerning a complete rack solution, a broad cooling portfolio or a qualifying in-rack CDU represents different commercial perimeters and cannot be treated as equivalent without defensible correspondence.

Each segmentation axis describes the same market through a different lens. Category assignments must therefore remain distinct from aggregation across axes. Reported observations, derived results, modeled estimates and forecasts retain separate evidentiary meanings; qualitative explanations do not independently establish their numerical validity.

2.4. Market Size Estimation

The measurement perimeter is the qualifying in-rack CDU offering across Independent CDU Supply, Partial Rack Integration and Full Rack Integration. Delivery within a larger rack solution does not make the complete rack, computing system or facility cooling project equivalent to the studied offering.

Any market estimate requires evidence that substantiates the CDU-specific product boundary, period and geographic coverage. Interpretation of integrated offerings must preserve uncertainty about their correspondence to that boundary rather than resolve it by treating the entire surrounding solution as CDU activity.

2.4.1. Top-Down Approach

A top-down interpretation must distinguish the narrower Integrated In-Rack CDUs perimeter from broader data center cooling, liquid-cooling and rack-system activity. Broader evidence supplies context only unless its relationship to qualifying in-rack CDU offerings is identifiable on a comparable basis.

Shared customers, workloads or supplier names do not make a broader commercial perimeter equivalent to the studied market. An assumed allocation from a surrounding portfolio is not a substitute for evidence supporting the CDU-specific boundary.

2.4.2. Bottom-Up Approach

A bottom-up interpretation centers on individually substantiated in-rack CDU offerings and their commercial delivery roles. Eligibility depends on the finished offering and its intended rack integration, not merely on a supplier's association with liquid cooling or computing infrastructure.

References to the same offering through a supplier, rack or server OEM, distributor and integrator must not be mistaken for distinct market perimeters. Product identity establishes eligible participation, while an announcement alone does not establish realized commercial activity or a monetary market total.

2.5. Data Triangulation

Triangulation requires compatibility of offering scope, period, geography and delivery context before commercial observations can corroborate one another. Similar terminology does not resolve differences between a complete rack solution, a broad cooling portfolio and an eligible in-rack CDU offering.

Agreement is meaningful only when the underlying support is relevant and sufficiently independent. Qualitative hypotheses and numerical interpretations must not be treated as mutual confirmation when they depend on the same assumption. Remaining differences should stay attached to the affected commercial conclusion and its conditions.

Figure 4. Global Integrated In-Rack CDUs Market, Data Triangulation



2.6. Research Outcomes

The study is intended to support in-rack CDU qualification, rack-platform and cooling-application positioning, evaluation of integration models and sales channels, and procurement decisions across new deployment, retrofit, expansion and replacement settings. Its decision support distinguishes the offering a supplier can substantiate from the requirements an operator must satisfy.

Commercial interpretation identifies the prerequisites, responsibilities and uncertainties attached to a choice rather than treating an included category as an opportunity recommendation. Conclusions should remain specific enough to inform product selection, supplier verification, integration accountability and market-access assessment.

2.7. Research Assumptions

- Commercial comparisons presume product-specific support for the claimed Heat Rejection Interface, Coolant Phase, Rack Platform and Cooling Application. Association with liquid cooling does not substitute for evidence that an offering qualifies as an in-rack CDU.
- End-user interpretation follows the operating buyer's role rather than the identity of a sales intermediary. Procurement, integration, acceptance and support responsibilities must be assessed separately where different parties perform them.
- Project-purpose interpretation distinguishes New-Build Deployment, Retrofit & Expansion and CDU Replacement by the intended commercial requirement. A workload label alone does not establish whether the buyer faces a new installation, an installed-system change or a replacement decision.
- Comparison of independent and integrated offerings presumes a defensible correspondence to the qualifying CDU product boundary. Full Rack Integration does not justify treating every element of the delivered rack solution as the studied offering.
- Forward-looking commercial explanations are conditional on rack-platform compatibility, facility-interface suitability, supplier support and buyer procurement readiness. Changes in these conditions can change adoption interpretation without changing the accepted market scope.

2.8. Research Limitations

- A disclosure concerning a complete rack or a broad cooling portfolio has a different product boundary from an in-rack CDU disclosure. Without defensible correspondence, it cannot establish a CDU-specific commercial comparison.
- Inclusion of interface, phase, platform and application categories does not establish that every cross-axis combination is commercially offered. Supplier-specific support is necessary before treating a particular combination as an available procurement option.
- Product descriptions of compatibility do not by themselves establish project-specific acceptance, warranty coverage or service responsibility. Firm conclusions about supplier access and switching depend on the relevant buyer-facing commercial conditions.
- Capacity comparisons depend on a comparable rating basis and relevant product configuration. Lower Capacity, Intermediate Capacity and Higher Capacity do not independently establish suitability for a buyer's continuity requirements or substitute for assessment of Pump Redundancy.
- A qualifying offering in one location does not establish delivery access, service support or contractual suitability elsewhere. Global interpretation must retain the geographic scope of the underlying commercial support rather than imply uniform supplier access.

3. Executive Summary

3.1. Introduction

The Global Integrated In-Rack CDUs market is qualification-led: Independent CDU Supply, Partial Rack Integration and Full Rack Integration coexist around finished coolant distribution units intended for installation within computing racks. Liquid-cooled platforms such as NVIDIA GB200 NVL72 create a cooling procurement trigger, but not an automatic in-rack order. Commercial row-based alternatives leave equipment placement as a consequential architecture choice.

The buyer's problem is aligning the named CDU with supported computing hardware, the rack platform, the receiving interface and continuing responsibility. Equinix's customer-supplied CDU option preserves sourcing choice while retaining facility acceptance. Competition therefore spans independently selected equipment and OEM-organized rack delivery. The decisive business choice is which coordination duties the buyer retains and which obligations a provider actually accepts; neither liquid-cooling adoption nor an integrated-rack label establishes universal interchangeability or an executable purchase.

Sources & Evidence

1. Cooling | Equinix Product Documentation
   · Equinix permits customers to supply a CDU or purchase one through its liquid-to-cage offering while retaining a defined facility demarcation and engagement conditions. ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))
2. CDUs for High-Density Liquid Cooling
   · CoolIT separately markets rack-based and row-based CDUs, establishing architecture alternatives to a finished in-rack purchase. ([coolitsystems.com](https://www.coolitsystems.com/products-services/data-center-products/cooling-distribution-units/))
3. GB200 NVL72
   · NVIDIA describes GB200 NVL72 as a rack-scale, liquid-cooled platform. This supports a hardware-linked cooling requirement, not a particular CDU placement. ([nvidia.com](https://www.nvidia.com/en-us/data-center/gb200-nvl72/))
4. Dell Integrated Rack Scalable Systems-Simplified, Reliable & Efficient Liquid Cooling for Modern Data Centers
   · Dell includes PowerCool Rack-mount CDU within Integrated Rack Scalable Systems and presents Dell as the support contact, establishing an OEM-organized purchasing boundary. ([infohub.delltechnologies.com](https://infohub.delltechnologies.com/en-us/p/dell-integrated-rack-scalable-systems-simplified-reliable-efficient-liquid-cooling-for-modern-data-centers/))

3.2. CXO Perspective

CFOs and CIOs should tie binding equipment commitments to funded receiving projects, accepted cooling placement and contracted continuity coverage. Earlier ordering can protect scheduling but retains grid and funding delay exposure. Advertised service breadth is not a destination-specific response promise, and a product warranty is not equivalent to an on-site service agreement.

For equipment suppliers and investors, direct entry is defensible where configuration acceptance, delivery and continuing support obligations can be secured directly. An OEM route instead requires a named accepted rack program that organizes the computing relationship and allocates warranty and escalation responsibilities; it trades direct-customer control for partner-mediated access. Buyers seeking supply resilience should verify original equipment sources behind branded bids rather than assume that additional sellers provide independent alternatives.

Supplier comparison remains incomplete where the finished unit or responsible counterparty is unestablished. Lenovo RM100 new-order access is specifically unresolved: its September xx.xx 2025 withdrawal entry conflicts with retained ordering language. Written availability and support confirmation are necessary before a purchasing commitment; installed-system support is a separate question.

Sources & Evidence

1. Cooling | Equinix Product Documentation
   · Customer-supplied equipment and customer self-build are documented engagement options; facility conditions remain separate from the equipment seller. ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))
2. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   · Lenovo requires Professional Services review and approval for RM100 factory integration and its associated warranty and extended-service scope, illustrating program-specific acceptance. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp2128-thinksystem-sr650a-v4-server))
3. AI and energy security - Energy and AI
   · The IEA identifies grid-connection queues, delays and jurisdiction-specific constraints affecting data center deployment, supporting project-readiness exposure distinct from CDU availability. ([iea.org](https://www.iea.org/reports/energy-and-ai/ai-and-energy-security))
4. Executive summary - Key Questions on Energy and AI
   · The IEA identifies reliance on capital-market funding and sensitivity to market sentiment, macroeconomic conditions and financing, supporting conditional commitment to funded receiving projects. ([iea.org](https://www.iea.org/reports/key-questions-on-energy-and-ai/executive-summary))
5. Nidec Starts Shipping OCP-standard, In-rack-type, 4U-size 250KW CDU to Supermicro
   · Nidec announced that it had begun shipping an in-rack CDU jointly developed with Supermicro for a complete rack solution. This establishes an original-supplier-to-OEM route, not independent original supply for every downstream brand. ([nidec.com](https://www.nidec.com/en/product/news/2024/news1205-xx.xx/))
6. Liquid Cooling Services
   · Vertiv advertises response agreements and separately distinguishes emergency response, labor, travel and parts coverage across service-contract tiers. Purchased continuity therefore requires scope-specific comparison. ([vertiv.com](https://www.vertiv.com/en-us/campaigns/liquid-cooling-services/))
7. Lenovo 42U and 48U Heavy Duty Rack Cabinets Product Guide
   · Lenovo's September xx.xx 2025 change-history entry states that RM100 was withdrawn, while the same guide retains configure-to-order language. The document leaves new-order access unresolved. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp1498-lenovo-42u-48u-heavy-duty-rack-cabinets))
8. Dell Integrated Rack Scalable Systems-Simplified, Reliable & Efficient Liquid Cooling for Modern Data Centers
   · Dell's rack program organizes computing and cooling choices with integration services and a single service contact; this supports evaluating a defined program rather than assuming category-level access. ([infohub.delltechnologies.com](https://infohub.delltechnologies.com/en-us/p/dell-integrated-rack-scalable-systems-simplified-reliable-efficient-liquid-cooling-for-modern-data-centers/))

9. Warranty Policy
   · Koolance's warranty provides product repair or replacement through authorized returns and excludes third-party repair reimbursement and consequential-loss responsibility. This differs from contracted site-response coverage. ([koolance.com](https://koolance.com/general-warranty))

3.3. New Revenue Opportunities

Conditional revenue themes center on site-approved Retrofit & Expansion for Enterprise IT Operators and scientific-computing buyers, Rack Air Heat-Exchanger Cooling for operators retaining air-cooled servers, and equipment supply through accepted Rack & Server OEM Sales programs. Opportunity Mapping provides the detailed assessment of these buyer and application routes. Each depends on an identified supported offering and an accepted deployment relationship; category membership or ecosystem association alone does not establish accessible purchasing demand.

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   · CoolIT markets CHx80 for HPC and enterprise racks, describes deployment in existing standard racks and identifies facility-water access as a requirement. These establish a conditional installed-site route. ([coolitsystems.com](https://www.coolitsystems.com/cdu-product/chx80/))
2. Cooling | Equinix Product Documentation
   · Equinix describes rear-door cooling without server-level retrofit and retains approval conditions for its self-contained liquid-to-air offering, supporting application-specific and site-qualified opportunity interpretation. ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))
3. Nidec Starts Shipping OCP-standard, In-rack-type, 4U-size 250KW CDU to Supermicro
   · The named Nidec-Supermicro supply relationship establishes a specific commercial OEM pathway, not automatic eligibility for another equipment supplier. ([nidec.com](https://www.nidec.com/en/product/news/2024/news1205-xx.xx/))
4. Coolant Distribution Units
   · Coolcentric identifies CDRM as a rack-mounted CDU installed within an EIA IT enclosure to support rear-door heat exchangers, establishing an application-specific opportunity. ([coolcentric.com](https://coolcentric.com/coolant-distribution-units/))

3.4. Next-Generation Business Models

Documented commercial models combine equipment sales with rack integration or separately specified lifecycle agreements. Dell's OEM-organized rack proposition presents a single support contact, while CoolIT combines maintenance agreements with internal oversight and Authorized Service Providers. Vertiv distinguishes continuing coverage across service-contract tiers. These offerings make integration and continuity part of the commercial proposition without establishing identical coverage across purchases. Cooling-ready partial integration must also be distinguished from delivery of a complete computing rack.

Broader ownership can enable additional bundling, but an acquisition does not automatically consolidate customer obligations. A combined relationship is useful only when the agreement identifies supported equipment, covered interfaces and accountable local execution. Separately selected equipment and services remain credible alternatives for buyers able to coordinate them. The trade-off is simpler escalation versus greater supplier dependence and reduced component-selection freedom.

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   · CHx80 is separately described as finished in-rack equipment, supporting an independent equipment-selection alternative to a computing-rack package. ([coolitsystems.com](https://www.coolitsystems.com/cdu-product/chx80/))
2. Artificial Intelligence is Accelerating the Need for Liquid Cooling
   · Dell's DLC3000 example includes cooling-ready rack infrastructure and an in-rack CDU ready to accept compatible servers, with professional services and ProSupport. Pre-integrated cooling does not establish inclusion of computing equipment at delivery. ([dell.com](https://www.dell.com/en-us/blog/artificial-intelligence-is-accelerating-the-need-for-liquid-cooling/))
3. Worldwide Liquid Cooling Services
   · CoolIT offers maintenance packages and service-level agreements with servicing, spare parts and remote support. Authorized Service Providers complement internal teams, which retain oversight and escalation support. ([coolitsystems.com](https://www.coolitsystems.com/products-services/global-professional-services/))
4. Ecolab Closes CoolIT Acquisition and Expands AI Cooling Platform
   · Ecolab's completed CoolIT acquisition connects the cooling business with a broader supplier proposition, while its combined-platform introduction is separately planned. Individual customer obligations are not established by that ownership announcement. ([ecolab.com](https://www.ecolab.com/en-us/media-center/news/ecolab-closes-coolit-acquisition-and-expands-ai-cooling-platform))
5. Liquid Cooling Services
   · Vertiv's differentiated service-contract coverage establishes a documented continuing-service proposition rather than identical coverage across equipment purchases. ([vertiv.com](https://www.vertiv.com/en-us/campaigns/liquid-cooling-services/))
6. Dell Integrated Rack Scalable Systems-Simplified, Reliable & Efficient Liquid Cooling for Modern Data Centers
   · The documented rack proposition combines rack-mount cooling, integration services and Dell support, supporting equipment-plus-integration as a commercial model. ([infohub.delltechnologies.com](https://infohub.delltechnologies.com/en-us/p/dell-integrated-rack-scalable-systems-simplified-reliable-efficient-liquid-cooling-for-modern-data-centers/))

3.5. Industry Roadmap

During 2026-2027, firm deployments should favor confirmed deliverable configurations over announced possibilities. Ecolab completed its CoolIT acquisition on July xx.xx 2026, separately from a platform introduction planned for November 2026. Nidec's June xx.xx 2026 prototype announcement targeted mass production for the first quarter of 2027. Commercial release, configuration acceptance and contracted support-not announcement alone-are the triggers for changing a purchasing baseline.

During 2028-2029, changed rack platforms and service renewals are potential qualification events, not a universal replacement cycle. Entrants need accepted programs; incumbents need confirmation that expanded scope remains supported. EU-facing agreements should distinguish established data center reporting from the Commission's September xx.xx 2026 rating-scheme proposal and minimum-performance consultation. Additional obligations depend on legal adoption and applicability, not an assumed mandate to purchase in-rack equipment.

During 2030-2032, buyers should preserve supported options through documentation, service-renewal and substitution-review commitments. Remaining within an accepted

ecosystem can simplify accountability while narrowing component choice. Approved alternate configurations and enforceable continuing coverage are more defensible indicators of flexibility than platform affiliation alone.

Sources & Evidence

1. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   · The documented RM100 approval requirement attaches support to reviewed integration, supporting conditional substitution review rather than assumed portability or unrestricted replacement. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp2128-thinksystem-sr650a-v4-server))
2. Ecolab Closes CoolIT Acquisition and Expands AI Cooling Platform
   · Ecolab announced acquisition completion on July xx.xx 2026 and separately planned a combined cooling-platform introduction for November 2026. The completed transaction and planned offering are different milestones. ([ecolab.com](https://www.ecolab.com/en-us/media-center/news/ecolab-closes-coolit-acquisition-and-expands-ai-cooling-platform))
3. Energy performance of data centres
   · EU data center monitoring and reporting obligations are established. The Commission proposed a common rating scheme and opened consultation on minimum performance standards on September xx.xx 2026, distinguishing those developments from existing obligations. ([energy.ec.europa.eu](https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-directive/energy-performance-data-centres_en))
4. In-Rack CDU | Nidec’s Thermal Solutions
   · Nidec attaches EIA and OCP ORv3 declarations to named in-rack configurations, supporting configuration-specific qualification rather than universal family portability. ([nidec.com](https://www.nidec.com/en/product/liquid-cooling-line-up/products/in-rack/))
5. Nidec Develops In-Rack CDU with Up to 300 kW Cooling Capacity
   · Nidec's June xx.xx 2026 announcement describes an in-rack prototype and targets commencement of mass production in the first quarter of 2027; the target does not establish completion. ([nidec.com](https://www.nidec.com/files/user/www-nidec-com/corporate/news/2026/xx.xx-xx.xx/xx.xx-01en.pdf))

4. Market Overview

4.1. Introduction

The Global Integrated In-Rack CDUs market is a qualification-led equipment market in which Independent CDU Supply, Partial Rack Integration and Full Rack Integration coexist. ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ Integration determines the delivery relationship, not whether an independently supplied in-rack unit participates.

Public portfolios demonstrate commercial offerings across distinct supplier ecosystems. ▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪ ▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ These examples establish differentiated commercial offerings, not interchangeability among them.

▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ Their commercial relevance depends on the supported rack platform, cooling application and facility interface. Capacity and Pump Redundancy are additional qualification lenses, not substitutes for compatibility, warranty coverage or an agreed delivery responsibility.

Figure 5. Global Integrated In-Rack CDUs Market Size, 2017-2032

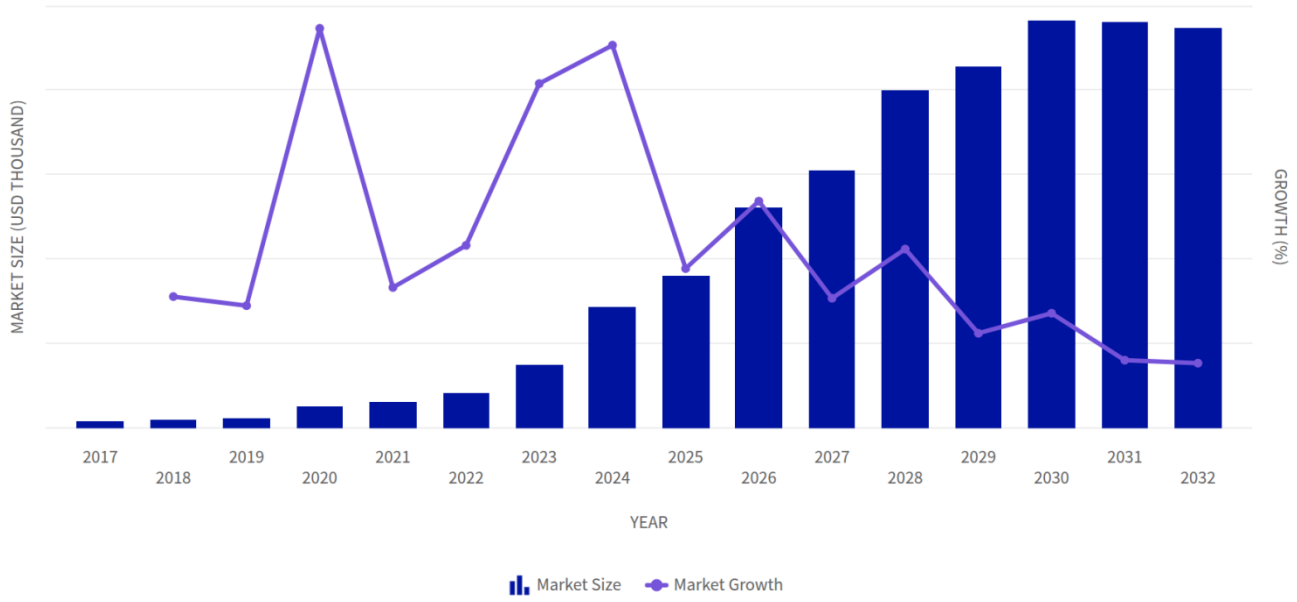


Table 2. Global Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

World	2023	2024	2025	2026	2027	2032	CAGR (%)
Global	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Sources & Evidence

1. Vertiv CoolChip CDU 100
   - Vertiv markets CoolChip CDU xx.xx as an in-rack liquid-to-liquid CDU supporting direct-to-chip cooling.
2. CHx80: In-Rack CDU for HPC and Enterprise
   - CoolIT describes CHx80 as an in-rack CDU for HPC and enterprise deployments.
3. HyperCool - Server Liquid Cooling System
   - ZutaCore markets in-rack CDUs within its two-phase HyperCool solution.
4. Data Center Power and Cooling Solutions
   - Dell markets a PowerCool rack-mount CDU alongside integrated rack systems.

4.2. Key Growth Contribution

Selection of liquid-cooled computing platforms such as NVIDIA GB200 NVL72 makes cooling readiness part of hardware procurement. Conversion into Integrated In-Rack CDUs requires an explicitly supported rack-local configuration and an accepted receiving arrangement; shared CDU infrastructure remains an alternative. Suppliers able to align equipment, facility permission and enforceable support with the computing order can address this linked requirement, but unresolved architecture or project readiness can delay or redirect the purchase.

Figure 6. Global Integrated In-Rack CDUs Market, Key Growth contribution, 2025-2032



Table 3. Global Integrated In-Rack CDUs Market, Key Growth Contribution, 2025-2032

Scope	Leading category	Added value (USD Thousand)	Growth share (%)	CAGR (%)
Global - Coolant Phase	xx.xx	xx.xx	xx.xx	xx.xx
Global - Cooling Application	xx.xx	xx.xx	xx.xx	xx.xx
Global - Cooling Capacity	xx.xx	xx.xx	xx.xx	xx.xx
Global - Country	xx.xx	xx.xx	xx.xx	xx.xx
Global - End User	xx.xx	xx.xx	xx.xx	xx.xx
Global - Heat Rejection Interface	xx.xx	xx.xx	xx.xx	xx.xx
Global - Integration Model	xx.xx	xx.xx	xx.xx	xx.xx
Global - Project Purpose	xx.xx	xx.xx	xx.xx	xx.xx
Global - Pump Redundancy	xx.xx	xx.xx	xx.xx	xx.xx
Global - Rack Platform	xx.xx	xx.xx	xx.xx	xx.xx
Global - Region	xx.xx	xx.xx	xx.xx	xx.xx
Global - Sales Channel	xx.xx	xx.xx	xx.xx	xx.xx
Global - Workload	xx.xx	xx.xx	xx.xx	xx.xx

Sources & Evidence

1. The Anatomy of a Direct-to-Chip Liquid Cooling System
   · Equinix describes liquid cooling as a shared customer, OEM and colocation responsibility, with the customer procuring computing hardware.
   ([blog.equinix.com](https://blog.equinix.com/blog/2026/xx.xx/xx.xx/the-anatomy-of-a-direct-to-chip-liquid-cooling-system/))
2. CDUs for High-Density Liquid Cooling
   · CoolIT distinguishes in-rack equipment from row-based shared infrastructure, establishing architecture alternatives to an in-rack purchase.
   ([coolitsystems.com](https://www.coolitsystems.com/products-services/data-center-products/cooling-distribution-units/))
3. GB200 NVL72
   · NVIDIA describes GB200 NVL72 as a liquid-cooled rack-scale platform, supporting a hardware-linked cooling procurement trigger without establishing CDU placement.
   ([nvidia.com](https://www.nvidia.com/en-us/data-center/gb200-nvl72/))

4.3. Industry Ecosystem & Value Chain Analysis

Value is created by making a rack-level cooling offering an accepted part of the computing deployment; value capture depends partly on who assumes coordination and support obligations. ■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■ ■■■■■■■ ■■■ ■■■■ ■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■■■■ ■■■ ■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■ ■■ ■■■ ■■■■■■■■■■■■■ ■■■ ■■■ ■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■ ■■■■ ■■■■■■■ ■■■■■■ Independent supply preserves a separate equipment choice while leaving more interface responsibility to be allocated.

The installed relationship extends beyond the initial handover. [redacted] A hardware comparison alone does not establish equivalence between the delivered commercial arrangements.

Sources & Evidence

1. Artificial Intelligence is Accelerating the Need for Liquid Cooling
   - Dell describes DLC3000 as a pre-integrated rack offering containing an in-rack CDU, professional services and rack-level maintenance and warranty coverage.
2. Worldwide Liquid Cooling Services
   - CoolIT offers maintenance packages and service-level agreements including servicing, spare parts and remote support.

4.3.1. Supply-Side Analysis

Fulfillment combines product delivery with access to support for the destination site. Vertiv advertises services spanning setup through troubleshooting, while CoolIT publishes geographic service coverage and regional offices. [redacted]

Ownership integration is also changing the supplier proposition. [redacted] The completed transaction and the planned offering are different commercial facts: broader ownership may enable bundled services, but buyers should not assume that announced integration has already changed available configurations or contract coverage.

Sources & Evidence

1. Vertiv CoolChip CDU 100
   - Vertiv advertises services spanning setup through troubleshooting.
2. Worldwide Liquid Cooling Coverage
   - CoolIT publishes a geographic service map and regional offices; highlighted locations identify onsite service and support coverage.
3. Ecolab Closes CoolIT Acquisition and Expands AI Cooling Platform
   - Ecolab announced the completed CoolIT acquisition on July xx.xx 2026, and separately described a combined-platform introduction planned for November 2026.

4.3.2. Demand-Side Analysis

[redacted] It does

not determine whether heat rejection should use an in-rack or shared alternative. Cloud, AI, and Internet Platform Operators therefore need a confirmed equipment architecture before treating a computing commitment as an in-rack CDU commitment.

Colocation separates the computing purchaser from the facility provider. ■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■ ■■■ ■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■■■ ■■■ ■■■■■■■■■■ ■■ ■■■■■ ■■■ ■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■■■■ ■■■■ ■■■■■ ■■■■ ■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■■■■ Before committing, the parties should identify who funds each delivered element, who accepts it and whose service agreement covers the interface.

■■■■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■■■■ ■■■ ■■■■■ ■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■ ■■ ■■■ ■■■■■■■■■ ■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ For General-Purpose Computing and Mixed Workloads in particular, the procurement question is whether the selected hardware requires a qualifying in-rack offering, rather than whether the organization participates in an AI-related initiative.

Sources & Evidence

1. The Anatomy of a Direct-to-Chip Liquid Cooling System
   - Equinix describes the customer as procuring liquid-cooled hardware and coordinating with the OEM and colocation provider.
2. GB200 NVL72
   - NVIDIA describes GB200 NVL72 as a liquid-cooled rack-scale computing platform.

4.3.3. Stakeholder Analysis

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OEM and public-authority responsibilities are separate control points. ■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■ ■■ ■■■ ■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■ ■■■■■■■■ ■■■■■■■■■ Integrators should establish all applicable responsibilities before presenting a delivered rack as a single supported commercial solution.

Sources & Evidence

1. Cooling | Equinix Product Documentation
   - Equinix permits customers to bring a CDU or purchase one through its liquid-to-cage offering and identifies a cooling demarcation point.
2. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   - The identified approval requirement establishes an OEM support control point.

3. CE marking
   - Manufacturers, importers and distributors have distinct responsibilities where CE-marking rules apply.

4.4. Market Dynamics

[redacted] A project that proceeds can still select a row-based CDU instead of an in-rack offering. Consequently, evidence of liquid-cooling adoption should not be interpreted as equivalent evidence of procurement within this product boundary.

These gates also distinguish project purposes. [redacted] A change in any of these can redirect or delay procurement without changing the underlying computing requirement.

Sources & Evidence

1. CDUs for High-Density Liquid Cooling
   - CoolIT lists row-based CHx2000 and in-rack CHx200 and CHx80 offerings, establishing separate placement alternatives.
2. AI and energy security - Energy and AI
   - Grid readiness is a deployment dependency distinct from cooling-equipment availability.

4.4.1. Key Drivers

4.4.1.1. Liquid-cooled computing platforms link cooling procurement to hardware selection

[redacted] NVIDIA describes GB200 NVL72 as a liquid-cooled rack-scale platform, connecting cooling readiness to the compute decision rather than an optional facilities upgrade. This supports demand for compatible cooling infrastructure, but not necessarily an in-rack CDU: the buyer must first establish the approved deployment architecture and CDU placement.

Sources & Evidence

1. GB200 NVL72
   - The platform's liquid-cooled classification supports a hardware-linked cooling procurement trigger, without establishing CDU placement.

4.4.1.2. Rack-local offerings provide differentiated retrofit routes

[redacted] These choices address different installed-site constraints. Access remains conditional: Equinix's self-contained liquid-to-air option requires a

private cage, documentation and agreed terms, so product availability alone does not authorize deployment.

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   · CoolIT describes CHx80 support for existing standard server racks and rack-local deployment.
2. HyperCool - Server Liquid Cooling System
   · ZutaCore lists an air-based in-rack offering that does not require facility water.
3. Cooling | Equinix Product Documentation
   · Equinix's self-contained in-rack liquid-to-air option requires a private cage, product and safety documentation, and agreed terms.

4.4.1.3. Integrated rack packages organize purchasing and support responsibility

OEM packaging can make an initial liquid-cooling purchase easier to coordinate. Dell's DLC3000 example combines an in-rack CDU, rack integration, professional services and rack-level maintenance and warranty coverage. ■■■ ■■■■■■■■■■ ■■■■■■■ ■■ ■ ■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■ ■■■■ ■■■■ ■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■

Sources & Evidence

1. Artificial Intelligence is Accelerating the Need for Liquid Cooling
   · The DLC3000 example organizes rack integration and support while retaining a facility connection requirement.

4.4.2. Key Restraints

4.4.2.1. Power access and financing constrain executable procurement

Grid connection constraints and financing conditions can delay the project that would purchase the CDU. The International Energy Agency identifies both grid-related deployment risk and sensitivity to capital-market funding. ■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■ ■■■■■■■■■■■■■■ ■■■■■ ■■■■■■ ■■■■■■ ■■■■■ ■■■■■■■■■ ■■■■■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■ ■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■

Sources & Evidence

1. AI and energy security - Energy and AI
   · The IEA identifies grid connection delays and regional connection constraints affecting data center deployment.
2. Executive summary - Key Questions on Energy and AI
   · The IEA identifies dependence on capital-market funding and sensitivity to macroeconomic and financing conditions.

4.4.2.2. Integration approval and warranty boundaries constrain substitution

Approved integration limits the freedom to substitute a seemingly comparable unit. Lenovo requires professional-services review and approval for factory integration of its RM100 in-rack CDU and associated warranty and extended services. ▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪

Sources & Evidence

1. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   - RM100 factory integration requires Lenovo Professional Services review and approval for warranty and associated extended services.

4.4.2.3. Alternative cooling architectures limit conversion into in-rack purchases

Cooling demand can be fulfilled outside the in-rack product boundary. CoolIT offers row-based equipment alongside in-rack CDUs, while Dell presents air, hybrid and liquid-cooled infrastructure alternatives. ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪

Sources & Evidence

1. Data Center Power and Cooling Solutions
   - Dell presents air, hybrid and liquid-cooled infrastructure options.
2. CDUs for High-Density Liquid Cooling
   - CoolIT distinguishes rack-local deployment from row-based shared infrastructure.

4.4.3. Key Opportunities

4.4.3.1. Rack-local cooling within accepted installed environments

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Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   - CHx80 is marketed for existing standard server racks and requires facility-water access, supporting a conditional installed-site opportunity. ([coolitsystems.com](https://www.coolitsystems.com/cdu-product/chx80/))
2. HyperCool - Server Liquid Cooling System
   - ZutaCore offers an air-based in-rack CDU without a facility-water requirement and separate facility-water configurations within HyperCool. ([zutacore.com](https://zutacore.com/solutions))

3. Cooling | Equinix Product Documentation
   · Equinix permits customer-supplied CDUs under liquid-to-cage, while its self-contained liquid-to-air option requires a private cage, documentation and agreed terms.
   ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))

4.4.3.2. Accountable rack programs with explicit delivered scope

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Sources & Evidence

1. Artificial Intelligence is Accelerating the Need for Liquid Cooling
   · Dell's December xx.xx 2023 DLC3000 example includes cooling-ready rack infrastructure and an in-rack CDU, with professional services and ProSupport coverage.
   ([dell.com](https://www.dell.com/en-us/blog/artificial-intelligence-is-accelerating-the-need-for-liquid-cooling/))
2. Liquid Cooling Integration and Logistics White Paper - Revision 1.0
   · OCP distinguishes partial cooling-infrastructure integration from fuller arrangements that include IT equipment and power infrastructure.
   ([opencompute.org](https://www.opencompute.org/documents/ocp-liquid-cooling-integration-and-logistics-white-paper-revision-xx.xx-xx.xx-xx.xx-pdf))
3. Dell Integrated Rack Scalable Systems-Simplified, Reliable & Efficient Liquid Cooling for Modern Data Centers
   · Dell includes PowerCool Rack-mount CDU in Integrated Rack Scalable Systems and presents Dell as the services and support contact.
   ([infohub.delltechnologies.com](https://infohub.delltechnologies.com/en-us/p/dell-integrated-rack-scalable-systems-simplified-reliable-efficient-liquid-cooling-for-modern-data-centers/))

4.4.3.3. Destination-specific lifecycle accountability

Operators requiring site response need continuity coverage beyond product remedies. Equipment suppliers and authorized local providers can address this need through model- and destination-specific agreements with named escalation ownership. ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■ ■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■

Sources & Evidence

1. Worldwide Liquid Cooling Services
   · CoolIT offers maintenance agreements, spare-parts and remote support, with Authorized Service Providers supplementing internal teams and retained escalation oversight.
   ([coolitsystems.com](https://www.coolitsystems.com/products-services/global-professional-services/))
2. Liquid Cooling Services
   · Vertiv advertises preventive and corrective maintenance, response agreements, spare-parts support and differentiated contract coverage.
   ([vertiv.com](https://www.vertiv.com/en-us/campaigns/liquid-cooling-services/))
3. Warranty Policy
   · Koolance's warranty excludes reimbursement of third-party repair services and consequential damages, establishing remedies distinct from a contracted site-response agreement.
   ([koolance.com](https://koolance.com/general-warranty))

4.4.3.4. Commercially accepted replacement and support continuity

[redacted] Suppliers should pursue a documented substitution or renewal requirement, not assume unrestricted installed-account access. Written support acceptance and confirmed replacement availability are prerequisites to commitment.

Sources & Evidence

1. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   - Lenovo requires Professional Services review and approval for RM100 factory integration and associated warranty and extended services. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp2128-thinksystem-sr650a-v4-server))

4.4.4. Key Challenges

4.4.4.1. Coordinating acceptance across customer, OEM and facility provider

[redacted] The execution challenge is obtaining consistent acceptance of the complete purchasing arrangement, rather than collecting separate product assurances. Buyers need named responsibility for handover, interface acceptance and claim escalation; integrated purchasing can simplify coordination but does not eliminate the facility provider's role.

Sources & Evidence

1. The Anatomy of a Direct-to-Chip Liquid Cooling System
   - Equinix identifies cross-party coordination and separation of facility and customer responsibilities as deployment considerations.

4.4.4.2. Translating equipment resilience into enforceable local support

Redundant Pumping and service coverage answer different continuity questions. [redacted] A redundancy description is not an end-to-end availability guarantee, and a global service footprint does not establish an identical response commitment at every site.

Sources & Evidence

1. Vertiv CoolChip CDU 100
   - The offering includes redundant pumps and remote monitoring; these are product features rather than site-specific service commitments.
2. Worldwide Liquid Cooling Services
   - CoolIT describes internal service teams, authorized service providers and maintenance agreements as part of its support offering.
3. Worldwide Liquid Cooling Coverage
   - The published footprint establishes geographic service presence, not a site-specific contractual response commitment.

4.4.4.3. Maintaining product-specific qualification across the accepted categories

Procurement must map the actual offering to the selected platform rather than rely on a rack label or ecosystem affiliation. OCP develops common CDU integration guidance, while Lenovo identifies specific rack support for RM100. ■■■■ ■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■ ■■■■ ■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■ ■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■ ■■■■■■■ ■ ■■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■

Sources & Evidence

1. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   - The RM100 description identifies support within designated Heavy Duty Rack Cabinets.
2. Coolant Distribution Unit - Open Compute Project
   - OCP's CDU sub-project develops common integration guidance for new and existing data centers.

4.5. Porter’s Five Forces Analysis

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Buyer leverage and input dependency can coexist. Vertiv discloses that large customers can demand stronger delivery and service commitments, while some inputs across its broader portfolio are single-sourced. ■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■ ■■ ■ ■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■ ■■■■■■■■■■■ ■■■■■■■■■■ ■■■■ ■ ■■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■

Entry requires more than access to publicly described equipment categories. ■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■ ■ ■■■■■■■■ ■■■■■■■■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ Open guidance can support a common procurement vocabulary without granting access to an OEM-approved configuration.

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Sources & Evidence

1. Data Center Power and Cooling Solutions
   - Dell's portfolio combines rack-mount cooling and integrated computing delivery while retaining alternative cooling approaches.
2. Cooling | Equinix Product Documentation
   - Customer-supplied CDUs are a supported engagement option under Equinix's liquid-to-cage offering.
3. CDUs for High-Density Liquid Cooling
   - The coexistence of row-based and in-rack products supports architecture-level substitution, subject to project suitability.
4. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   - Specific integration approval remains necessary in the stated OEM arrangement.
5. Coolant Distribution Unit - Open Compute Project
   - The collaboration provides shared guidance; it is not a product-specific OEM approval record.
6. Schneider Electric completes transaction to acquire Motivair Corporation
   - Schneider Electric announced completion of its acquisition of a controlling interest in Motivair on February xx.xx 2025.
7. Vertiv Holdings Co 2025 Form 10-K
   - Vertiv discloses large-customer contractual leverage and single-source input risks across its broader portfolio.

4.6. PESTLE Analysis

[redacted] Vertiv identifies tariff-related costs and domestic or regional sourcing responses in its broader business disclosures. Buyers should establish responsibility for duty-related contract adjustments and sourcing changes before making fixed delivery commitments; a regional sourcing strategy does not itself establish project-level availability.

Financing and community acceptance can constrain the underlying data center project even when suitable cooling equipment exists. [redacted] Cooling efficiency alone cannot settle a project's financing or local acceptance.

European policy distinguishes established reporting obligations from proposed additional requirements. [redacted] Separately, CE marking concerns applicable product conformity responsibilities; it is not an authority's approval of a particular rack deployment.

[redacted] Suppliers and buyers using open specifications should verify the relevant license and exclusions rather than infer unrestricted commercial rights from public availability. These rights questions are separate from an OEM's approval of the delivered computing system.

Sources & Evidence

1. Open Compute Project Foundation Intellectual Property Rights Management Policy
   - OCP's policy specifies contribution and specification licenses, applicable patent exclusions and contributions supplied without warranties.
2. Vertiv Holdings Co 2025 Form 10-K
   - Vertiv identifies tariff exposure and domestic manufacturing or regional sourcing as mitigation options.
3. Executive summary - Key Questions on Energy and AI
   - The IEA identifies financing dependencies and community concerns about data center affordability and environmental impacts.
4. Energy performance of data centres
   - The Energy Efficiency Directive introduced monitoring and reporting obligations for data center energy performance.
   - The Commission proposed a common rating scheme and opened consultation on minimum performance standards on September xx.xx 2026; these developments are distinguished from established reporting obligations.
5. CE marking
   - CE marking is not approval by the EU or another authority and does not replace project-specific acceptance.

4.7. Market Outlook

The outlook depends on conversion through commercial gates rather than liquid-cooling interest alone. [redacted] Suppliers should therefore distinguish confirmed placement and acceptance from broader infrastructure announcements.

A favorable capture scenario would involve more accepted rack programs with clear contractual handoffs. [redacted] Observable turning points are accepted configurations, executable site milestones and enforceable service scope-not announcement frequency.

Sources & Evidence

1. CDUs for High-Density Liquid Cooling
   · The portfolio offers both rack-local and row-based CDUs; the conversion outlook therefore depends on the selected purchasing architecture.
   ([coolitsystems.com](https://www.coolitsystems.com/products-services/data-center-products/cooling-distribution-units/))
2. AI and energy security - Energy and AI
   · The IEA identifies grid-connection delays and jurisdiction-specific connection constraints affecting data center deployment. ([iea.org](https://www.iea.org/reports/energy-and-ai/ai-and-energy-security))
3. Executive summary - Key Questions on Energy and AI
   · The IEA identifies dependence on capital-market funding and sensitivity to financing conditions, separating announced projects from executable investment.
   ([iea.org](https://www.iea.org/reports/key-questions-on-energy-and-ai/executive-summary))
4. Dell Integrated Rack Scalable Systems-Simplified, Reliable & Efficient Liquid Cooling for Modern Data Centers
   · The documented rack proposition supports a conditional scenario of competition through broader delivered accountability.
   ([infohub.delltechnologies.com](https://infohub.delltechnologies.com/en-us/p/dell-integrated-rack-scalable-systems-simplified-reliable-efficient-liquid-cooling-for-modern-data-centers/))

4.7.1. Near-Term Market Outlook (0-2 Years)

The 2026-2027 horizon favors confirmed commercial readiness over announced possibilities. ■■■■■■■ ■■■■ ■■ ■■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■ ■■■■■■■■■ ■■■■ ■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■ ■■■■■■ ■■■■■■■ ■■ ■■■■■ ■■■■■■■■ ■■■■ ■■ ■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■ ■■■■■■■■ ■■■■ ■■■ ■■■■■■■ ■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■ ■■■■ ■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■ ■■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■■■■■ ■■■■■■■■■■■■■ Actual release, accepted configuration and contracted support are the decision triggers; waiting preserves a future option but adds milestone dependence.

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Sources & Evidence

1. Ecolab Closes CoolIT Acquisition and Expands AI Cooling Platform
   · Ecolab announced acquisition completion on July xx.xx 2026 and separately planned a combined cooling-platform introduction for November 2026.
   ([ecolab.com](https://www.ecolab.com/en-us/media-center/news/ecolab-closes-coolit-acquisition-and-expands-ai-cooling-platform))
2. Nidec Develops In-Rack CDU with Up to 300 kW Cooling Capacity
   · Nidec's June xx.xx 2026 announcement describes a prototype and targets commencement of mass production in the first quarter of 2027; the target is not evidence of completion.
   ([nidec.com](https://www.nidec.com/files/user/www-nidec-com/corporate/news/2026/xx.xx-xx.xx/xx.xx-01en.pdf))

3. Lenovo 42U and 48U Heavy Duty Rack Cabinets Product Guide
   · Lenovo's rack-cabinet guide records RM100 withdrawal on September xx.xx 2025 while retaining configure-to-order information; the documentation does not reconcile those signals. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp1498-lenovo-42u-48u-heavy-duty-rack-cabinets))

4.7.2. Medium-Term Market Outlook (3-5 Years)

The 2028-2029 horizon is best treated as a platform-transition and contract-renewal scenario, not an assumed replacement cycle. ■■■■■■■ ■■■■■■■■ ■■■ ■■■ ■■■ ■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■ ■ ■■■■■■■ ■■■■ ■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■ ■■■■■■■■■ ■■■■■■ ■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■ ■ ■■■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■ ■■■■ ■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ Remaining with the existing supported arrangement avoids additional qualification obligations but limits supplier choice.

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Sources & Evidence

1. Worldwide Liquid Cooling Services
   · The documented internal-team and authorized-provider model supports conditional service expansion when destination obligations are contracted. ([coolitsystems.com](https://www.coolitsystems.com/products-services/global-professional-services/))
2. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   · The arrangement-specific approval requirement supports renewed support acceptance when an affected purchasing configuration changes. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp2128-thinksystem-sr650a-v4-server))
3. Energy performance of data centres
   · EU data center reporting obligations are established; the Commission's September xx.xx 2026 rating-scheme proposal and minimum-performance consultation have distinct statuses. ([energy.ec.europa.eu](https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-directive/energy-performance-data-centres_en))
4. In-Rack CDU | Nidec’s Thermal Solutions
   · Nidec attaches EIA and OCP ORv3 declarations to named in-rack configurations, supporting configuration-specific platform-transition qualification. ([nidec.com](https://www.nidec.com/en/product/liquid-cooling-line-up/products/in-rack/))

4.7.3. Long-Term Market Outlook (5-10 Years)

During 2030-2032, a defensible purchasing objective is preserving supported options when computing platforms, suppliers or receiving facilities change. Buyers should establish documentation access, service-renewal responsibilities and written substitution-review requirements when entering the relationship. ■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■ ■■ ■■■■■■■■

[redacted]

Heat reuse is a separate conditional opportunity where a CDU-equipped deployment connects to a committed heat consumer. [redacted] The relevant long-term indicators are executed receiving agreements and aligned project milestones, not the CDU's capability description alone.

Sources & Evidence

1. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   · The documented integration requirement supports treating affected substitution rights as a continuing commercial qualification. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp2128-thinksystem-sr650a-v4-server))
2. Open Compute Project Foundation Intellectual Property Rights Management Policy
   · OCP's intellectual-property policy provides specification licensing commitments and a mechanism for excluding patent claims; public specification access is not blanket rights clearance. ([opencompute.org](https://www.opencompute.org/documents/ocp-ip-rights-management-policy))
3. Best Practices Guide for Energy-Efficient Data Center Design
   · DOE identifies a nearby heat consumer, suitable receiving infrastructure, ownership alignment and supportive incentives as heat-reuse prerequisites, with continued cooling needed when the consumer is unavailable. ([energy.gov](https://www.energy.gov/sites/default/files/2024-xx.xx/best-practice-guide-data-center-design.pdf))
4. In-Rack CDU | Nidec's Thermal Solutions
   · Model-specific rack declarations support documented alternate configurations rather than an assumption of universal portability. ([nidec.com](https://www.nidec.com/en/product/liquid-cooling-line-up/products/in-rack/))

4.8. Go-to-Market Strategy

An independent entrant should begin with a named rack-local requirement at an enterprise or research-computing buyer, rather than a general AI infrastructure account. [redacted] Direct selling is suitable when those responsibilities can be secured without another commercial handoff.

[redacted]

■■■ ■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■ Specify whether Partial Rack Integration or Full Rack Integration includes computing equipment. The trade-off is partner-mediated access and consolidated accountability versus greater direct-customer control.

Use Distributor & Integrator Sales only where the intermediary contributes an enforceable destination obligation. ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■ ■■■■ ■■■■ ■■■■■■■■ ■■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■■■■ ■■ ■■■■■■ ■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■ ■■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■ A manufacturer-led arrangement remains preferable when it already covers the required local obligations without an additional handoff.

Structure proposals around separately identified equipment, integration and continuing-service scope, with a clear statement of inclusions and exclusions. This is a qualitative scope-based commercial approach, not an assumed discount advantage from bundling. ■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■ ■■■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■ ■ ■■■■■■■■ ■■■■ ■■■ ■■■■■■ ■■■■■

Sources & Evidence

1. Artificial Intelligence is Accelerating the Need for Liquid Cooling
   · The historical package is ready to accept compatible servers; it does not establish that every integrated delivery includes computing equipment. ([dell.com](https://www.dell.com/en-us/blog/artificial-intelligence-is-accelerating-the-need-for-liquid-cooling/))
2. The Anatomy of a Direct-to-Chip Liquid Cooling System
   · Separate customer and facility responsibilities support securing the purchasing and acceptance parties before a binding equipment commitment. ([blog.equinix.com](https://blog.equinix.com/blog/2026/xx.xx/xx.xx/the-anatomy-of-a-direct-to-chip-liquid-cooling-system/))
3. Worldwide Liquid Cooling Services
   · Authorized providers extend execution without replacing internal oversight, supporting explicit intermediary authorization and escalation conditions. ([coolitsystems.com](https://www.coolitsystems.com/products-services/global-professional-services/))
4. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   · OEM support approval remains distinct from access to a rack category or intermediary, supporting explicit partner obligations. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp2128-thinksystem-sr650a-v4-server))
5. Vertiv Corporation Terms and Conditions of Sale
   · Vertiv Corporation's terms permit additional billing for services outside agreed scope and certain access-related obligations, subject to the applicable agreement. ([vertiv.com](https://www.vertiv.com/49ab98/globalassets/documents/terms-and-conditions/Vertiv-Corp-Terms-and-Conditions-of-Sale-xx.xx-2189-501B.pdf))
6. Modular Technology Cooling System for “Cloud Scale”: Design & Delivery of Liquid to Rack Distribution Systems
   · OCP's service-level discussion separates colocation provider, design-team and IT-tenant responsibilities and addresses lifecycle liability and contractual handoffs. ([opencompute.org](https://www.opencompute.org/documents/ocp-modular-tcs-rev-xx.xx-final-2025-pdf))

7. Liquid Cooling Integration and Logistics White Paper - Revision 1.0
   · Delivered contents differ across integration models, supporting explicit assignment of remaining purchasing and acceptance duties.
   ([opencompute.org](https://www.opencompute.org/documents/ocp-liquid-cooling-integration-and-logistics-white-paper-revision-xx.xx-xx.xx-xx.xx-pdf))
8. Nidec Starts Shipping OCP-standard, In-rack-type, 4U-size 250KW CDU to Supermicro
   · Nidec announced on December xx.xx 2024 that it had begun shipping an in-rack CDU jointly developed with Supermicro for a complete rack solution.
   ([nidec.com](https://www.nidec.com/en/product/news/2024/news1205-xx.xx/))
9. Vertiv CoolChip CDU 121
   · Vertiv describes CoolChip CDU xx.xx as an in-rack offering for single-rack direct-to-chip applications and provides a manufacturer sales-contact route.
   ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/thermal-management/high-density-solutions/vertiv-coolchip-cdu-xx.xx/))
10. Liquid Cooling Services
   · Published service choices provide a basis for confirming purchased coverage rather than assuming identical destination support. ([vertiv.com](https://www.vertiv.com/en-us/campaigns/liquid-cooling-services/))
11. Dell Integrated Rack Scalable Systems-Simplified, Reliable & Efficient Liquid Cooling for Modern Data Centers
   · Dell's OEM-organized equipment and support proposition supports evaluating a rack-program route, subject to purchased configuration and contract scope.
   ([infohub.delltechnologies.com](https://infohub.delltechnologies.com/en-us/p/dell-integrated-rack-scalable-systems-simplified-reliable-efficient-liquid-cooling-for-modern-data-centers/))
12. Liquid Cooling Distribution Technology | Alexander Schneider
   · Alexander Schneider advertises Vertiv CoolChip CDU121 and implementation support in Israel, establishing a represented-equipment and local-execution proposition.
   ([schneider.co.il](https://www.schneider.co.il/en/product/vertiv-xdu-liquid-cooling-system/))
13. nVent | RackChiller CDU - DC ASIA Ltd.
   · DC ASIA lists nVent RackChiller CDU40 and CDU100 as rack-mounted equipment, supporting a named-model catalog route without establishing model-specific service authorization.
   ([dcasia-ltd.com](https://www.dcasia-ltd.com/product/cooling/cdu/nvent-cdu/))

5. Market Insights

5.1. Consumer Insights & End-User Perspective

[redacted] Equinix allows a customer-supplied CDU or one purchased through its liquid-to-cage offering, while its self-contained liquid-to-air option requires a private cage, documentation and agreed terms. Buyers should identify the CDU's economic buyer, the receiving facility's approver and the continuing support owner before ordering; equipment availability does not settle those responsibilities.

CDU Replacement requires attention to the installed support relationship, not just category matching. [redacted] This requirement is specific to the documented Lenovo arrangement, not a universal restriction on independent supply.

For New-Build Deployment and Retrofit & Expansion, purchasing authorization should be tied to an executable receiving project. The IEA identifies funding and macroeconomic dependencies in data center investment. [redacted]

Sources & Evidence

1. Cooling | Equinix Product Documentation
   · Equinix permits customer-supplied or Equinix-purchased CDUs under liquid-to-cage; its self-contained liquid-to-air option requires a private cage, documentation and agreed terms. ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))
2. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   · Factory integration of Lenovo's RM100 in-rack CDU requires Professional Services review and approval for warranty and associated extended services. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp2128-thinksystem-sr650a-v4-server))
3. Executive summary - Key Questions on Energy and AI
   · The IEA identifies capital-market funding and macroeconomic conditions as dependencies of data center investment. ([iea.org](https://www.iea.org/reports/key-questions-on-energy-and-ai/executive-summary))

5.2. Consumer Experience Benchmarking

A defensible experience benchmark compares the effort and accountability attached to the delivered arrangement, rather than asserting customer satisfaction or supplier superiority. [redacted]

[redacted] Buyers should first establish equivalent supported equipment scope, then compare handover responsibility, incident visibility and escalation ownership.

[redacted] A broader support package may reduce buyer coordination, whereas separately selected services preserve provider choice. Neither advertised monitoring nor a service footprint alone establishes the site's contracted response.

Sources & Evidence

1. Vertiv CoolChip CDU 100
   · Vertiv's CoolChip CDU xx.xx description includes redundant pumps, remote monitoring and integration with data center management systems. These are documented features, not measured customer-experience outcomes. ([go.vertiv.com](https://go.vertiv.com/CoolChip-CDU-xx.xx))
2. Artificial Intelligence is Accelerating the Need for Liquid Cooling
   · Dell describes DLC3000 with an in-rack CDU, rack integration, professional services and rack-level maintenance and warranty coverage. ([dell.com](https://www.dell.com/en-us/blog/artificial-intelligence-is-accelerating-the-need-for-liquid-cooling/))
3. Worldwide Liquid Cooling Services
   · CoolIT offers handover documentation, operator training and maintenance agreements covering scheduled servicing, spare parts and remote support. ([coolitsystems.com](https://www.coolitsystems.com/products-services/global-professional-services/))

5.3. Opportunity Mapping

For independent equipment suppliers, the clearest qualification-led opportunity is Retrofit & Expansion for Enterprise IT Operators and scientific-computing buyers that have selected rack-local cooling and secured receiving-site consent. [redacted] In colocation, the tenant's computing requirement and the host's permission must be qualified separately.

[redacted] This purchasing proposition should be evaluated independently of Direct-to-Chip Cooling: an external air-rejection label does not establish the equipment application. Capture requires a supported complete CDU, the accepted receiving interface and an accountable service arrangement.

Rack & Server OEM Sales offers a documented but relationship-specific pathway. [redacted]

[redacted] Incumbent OEM packages can compete through consolidated accountability, so an entrant's proposition must resolve a particular acceptance or service obligation rather than merely offer another CDU.

Destination eligibility can reverse an apparently attractive opportunity. Applicable U.S. [redacted]

CDU Replacement, Project Scorpio Racks and Combined Cold-Plate and Rack Air Cooling remain included opportunities with offering-specific verification needs. [redacted] Buyers should retain proposal options but withhold commitment until a named finished unit, purchased scope and support owner are documented.

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   · CoolIT targets HPC and enterprise retrofits with CHx80 and distinguishes its rack placement from row-based equipment. ([coolitsystems.com](https://www.coolitsystems.com/cdu-product/chx80/))
2. HyperCool - Server Liquid Cooling System
   · The air-based and facility-water choices belong to ZutaCore's two-phase ecosystem; their availability does not establish cross-supplier substitution. ([zutacore.com](https://zutacore.com/solutions))
3. Cooling | Equinix Product Documentation
   · Equinix preserves equipment-sourcing choice but retains facility conditions; its rear-door offering does not require server-level retrofit. ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))
4. The Anatomy of a Direct-to-Chip Liquid Cooling System
   · The documented role division supports identifying the tenant's equipment requirement separately from the host facility's readiness. ([blog.equinix.com](https://blog.equinix.com/blog/2026/xx.xx/xx.xx/the-anatomy-of-a-direct-to-chip-liquid-cooling-system/))
5. CE marking
   · CE marking assigns conformity responsibilities for covered products and is not approval by an EU authority or evidence of product origin. ([single-market-economy.ec.europa.eu](https://single-market-economy.ec.europa.eu/single-market/goods/ce-marking_en))
6. OSHA's Nationally Recognized Testing Laboratory Program - Frequently Asked Questions
   · OSHA states that CE marking does not satisfy its NRTL requirements; applicable U.S. product approval must be assessed separately. ([osha.gov](https://www.osha.gov/nationally-recognized-testing-laboratory-program/frequently-asked-questions))

7. Open Specification for a Liquid Cooled Server Rack - Progress Update
   · The historical harmonization document recognizes Project Scorpio while leaving CDU offerings to solution providers and allowing different placements; it does not establish a purchasable native in-rack model. ([datacenters.lbl.gov](https://datacenters.lbl.gov/sites/default/files/OpenSpecification.pdf))
8. Evaluating the Limits of Door Heat Exchanger Solutions Optimized for Open Rack V3
   · OCP recognizes hybrid arrangements combining cold plates and rack-air heat exchangers with different CDU roles; that classification does not establish a named finished unit's combined commercial support. ([opencompute.org](https://www.opencompute.org/documents/acs-door-hx-whitepaper-final-xx.xx-pdf))
9. BullSequana AI GPU servers
   · Bull markets BullSequana AI xx.xx with air cooling, providing a commercial counterexample to treating an AI initiative as an automatic in-rack CDU purchase. ([bull.com](https://www.bull.com/en/products/ai/gpu-servers))
10. Nidec Starts Shipping OCP-standard, In-rack-type, 4U-size 250KW CDU to Supermicro
   · The named supply relationship establishes a specific OEM pathway, not general access to OEM accounts for another supplier. ([nidec.com](https://www.nidec.com/en/product/news/2024/news1205-xx.xx/))
11. Lenovo 42U and 48U Heavy Duty Rack Cabinets Product Guide
   · The withdrawal entry and retained ordering section leave this specific new-order opportunity dependent on written availability confirmation. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp1498-lenovo-42u-48u-heavy-duty-rack-cabinets))
12. Coolant Distribution Units
   · Coolcentric identifies CDRM as an in-rack EIA-enclosure offering supporting rear-door heat exchangers, establishing an application-specific opportunity. ([coolcentric.com](https://coolcentric.com/coolant-distribution-units/))

5.4. Distribution Channel Analysis

Direct End-User Sales and Distributor & Integrator Sales offer different coordination arrangements. Vertiv describes direct sales assistance and trained reseller routes across its portfolio, with online purchasing limited to certain categories. ■■■ ■ ■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■ ■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■ ■■■■ ■■ ■■■■■■■■ ■■■■■■■■ ■■■ ■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■■■

Rack & Server OEM Sales can organize computing and cooling delivery within a defined supported package, as Dell's DLC3000 illustrates. This route is useful when the buyer wants that package's integration and support boundary. ■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■■ ■■■ ■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■ ■■■ ■■■■■ ■■■■ ■■■ ■■■■■■■■■ ■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■■■

A reseller and an authorized service provider are not interchangeable roles. ■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■ ■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■■■■■ ■■■■ ■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ Buyers should align intermediary commitments with supplier coverage and name the escalation owner before purchase; channel reach is valuable only when responsibility remains enforceable across the handoff.

Sources & Evidence

1. Artificial Intelligence is Accelerating the Need for Liquid Cooling
   · DLC3000 illustrates an OEM route that packages cooling with rack delivery and support. ([dell.com](https://www.dell.com/en-us/blog/artificial-intelligence-is-accelerating-the-need-for-liquid-cooling/))
2. Cooling | Equinix Product Documentation
   · Equinix preserves customer sourcing choice while retaining facility acceptance conditions, supporting a distinction between equipment sale and deployment permission. ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))
3. Worldwide Liquid Cooling Services
   · CoolIT uses internal service teams and Authorized Service Providers, retaining internal oversight and escalation support. ([coolitsystems.com](https://www.coolitsystems.com/products-services/global-professional-services/))
4. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   · The RM100 approval requirement remains an OEM-controlled support condition; an intermediary's participation does not itself satisfy it. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp2128-thinksystem-sr650a-v4-server))
5. Partners
   · Vertiv describes direct sales assistance and trained reseller routes across its portfolio; online purchasing applies to certain product categories rather than every offering. ([vertiv.com](https://www.vertiv.com/en-us/about/news-and-insights/topics/partners/))

5.5. Pricing Trend Analysis

[illegible] Buyers should separate CDU equipment, rack integration, facility work and continuing coverage when comparing proposals. Bundling can simplify administration, but exclusions and renewal obligations become more consequential; a package is not demonstrably more economical merely because it consolidates purchases.

Input costs and contractual commitments create competing margin pressures. [illegible] Suppliers need to assess which fulfillment risks the contract absorbs, while buyers should confirm whether incentives change the agreed support scope or obligations.

Duty allocation is a contractual issue as well as a trade-policy exposure. Vertiv Corporation's published terms place duties and tariffs on the buyer and permit additional billing for out-of-scope services. [illegible]

Sources & Evidence

1. Artificial Intelligence is Accelerating the Need for Liquid Cooling
   · DLC3000 includes adjacent integration and support, establishing a broader commercial comparison boundary than CDU equipment alone.
   ([dell.com](https://www.dell.com/en-us/blog/artificial-intelligence-is-accelerating-the-need-for-liquid-cooling/))
2. Vertiv Holdings Co 2025 Form 10-K
   · Vertiv's broader portfolio disclosures identify material, freight, labor and tariff cost exposure, fixed-price contract risks, and customer and distributor incentives including rebates.
   ([sec.gov](https://www.sec.gov/Archives/edgar/data/xx.xx/xx.xx/vrt-xx.xx.htm))
3. Vertiv Liquid Cooling Services
   · Vertiv's liquid-cooling service schedule distinguishes included labor and parts coverage from work billed separately on a time-and-material basis.
   ([vertiv.com](https://www.vertiv.com/49bc65/globalassets/shared/vertiv-liquid-cooling-services-brochure-sl-xx.xx-na.pdf))
4. Vertiv Corporation Terms and Conditions of Sale
   · Vertiv Corporation's published terms allocate duties and tariffs to the buyer and permit additional billing for services outside the agreed scope. Contract incorporation and negotiated changes determine applicability.
   ([vertiv.com](https://www.vertiv.com/49ab98/globalassets/documents/terms-and-conditions/Vertiv-Corp-Terms-and-Conditions-of-Sale-xx.xx-2189-501B.pdf))

5.6. Regulatory Compliance & Standards Framework

[redacted] CE marking is a manufacturer's declaration, not approval by an EU authority. Buyers should obtain documentation identifying the delivered product and applicable legislation rather than treat a portfolio-level conformity statement as sufficient for every configuration.

U.S. workplace electrical requirements create a separate access question. OSHA requires NRTL approval for many kinds of electrical equipment, subject to applicable provisions and limited exceptions; CE marking does not satisfy those requirements. [redacted]

EU data center energy-performance reporting is distinct from equipment conformity. Existing reporting obligations can influence the information operators request from cooling suppliers. [redacted]

Open specifications also require commercial rights diligence. OCP's intellectual-property policy provides licensing commitments and a process for excluding patent claims. [redacted]

RESEARCH SAMPLE REPORT

[redacted]

Sources & Evidence

1. Open Compute Project Foundation Intellectual Property Rights Management Policy
   · OCP's intellectual-property policy provides specification licensing commitments and a process for excluding patent claims, supporting specification-specific rights review. ([opencompute.org](https://www.opencompute.org/documents/ocp-ip-rights-management-policy))
2. Energy performance of data centres
   · EU data center energy-performance reporting obligations are established. On September xx.xx 2026, the Commission proposed a common rating scheme and opened consultation on minimum performance standards, distinguishing those developments from existing obligations. ([energy.ec.europa.eu](https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-directive/energy-performance-data-centres_en))
3. CE marking
   · CE marking represents the manufacturer's declaration under applicable requirements, not approval by an EU authority. ([single-market-economy.ec.europa.eu](https://single-market-economy.ec.europa.eu/single-market/goods/ce-marking_en))
4. Manufacturers
   · Where applicable CE legislation covers a product, the manufacturer is responsible for conformity assessment, technical documentation, the EU declaration of conformity and marking; applicability varies by product. ([single-market-economy.ec.europa.eu](https://single-market-economy.ec.europa.eu/single-market/goods/ce-marking/manufacturers_en))
5. OSHA's Nationally Recognized Testing Laboratory Program - Frequently Asked Questions
   · OSHA requires NRTL approval for many kinds of workplace electrical equipment, subject to applicable requirements and limited exceptions; CE marking does not satisfy U.S. NRTL requirements. ([osha.gov](https://www.osha.gov/nationally-recognized-testing-laboratory-program/frequently-asked-questions))

5.7. ESG & Sustainability Analysis

An in-rack CDU's environmental proposition depends on the receiving facility, not merely its interface or coolant-phase category. DOE describes CDU-based liquid cooling arrangements that still use evaporative facility heat rejection. [redacted] Buyers seeking this benefit should establish the receiving customer's commitment, responsibility for connecting infrastructure and continuity arrangements when heat demand is unavailable. Without those conditions, equipment efficiency is a more defensible procurement objective than an assumed heat-reuse outcome.

Social acceptance can affect the underlying project's timing even when suitable cooling equipment exists. ■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ Local project approval and resource commitments are consequential indicators; a cooling-efficiency claim alone cannot resolve concerns about the facility's wider impacts.

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   · CoolIT describes CHx80 heat-reuse support as dependent on suitable facility infrastructure, establishing capability rather than a realized environmental outcome. ([coolitsystems.com](https://www.coolitsystems.com/cdu-product/chx80/))
2. Executive summary - Key Questions on Energy and AI
   · The IEA identifies community pushback and affordability and environmental concerns as data center project constraints, not CDU-specific product deficiencies. ([iea.org](https://www.iea.org/reports/key-questions-on-energy-and-ai/executive-summary))
3. Cooling Water Efficiency Opportunities for Federal Data Centers
   · DOE describes CDU-based liquid cooling arrangements that still use evaporative facility heat rejection and explains that energy and water outcomes depend on the complete cooling arrangement. ([energy.gov](https://www.energy.gov/cmei/femp/cooling-water-efficiency-opportunities-federal-data-centers))
4. Best Practices Guide for Energy-Efficient Data Center Design
   · DOE recommends evaluating energy, water and carbon together. Its heat-reuse discussion identifies a nearby heat consumer, compatible infrastructure, ownership alignment and supportive incentives as relevant conditions. ([energy.gov](https://www.energy.gov/sites/default/files/2024-xx.xx/best-practice-guide-data-center-design.pdf))

5.8. Disruption & Risk Scenarios

Project deferral is a supported exposure, not a prediction that all announced deployments will fail. If grid connection, funding or local project authorization is delayed, suppliers can face an equipment commitment without an executable receiving milestone. ■■■■■■ ■■■ ■■■■■■■ ■■■■■■ ■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■ ■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■ ■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■ ■■■■■■■■■■■

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Support-scope mismatch can emerge at renewal or when a broader supplier package is introduced. Ecolab's completed CoolIT acquisition and planned November 2026 platform introduction do not themselves change an existing agreement. ■■ ■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■ ■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■■■ ■■■■■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■

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Apparent dual sourcing may retain a common upstream dependency. ■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■■■ ■■ ■■■ ■■■■■■■■■■ ■■ ■■■■■■■■■■■ ■■■■ ■■■■■ ■■ ■■■■■■■■ ■■■■■■■■ ■■ ■■■■■■■ ■■ ■■■ ■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■ ■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■ ■■■■■■ Separately qualified original sources remain a counterforce; broader branding alone does not establish independence.

Sources & Evidence

1. Data Center Power and Cooling Solutions
   · Dell presents air, hybrid and direct-liquid-cooled infrastructure alternatives, supporting a conditional architecture-redirection scenario. ([dell.com](https://www.dell.com/en-us/shop/storage-servers-and-networking-for-business/sf/poweredge-power-cooling-servers))
2. CDUs for High-Density Liquid Cooling
   · Documented row-based alternatives support the conditional scenario in which a project redirects cooling procurement away from finished in-rack equipment. ([coolitsystems.com](https://www.coolitsystems.com/products-services/data-center-products/cooling-distribution-units/))
3. Ecolab Closes CoolIT Acquisition and Expands AI Cooling Platform
   · Completed ownership integration and a planned offering introduction are separate milestones; any resulting changes to a customer's support scope remain conditional. ([ecolab.com](https://www.ecolab.com/en-us/media-center/news/ecolab-closes-coolit-acquisition-and-expands-ai-cooling-platform))
4. AI and energy security - Energy and AI
   · Grid-connection delays support a conditional project-deferral scenario distinct from CDU equipment suitability. ([iea.org](https://www.iea.org/reports/energy-and-ai/ai-and-energy-security))
5. Executive summary - Key Questions on Energy and AI
   · Funding dependence and community concerns are documented project constraints supporting conditional equipment-delivery exposure. ([iea.org](https://www.iea.org/reports/key-questions-on-energy-and-ai/executive-summary))
6. BullSequana AI GPU servers
   · Bull's air-cooled AI offering supports hardware-selection uncertainty in the architecture-substitution scenario. ([bull.com](https://www.bull.com/en/products/ai/gpu-servers))
7. Nidec Starts Shipping OCP-standard, In-rack-type, 4U-size 250KW CDU to Supermicro
   · The original-supplier-to-OEM relationship supports examining upstream origin when assessing branded sourcing alternatives. ([nidec.com](https://www.nidec.com/en/product/news/2024/news1205-xx.xx/))
8. Liquid Cooling Services
   · Differentiated response, labor, travel and parts coverage supports the scenario of a service-scope mismatch at renewal. ([vertiv.com](https://www.vertiv.com/en-us/campaigns/liquid-cooling-services/))
9. Warranty Policy
   · The warranty's remedy boundary supports distinguishing equipment coverage from local continuity obligations in the support-risk scenario. ([koolance.com](https://koolance.com/general-warranty))

10. Liquid Cooling Distribution Technology | Alexander Schneider
· The represented Vertiv offering demonstrates that a different selling identity need not constitute independent original-equipment supply.
([schneider.co.il](https://www.schneider.co.il/en/product/vertiv-xdu-liquid-cooling-system/))

5.9. Return on Investment & Cost-Benefit Analysis

[illegible] The benefit must be weighed against equipment acquisition, adjacent facility obligations, integration coordination, maintenance and retained internal responsibility. Compare the same cooling application and supported deployment boundary; neither rack-local placement nor a broader package establishes superior economics by itself.

Bundled accountability can reduce the number of separately managed purchasing and escalation interfaces. [illegible] Separately contracted equipment and services can be appropriate where the buyer can coordinate acceptance and continuity; deferral is preferable when the receiving arrangement remains unauthorized.

For an equipment supplier, OEM access exchanges some direct-customer control for participation in an accepted rack program. [illegible] The investment case should be challenged if partner access remains an association rather than an executable purchasing relationship.

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
· The documented rack-local offering provides a basis for assessing use of existing rack infrastructure, not proof of universal project savings. ([coolitsystems.com](https://www.coolitsystems.com/cdu-product/chx80/))
2. Artificial Intelligence is Accelerating the Need for Liquid Cooling
· The example consolidates integration and support responsibilities, supporting a qualitative accountability comparison rather than an assumed economic advantage.
([dell.com](https://www.dell.com/en-us/blog/artificial-intelligence-is-accelerating-the-need-for-liquid-cooling/))
3. Worldwide Liquid Cooling Services
· Maintenance and escalation commitments create continuing supplier obligations relevant to a qualitative channel investment assessment.
([coolitsystems.com](https://www.coolitsystems.com/products-services/global-professional-services/))

4. Vertiv Corporation Terms and Conditions of Sale
   · The billable-services provisions support qualitative examination of exclusions and retained buyer obligations rather than presumed bundled savings. ([vertiv.com](https://www.vertiv.com/49ab98/globalassets/documents/terms-and-conditions/Vertiv-Corp-Terms-and-Conditions-of-Sale-xx.xx-2189-501B.pdf))
5. Modular Technology Cooling System for “Cloud Scale”: Design & Delivery of Liquid to Rack Distribution Systems
   · The framework identifies contractual responsibility and demarcation as distinct lifecycle considerations, supporting comparison of coordination burdens rather than equipment alone. ([opencompute.org](https://www.opencompute.org/documents/ocp-modular-tcs-rev-xx.xx-final-2025-pdf))
6. Liquid Cooling Integration and Logistics White Paper - Revision 1.0
   · Partial and full integration have different delivered boundaries, supporting like-for-like qualitative cost-benefit comparisons. ([opencompute.org](https://www.opencompute.org/documents/ocp-liquid-cooling-integration-and-logistics-white-paper-revision-xx.xx-xx.xx-xx.xx-pdf))
7. Nidec Starts Shipping OCP-standard, In-rack-type, 4U-size 250KW CDU to Supermicro
   · The documented OEM relationship supports a conditional channel investment case; its commercial terms are not disclosed by the announcement. ([nidec.com](https://www.nidec.com/en/product/news/2024/news1205-xx.xx/))
8. Liquid Cooling Services
   · Different included service obligations affect qualitative lifecycle comparisons and must be assessed alongside equipment scope. ([vertiv.com](https://www.vertiv.com/en-us/campaigns/liquid-cooling-services/))
9. Warranty Policy
   · Product remedies do not establish reimbursement of separately arranged repair services, supporting examination of retained buyer obligations. ([koolance.com](https://koolance.com/general-warranty))

6. Cumulative Impact of Artificial Intelligence 2026

AI affects this market both as a computing procurement trigger and as a potential service capability. ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■ ■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■ ■■ ■■■■■■■■■ ■■■ ■■■■ ■■■■■■■■■■■ ■■■■■■■ ■ ■■■■■■■■■■ ■■■■■■■■■■■■■ ■■ ■■■■ ■■■ ■■■■■■■ ■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■ Rack-local and row-based alternatives remain commercially distinct, so hardware buyers should establish the supported architecture before converting an AI infrastructure commitment into an in-rack equipment order.

Documented AI activity has different commercial statuses. Google reported AI control of facility cooling under operator supervision. ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■ ■■■■■■ ■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■ ■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■ ■■■■■■ ■■■■■■■■ ■■■ ■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■ ■ ■■■■■■■■■■■ ■■■■■■■■■

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Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   · The CHx80 page distinguishes an in-rack offering from row-based alternatives, supporting the need to verify CDU placement separately from liquid-cooled computing selection. ([coolitsystems.com](https://www.coolitsystems.com/cdu-product/chx80/))
2. GB200 NVL72
   · NVIDIA describes GB200 NVL72 as a liquid-cooled rack-scale platform for AI computing, establishing a hardware-linked cooling requirement rather than a particular CDU selection. ([nvidia.com](https://www.nvidia.com/en-us/data-center/gb200-nvl72/))
3. Vertiv Liquid Cooling Services
   · Vertiv markets AI/ML-assisted anomaly analysis and equipment-condition assessment within its broader liquid-cooling services offering, without establishing deployment on every in-rack CDU. ([vertiv.com](https://www.vertiv.com/49bc65/globalassets/shared/vertiv-liquid-cooling-services-brochure-sl-xx.xx-na.pdf))

4. Vertiv Corporation Terms and Conditions of Sale

   · The terms provide rights to collect and use nonpersonal service data and address cloud processing across jurisdictions, making data permissions a relevant procurement consideration. ([vertiv.com](https://www.vertiv.com/49ab98/globalassets/documents/terms-and-conditions/Vertiv-Corp-Terms-and-Conditions-of-Sale-xx.xx-2189-501B.pdf))

5. Safety-first AI for autonomous data centre cooling and industrial control

   · Google reported AI control of cooling in its data centers under operator supervision, with human override and conventional-control fallback. This is facility-level adoption evidence. ([deepmind.google](https://deepmind.google/blog/safety-first-ai-for-autonomous-data-centre-cooling-and-industrial-control/))

6. Schneider Electric teams with NVIDIA to develop validated blueprints to design, simulate, build, operate and maintain gigawatt-scale AI Factories

   · On March xx.xx 2026, Schneider Electric announced successful testing of NVIDIA Nemotron for agentic alarm management alongside expert technicians; the announcement does not establish deployment on a selected in-rack CDU. ([se.com](https://www.se.com/ww/en/about-us/newsroom/news/press-releases/Schneider-Electric-teams-with-NVIDIA-to-develop-validated-blueprints-to-design-simulate-build-operate-and-maintain-gigawattscale-AI-Factories-69b82397e7fa28870e0cd5a3/?es_id=1afb958c70))

7. AI Risk Management Framework

   · NIST's AI Risk Management Framework is voluntary guidance for managing AI-related risks, not mandatory product certification or evidence of CDU deployment. ([nist.gov](https://www.nist.gov/itl/ai-risk-management-framework))

7. Integrated In-Rack CDUs Market, by Heat Rejection Interface

Heat Rejection Interface changes the facility relationship that a purchaser must secure. Liquid-to-Liquid CDUs require access to a suitable receiving liquid system: CoolIT explicitly identifies facility water as a requirement for its CHx80. ■■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■ ■ ■■■ ■■ ■■■■■■■■■ ■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■■ ■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■ ■■ ■■■■■■■ ■■■■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■■■■■

Liquid-to-Air CDUs provide a different access route where facility water is unavailable. ZutaCore markets an air-based in-rack offering without a facility-water requirement alongside water-connected in-rack configurations. ■■■■ ■■■ ■■■■■■ ■■■■■■■■■■ ■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■ ■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■ ■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■■■ ■■ ■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■

The practical choice is therefore between supported receiving arrangements, not a universally superior interface. ■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■■■■■■ ■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■■■■ ■■■■■ ■■■■■ ■■■■■ ■■■■■■■ ■■ ■■■■■■■■ ■■ ■■■■■■■■■■■■■ ■■■■■ ■■■■■ ■■■ ■■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■ Buyers should identify the interface of the delivered configuration and reassess the selection if the receiving facility or its acceptance terms change.

Figure 7. Global Integrated In-Rack CDUs Market, by Heat Rejection Interface: Market share evolution, 2025-2032

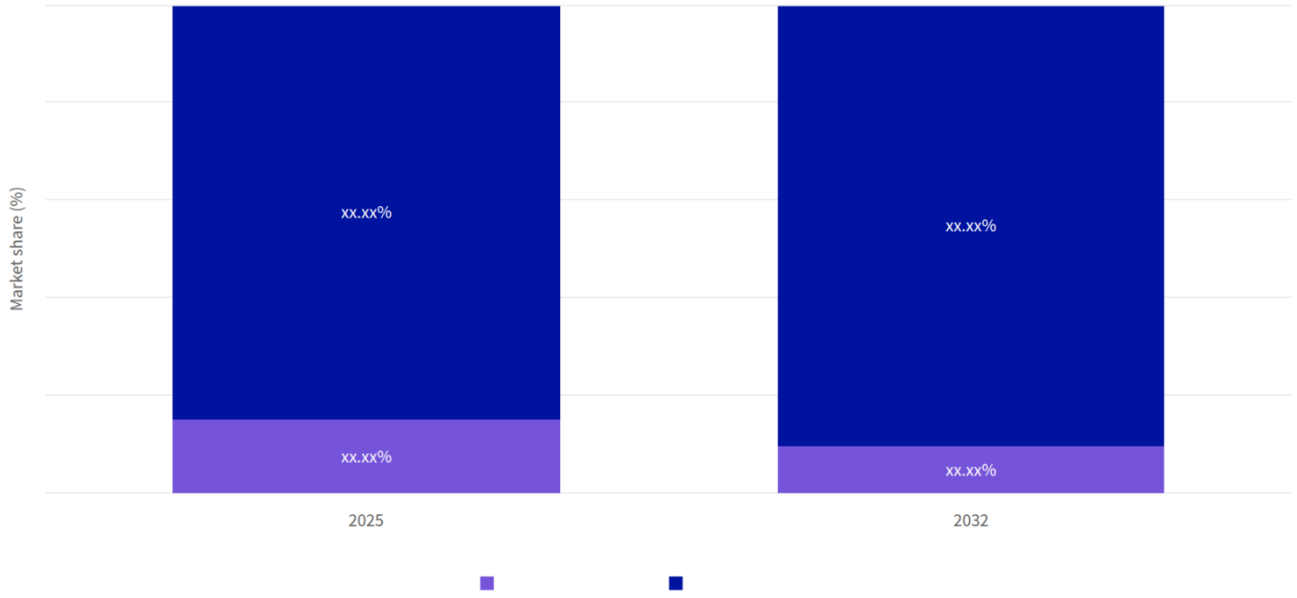


Figure 8. Global Integrated In-Rack CDUs Market, by Heat Rejection Interface: Market size by category, 2025

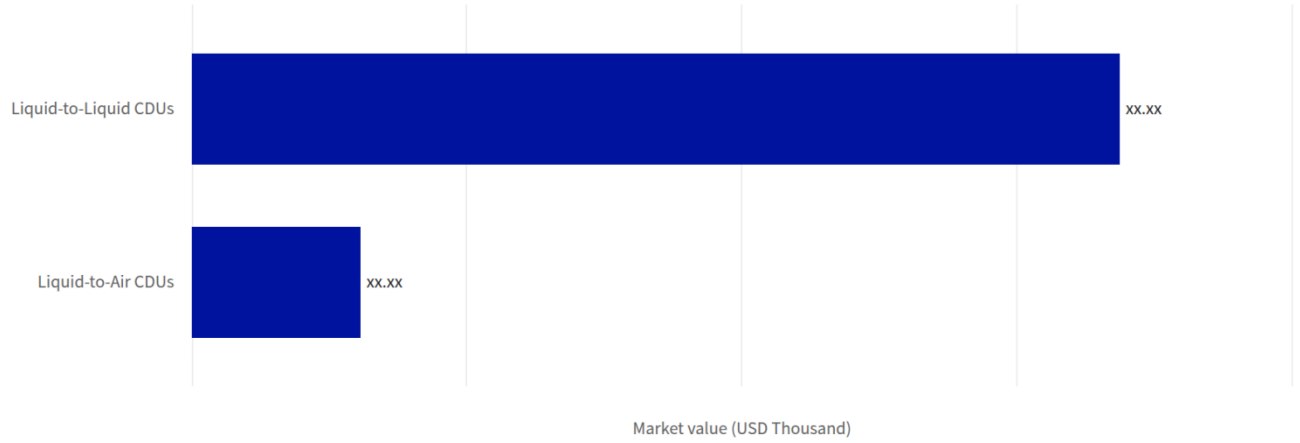


Table 4. Global Integrated In-Rack CDUs Market, by Heat Rejection Interface growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 5. Global Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   - CoolIT identifies CHx80 as a liquid-to-liquid in-rack CDU requiring facility water and identifies liquid-to-air alternatives for facilities without that access. ([coolitsystems.com](https://www.coolitsystems.com/cdu-product/chx80/))
2. HyperCool - Server Liquid Cooling System
   - ZutaCore lists air-based in-rack equipment without a facility-water requirement and separate facility-water in-rack configurations. ([zutacore.com](https://zutacore.com/solutions))
3. Cooling | Equinix Product Documentation
   - Equinix permits customer-supplied or operator-purchased CDUs under liquid-to-cage. Its self-contained liquid-to-air option requires a private cage, equipment and safety documentation, and agreed terms. ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))

7.1. Liquid-to-Liquid CDUs

Table 6. Global Integrated In-Rack CDUs Market Size, by Liquid-to-Liquid CDUs, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 7. Global Integrated In-Rack CDUs Market Size, by Liquid-to-Liquid CDUs, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 8. Global Integrated In-Rack CDUs Market Size, by Liquid-to-Liquid CDUs, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

7.2. Liquid-to-Air CDUs

Table 9. Global Integrated In-Rack CDUs Market Size, by Liquid-to-Air CDUs, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 10. Global Integrated In-Rack CDUs Market Size, by Liquid-to-Air CDUs, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 11. Global Integrated In-Rack CDUs Market Size, by Liquid-to-Air CDUs, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

8. Integrated In-Rack CDUs Market, by Coolant Phase

Single-Phase CDUs and Two-Phase CDUs distinguish supported cooling ecosystems rather than successive levels of product maturity. ■■■■■■ ■■■■■■■■■■ ■■■ ■■■■ ■■■■ ■■ ■■■■■■■■ ■■■ ■■ ■■■■■■■■■■■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■ ■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■■■ Procurement should establish the phase of the purchased configuration and its supported computing arrangement rather than infer suitability from a generic liquid-cooling description.

Coolant Phase does not determine Heat Rejection Interface or delivery integration. ZutaCore's two-phase portfolio includes both air-based and facility-water in-rack offerings. ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■ ■ ■■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■ ■ ■■■■■■■■■■ ■■■■■ ■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■■■■■ ■■■■■■■ ■■■ ■■■■■ ■■■■■ ■■■■■■■■ ■■■■■ ■■ ■■■ ■■■■■■■■■■ ■■■■■ ■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■

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Figure 9. Global Integrated In-Rack CDUs Market, by Coolant Phase: Market share evolution, 2025-2032

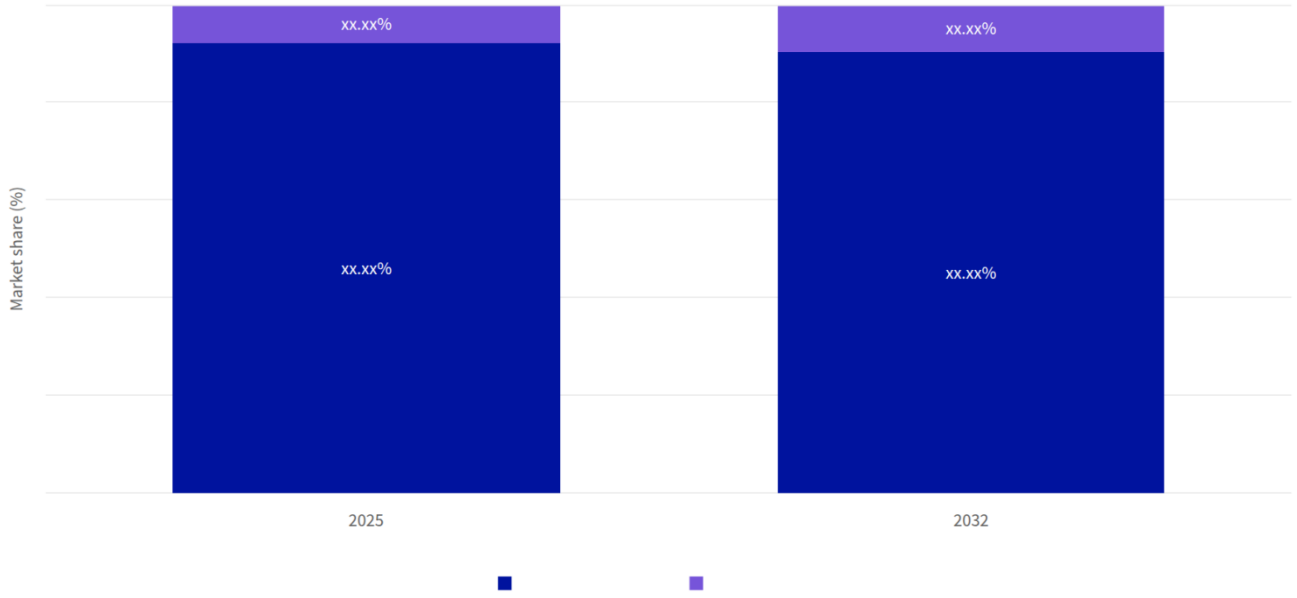


Figure 10. Global Integrated In-Rack CDUs Market Size, by Coolant Phase, 2025 vs 2026 vs 2032

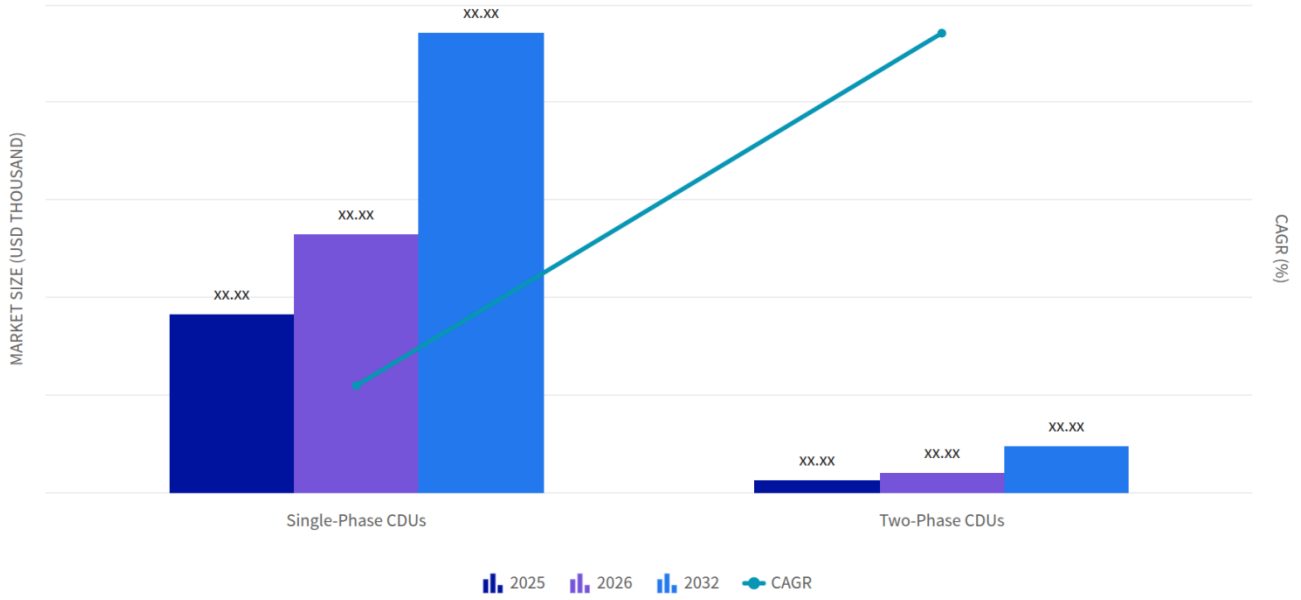


Table 12. Global Integrated In-Rack CDUs Market, by Coolant Phase growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 13. Global Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. HyperCool - Server Liquid Cooling System

   · HyperCool is marketed as a two-phase direct-to-chip architecture with in-rack CDUs and both air-based and facility-water configurations. Interface and phase therefore remain distinct commercial classifications. ([zutacore.com](https://zutacore.com/solutions))

2. Coolant Distribution Unit In-Rack - Specification CDU In-Rack VS 7.0, May 2026

   · The May 2026 specification identifies Rittal's in-rack Open Rack v3 CDU as single-phase and liquid-to-liquid. The document explicitly labels its information preliminary and subject to change. ([rittal.com](https://www.rittal.com/imf/none/3_15045/3343230_Technisches_Datenblatt_EN/))

3. Accelsius Makes NVIDIA GTC Debut with NeuCool® IR150, the Industry's First Integrated Rack for Two-Phase Liquid Cooling
   · Accelsius introduces NeuCool IR150 as a packaged rack enclosure incorporating a two-phase CDU. The announcement establishes the described offering, not a particular customer delivery or cross-supplier substitution right. ([accelsius.com](https://accelsius.com/neucool-ir150-announcement/))
4. ACS Liquid Cooling Cold Plate Requirements Document - Revision 1.0
   · OCP distinguishes single-phase and two-phase cooling categories and separately recognizes in-rack CDU placement. The document supplies category terminology, not product-specific interchangeability approval. ([opencompute.org](https://www.opencompute.org/documents/ocp-acs-liquid-cooling-cold-plate-requirements-pdf))

8.1. Single-Phase CDUs

Table 14. Global Integrated In-Rack CDUs Market Size, by Single-Phase CDUs, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 15. Global Integrated In-Rack CDUs Market Size, by Single-Phase CDUs, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 16. Global Integrated In-Rack CDUs Market Size, by Single-Phase CDUs, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

8.2. Two-Phase CDUs

Table 17. Global Integrated In-Rack CDUs Market Size, by Two-Phase CDUs, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 18. Global Integrated In-Rack CDUs Market Size, by Two-Phase CDUs, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 19. Global Integrated In-Rack CDUs Market Size, by Two-Phase CDUs, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

9. Integrated In-Rack CDUs Market, by Rack Platform

Rack Platform determines which supplier declarations are relevant, but a platform association is not a complete support commitment. ■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■ ■■■■■ ■■■■■ ■■■■■ ■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■ ■■■■■■■■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■■■■■■■■■ Buyers using xx.xx-Inch Standard Racks or OCP Open Rack should therefore select the corresponding purchased configuration rather than assume that an OCP-related brand or a common product-family name establishes fit.

■■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■ ■■■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■ The defensible procurement requirement is a supplier-supported correspondence between the selected rack generation, CDU configuration and computing platform. A rack-platform change should trigger confirmation of that correspondence rather than automatic reuse of an earlier approval.

Project Scorpio Racks require their own commercial qualification. The June xx.xx 2018 harmonization draft names Project Scorpio alongside other open rack specifications but leaves CDU design to solution providers and permits rack-, row- or room-level placement. ■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■ ■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■ ■■ ■■ ■■■■■■■■■■ ■■■■■■■

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Figure 11. Global Integrated In-Rack CDUs Market, by Rack Platform: Market share evolution, 2025-2032

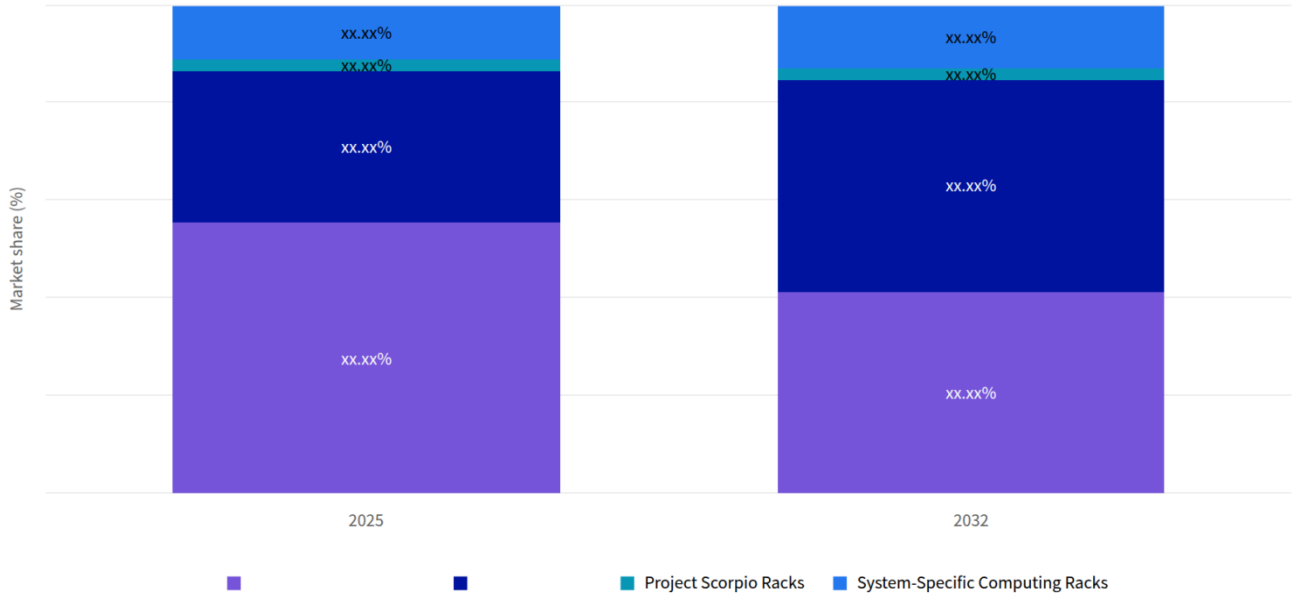


Figure 12. Global Integrated In-Rack CDUs Market, by Rack Platform: Market size by category, 2025

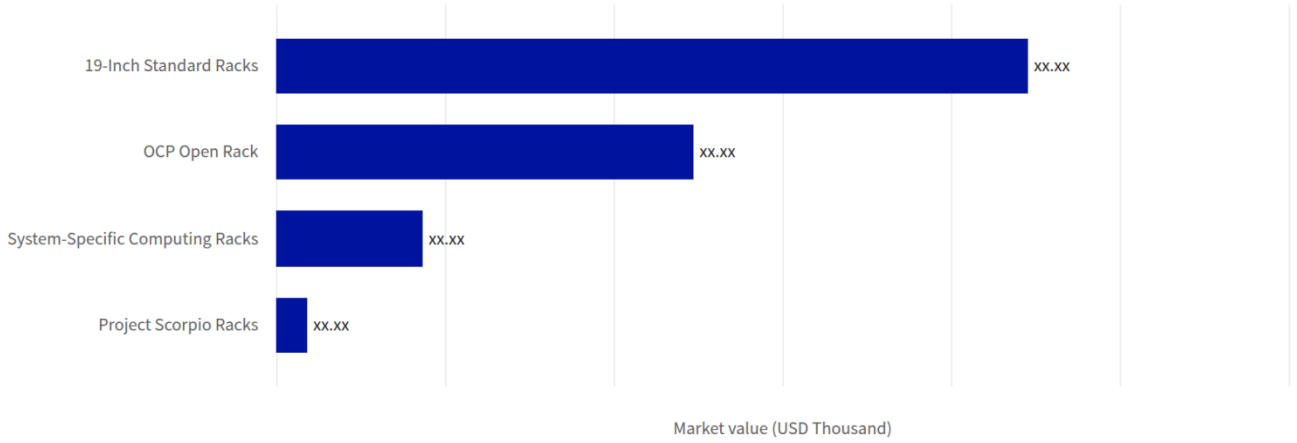


Figure 13. Global Integrated In-Rack CDUs Market, by Rack Platform: Market size and growth, 2025-2032

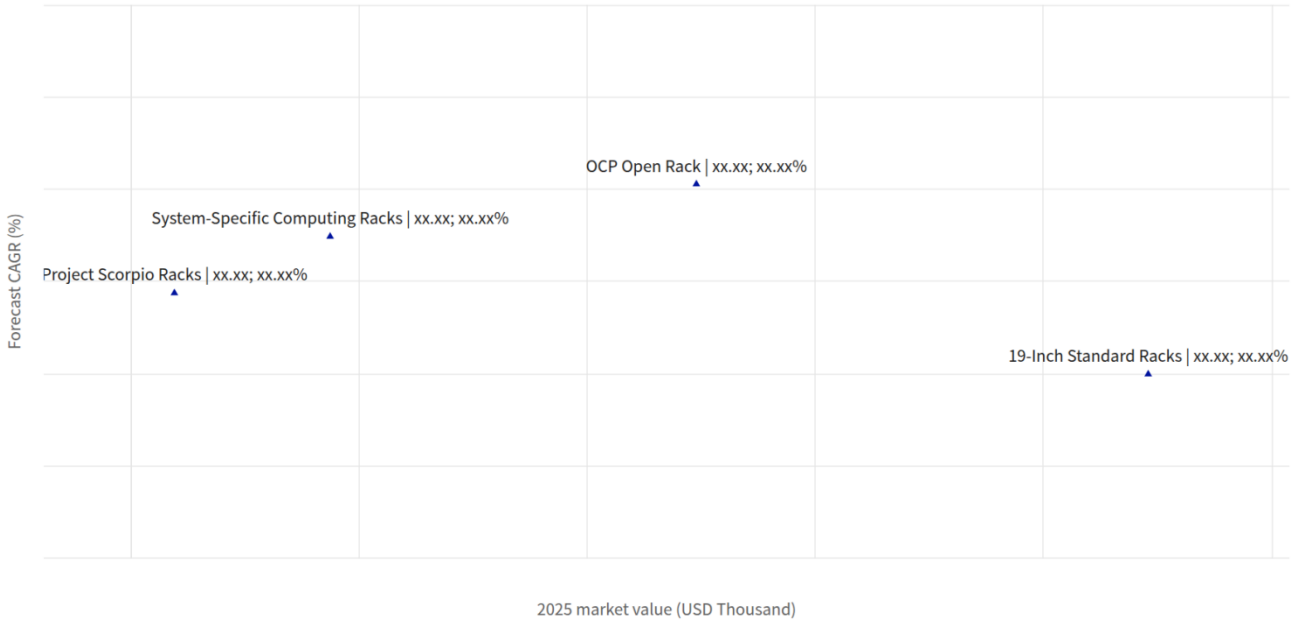


Table 20. Global Integrated In-Rack CDUs Market, by Rack Platform growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 21. Global Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   · Lenovo identifies designated supported racks for RM100 and requires Professional Services review and approval for its stated factory-integration warranty and extended-service scope. This is a specific OEM support condition. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp2128-thinksystem-sr650a-v4-server))
2. Rack & Power - Open Compute Project
   · OCP's Rack & Power scope separately recognizes EIA-compatible and Open Rack architectures and includes supports, sub-chassis and adapters. This supports platform differentiation without establishing universal product interchangeability. ([opencompute.org](https://www.opencompute.org/projects/rack-and-power/))
3. In-Rack CDU | Nidec's Thermal Solutions
   · Nidec distinguishes EIA-compliant and OCP ORv3-compliant purchased in-rack CDU configurations within its lineup. Platform declarations are model-specific.
   ([nidec.com](https://www.nidec.com/en/product/liquid-cooling-line-up/products/in-rack/))
4. Open Specification for a Liquid Cooled Server Rack - Progress Update
   · The June xx.xx 2018 draft names Project Scorpio among open rack specifications, leaves CDU design to solution providers and permits different placements. It does not identify a purchasable Scorpio-qualified complete in-rack CDU.
   ([datacenters.lbl.gov](https://datacenters.lbl.gov/sites/default/files/OpenSpecification.pdf))
5. HPE Cray Supercomputing EX - QuickSpecs, Version 18
   · HPE's April 2024 EX documentation includes an in-rack CDU in the EX2500 computer configuration. This establishes a documented system-ordering relationship, not exclusive mechanical category assignment or present project availability.
   ([hpe.com](https://www.hpe.com/psnow/downloadDoc/HPE%20Cray%20Supercomputing%20EX-a00094635enw.pdf?contentDisposition=attachment&form=false&hf=regular&id=a00094635enw.pdf&isFutureVersion=true&isLinearized=false&preview=false&ver=xx.xx))

9.1. 19-Inch Standard Racks

Table 22. Global Integrated In-Rack CDUs Market Size, by xx.xx-Inch Standard Racks, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 23. Global Integrated In-Rack CDUs Market Size, by xx.xx-Inch Standard Racks, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 24. Global Integrated In-Rack CDUs Market Size, by xx.xx-Inch Standard Racks, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

9.2. OCP Open Rack

Table 25. Global Integrated In-Rack CDUs Market Size, by OCP Open Rack, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 26. Global Integrated In-Rack CDUs Market Size, by OCP Open Rack, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 27. Global Integrated In-Rack CDUs Market Size, by OCP Open Rack, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

9.3. System-Specific Computing Racks

Table 28. Global Integrated In-Rack CDUs Market Size, by System-Specific Computing Racks, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 29. Global Integrated In-Rack CDUs Market Size, by System-Specific Computing Racks, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 30. Global Integrated In-Rack CDUs Market Size, by System-Specific Computing Racks, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

9.4. Project Scorpio Racks

Table 31. Global Integrated In-Rack CDUs Market Size, by Project Scorpio Racks, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 32. Global Integrated In-Rack CDUs Market Size, by Project Scorpio Racks, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 33. Global Integrated In-Rack CDUs Market Size, by Project Scorpio Racks, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

10. Integrated In-Rack CDUs Market, by Cooling Application

Cooling Application changes the equipment whose support must be included in the purchase. Direct-to-Chip Cooling connects CDU selection to the supported computing configuration: Vertiv describes CoolChip CDU xx.xx as an in-rack offering for direct-to-chip cooling. ■■■■■■■ ■■■■ ■■■■■■■■■■ ■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■ ■■■ ■■■■ ■ ■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■ ■■■■ ■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■

Rack Air Heat-Exchanger Cooling offers a different purchasing proposition where retaining air-cooled servers matters. ■■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■■■■■ ■■ ■■ ■■■■■■■■■■■■■ ■■■■■■ ■■■■ ■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ The buyer must distinguish the rack-air exchanger from the qualifying finished in-rack CDU that supports it; purchasing the exchanger or selecting a broad CDU family does not establish the specific CDU's application coverage.

■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■ ■■■ ■■■■■■■ ■■■■■■■■ ■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■ ■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■ ■■■■ ■■■■ ■■■■■■■ ■■■■ ■■■■ ■■■■■■■■■■ ■■■ ■■■■ ■■■ ■■■■■■■ ■■■■■ ■■■ ■■■■■ ■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■ ■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■ ■■■■■■■■■ ■■■■ ■ ■■■■■ ■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■ ■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■■■■ ■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■ ■■■ ■■■■■■■■ ■■■■ ■■■ ■■■ ■■■■■■■■■■ ■■■■■ ■■■■■■ ■■■■■■■ ■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■■■■ Separate supported arrangements remain an alternative when combined coverage is unclear, but retain additional acceptance handoffs. A change in either supported application should reopen the purchasing-scope review.

Figure 14. Global Integrated In-Rack CDUs Market, by Cooling Application: Market share evolution, 2025-2032

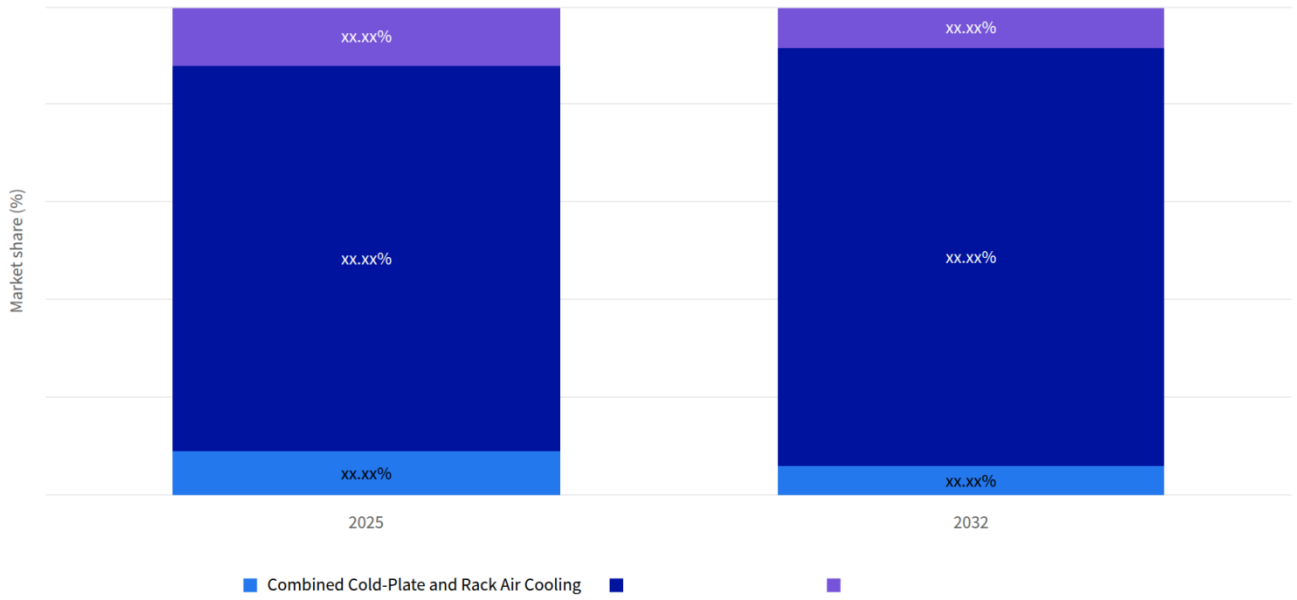


Figure 15. Global Integrated In-Rack CDUs Market, by Cooling Application: Market size by category, 2025

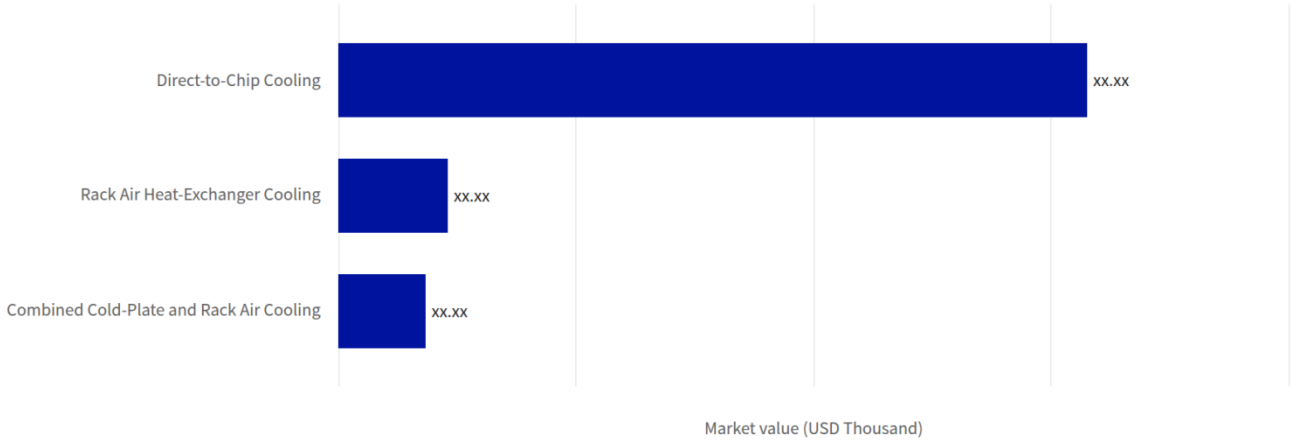


Figure 16. Global Integrated In-Rack CDUs Market, by Cooling Application: Market size and growth, 2025-2032



Table 34. Global Integrated In-Rack CDUs Market, by Cooling Application growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 35. Global Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Vertiv CoolChip CDU 100
   · Vertiv describes CoolChip CDU xx.xx as an in-rack liquid-to-liquid offering supporting direct-to-chip cooling, establishing a named application example. ([go.vertiv.com](https://go.vertiv.com/CoolChip-CDU-xx.xx))
2. Cooling | Equinix Product Documentation
   · Equinix describes liquid-to-air direct-to-chip cooling and a separate rear-door option that does not require server-level retrofit. External rejection and supported computing application are different questions. ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))
3. The Vertiv™ CoolChip CDU: Liquid Cooling Technology for High-Density Racks
   · Vertiv's CoolChip CDU family addresses direct-to-chip and rear-door applications and includes different equipment placements. Family coverage does not establish a named in-rack model's combined-application scope. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/thermal-management/high-density-solutions/vertiv-coolchip-cdu/))
4. Evaluating the Limits of Door Heat Exchanger Solutions Optimized for Open Rack V3
   · OCP describes hybrid arrangements containing cold plates, door heat exchangers and CDUs, with different CDU roles and placements. Coexistence does not verify a named complete in-rack CDU covering both applications. ([opencompute.org](https://www.opencompute.org/documents/acs-door-hx-whitepaper-final-xx.xx-pdf))

10.1. Direct-to-Chip Cooling

Table 36. Global Integrated In-Rack CDUs Market Size, by Direct-to-Chip Cooling, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 37. Global Integrated In-Rack CDUs Market Size, by Direct-to-Chip Cooling, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 38. Global Integrated In-Rack CDUs Market Size, by Direct-to-Chip Cooling, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

10.2. Rack Air Heat-Exchanger Cooling

Table 39. Global Integrated In-Rack CDUs Market Size, by Rack Air Heat-Exchanger Cooling, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 40. Global Integrated In-Rack CDUs Market Size, by Rack Air Heat-Exchanger Cooling, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 41. Global Integrated In-Rack CDUs Market Size, by Rack Air Heat-Exchanger Cooling, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

10.3. Combined Cold-Plate and Rack Air Cooling

Table 42. Global Integrated In-Rack CDUs Market Size, by Combined Cold-Plate and Rack Air Cooling, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 43. Global Integrated In-Rack CDUs Market Size, by Combined Cold-Plate and Rack Air Cooling, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 44. Global Integrated In-Rack CDUs Market Size, by Combined Cold-Plate and Rack Air Cooling, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

11. Integrated In-Rack CDUs Market, by Workload

[illegible] This counterexample prevents an AI initiative from being treated automatically as an in-rack CDU opportunity. Suppliers should qualify the selected hardware and explicit CDU placement; buyers should preserve supported air-cooled alternatives where those meet the intended computing requirement.

Scientific and Engineering Computing has an independent institutional deployment precedent. [illegible] Research-computing purchasers should evaluate the supported rack solution and receiving facility together instead of transferring an AI-platform procurement assumption to their project.

General-Purpose Computing and Mixed Workloads require deployment-specific interpretation. NVIDIA advertises database processing alongside AI capabilities on its GB200 platform, demonstrating that an AI-oriented platform description need not identify an exclusive workload. [illegible]

Figure 17. Global Integrated In-Rack CDUs Market, by Workload: Market share evolution, 2025-2032

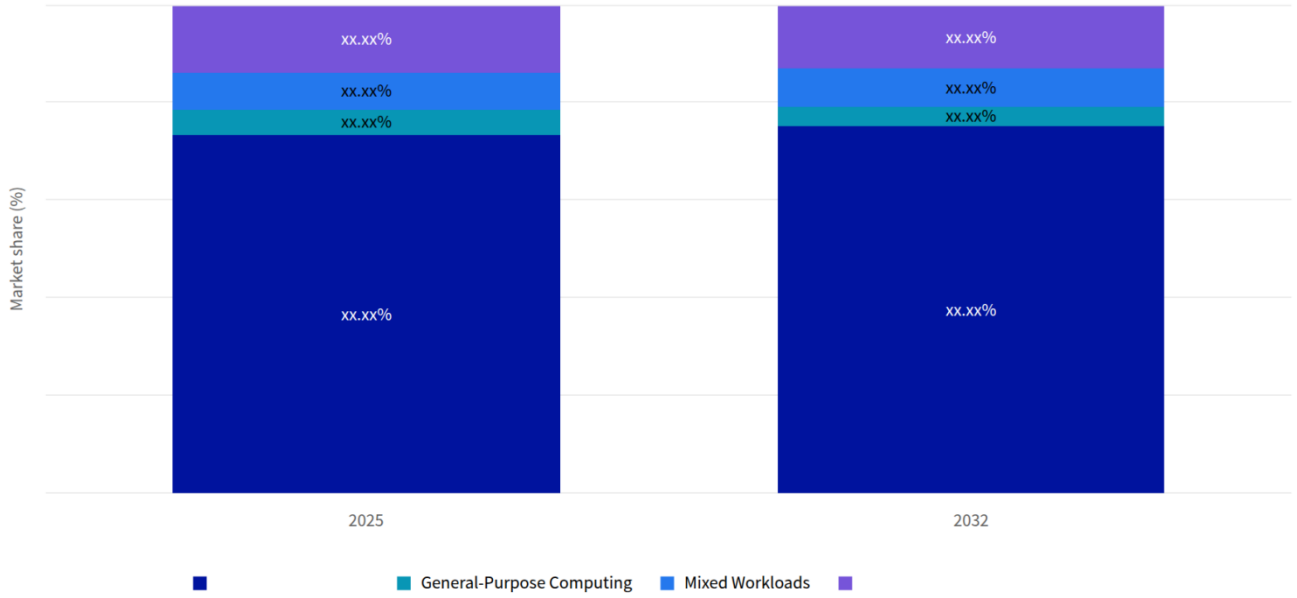


Figure 18. Global Integrated In-Rack CDUs Market, by Workload: Market size by category, 2025

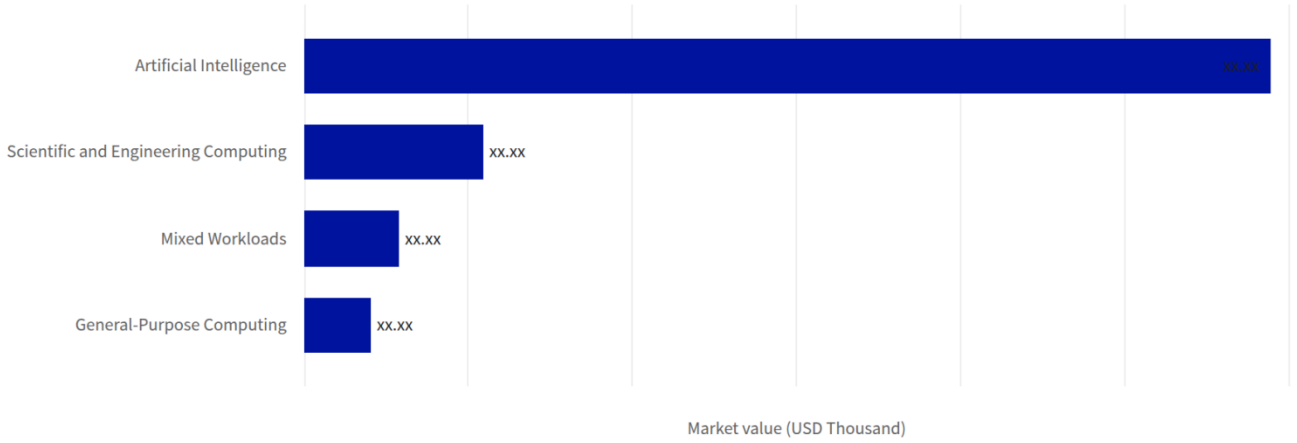


Figure 19. Global Integrated In-Rack CDUs Market, by Workload: Market size and growth, 2025-2032



Table 45. Global Integrated In-Rack CDUs Market, by Workload growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 46. Global Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   · CHx80 is marketed for HPC and enterprise racks; the page separately identifies row-based alternatives. These are supplier offerings, not workload-specific procurement mandates. ([coolitsystems.com](https://www.coolitsystems.com/cdu-product/chx80/))
2. GB200 NVL72
   · NVIDIA identifies GB200 NVL72 as liquid-cooled and advertises AI and database-processing applications. This supports a hardware-linked cooling requirement and nonexclusive platform positioning, not a deployment-specific workload allocation or CDU selection. ([nvidia.com](https://www.nvidia.com/en-us/data-center/gb200-nvl72/))
3. BullSequana AI GPU servers
   · Bull markets BullSequana AI xx.xx for inference and fine-tuning with air cooling. This is a commercial counterexample to treating every AI workload as requiring liquid cooling. ([bull.com](https://www.bull.com/en/products/ai/gpu-servers))
4. Energy Performance Evaluation of Aquila's Aquarius Fixed Cold Plate Cooling System at NREL's High Performance Computing Center
   · NREL's February 2019 report documents Aquila's 2018 HPC installation and states that the computing rack arrived with its CDU installed. This is historical institutional deployment evidence. ([datacenters.lbl.gov](https://datacenters.lbl.gov/sites/default/files/Aquila_NREL_white_paper_73356.pdf))

11.1. Artificial Intelligence

Table 47. Global Integrated In-Rack CDUs Market Size, by Artificial Intelligence, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 48. Global Integrated In-Rack CDUs Market Size, by Artificial Intelligence, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 49. Global Integrated In-Rack CDUs Market Size, by Artificial Intelligence, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

11.2. Scientific and Engineering Computing

Table 50. Global Integrated In-Rack CDUs Market Size, by Scientific and Engineering Computing, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 51. Global Integrated In-Rack CDUs Market Size, by Scientific and Engineering Computing, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 52. Global Integrated In-Rack CDUs Market Size, by Scientific and Engineering Computing, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

11.3. Mixed Workloads

Table 53. Global Integrated In-Rack CDUs Market Size, by Mixed Workloads, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 54. Global Integrated In-Rack CDUs Market Size, by Mixed Workloads, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 55. Global Integrated In-Rack CDUs Market Size, by Mixed Workloads, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

11.4. General-Purpose Computing

Table 56. Global Integrated In-Rack CDUs Market Size, by General-Purpose Computing, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 57. Global Integrated In-Rack CDUs Market Size, by General-Purpose Computing, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 58. Global Integrated In-Rack CDUs Market Size, by General-Purpose Computing, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

12. Integrated In-Rack CDUs Market, by End User

[redacted] For Cloud, AI, and Internet Platform Operators, supplier engagement should establish whether the operator controls both the computing deployment and receiving facility or occupies customer space under another provider's acceptance terms. That distinction changes the parties whose commitments are needed before an equipment order is executable.

[redacted] A supplier should not attribute a CDU purchase to the facility operator merely because the rack is hosted there. Tenant sourcing preserves equipment choice, while provider-assisted delivery can organize acceptance; either route needs an explicit support owner.

[redacted] Telia's Helsinki business provides hosting, cloud and infrastructure services, illustrating why a telecommunications company's involvement does not alone establish a network-purpose CDU purchase. Suppliers should distinguish network-equipment operation from customer-computing hosting before assigning the commercial opportunity.

Government, Academic, and Research Institutions combine supplier-targeted coverage with institutional deployment evidence. [redacted] When those roles are split, a complete rack package can organize delivery, but cannot substitute for the host institution's acceptance.

Figure 20. Global Integrated In-Rack CDUs Market, by End User: Market share evolution, 2025-2032

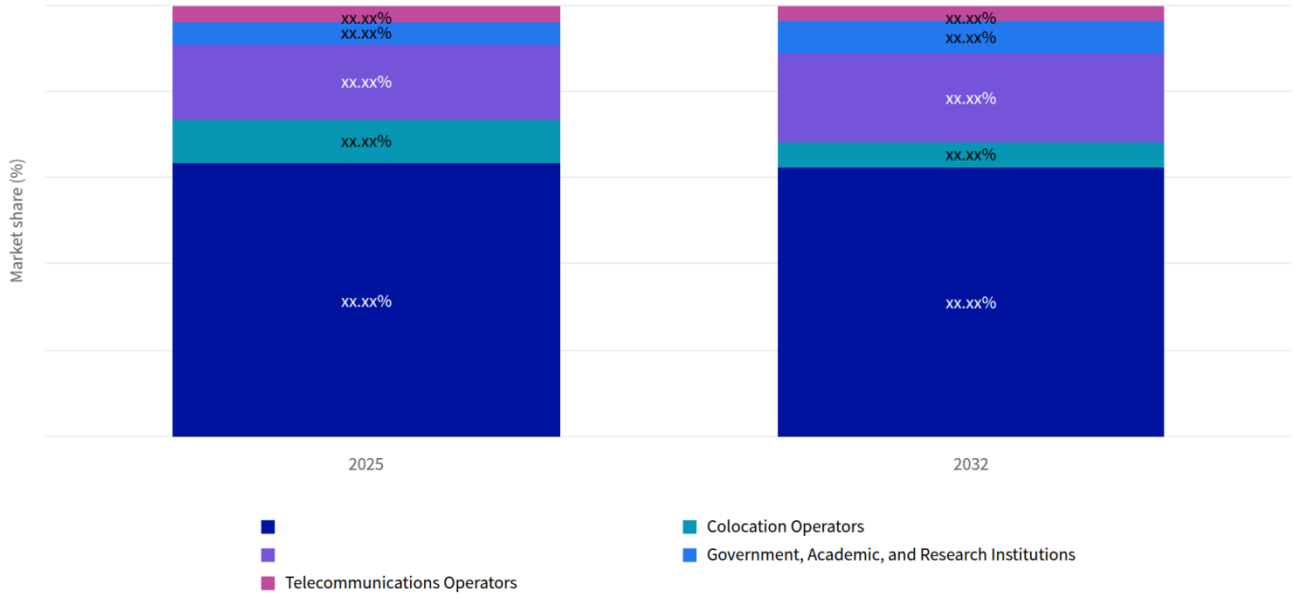


Figure 21. Global Integrated In-Rack CDUs Market, by End User: Market size by category, 2025

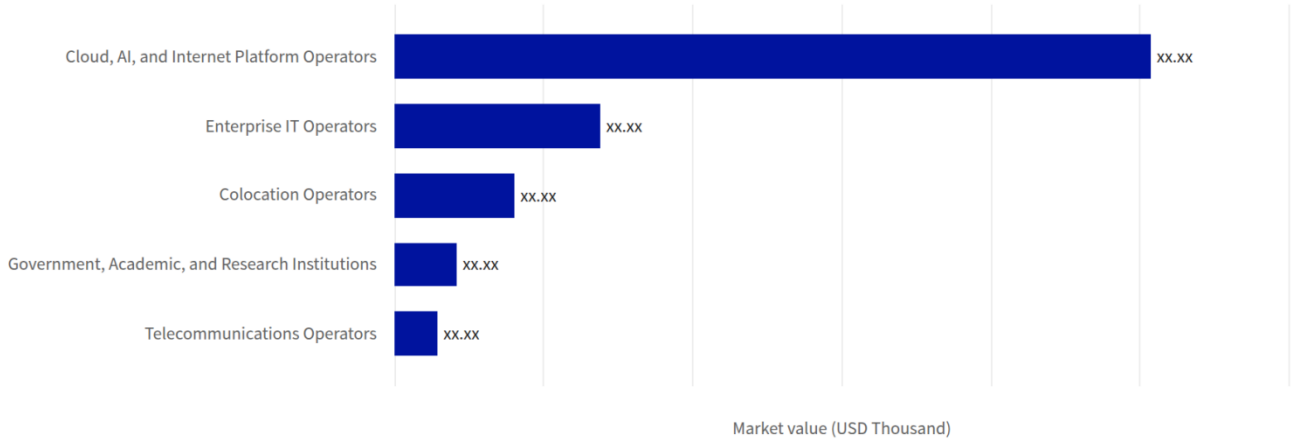


Figure 22. Global Integrated In-Rack CDUs Market, by End User: Market size and growth, 2025-2032

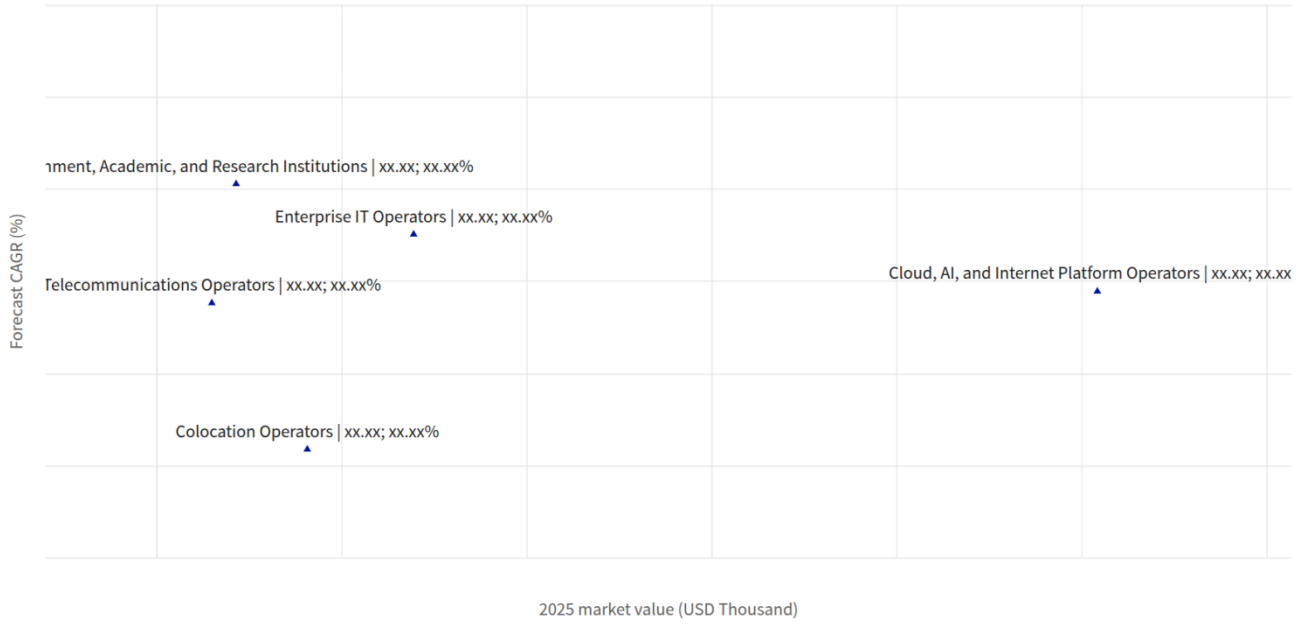


Table 59. Global Integrated In-Rack CDUs Market, by End User growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 60. Global Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   • CoolIT explicitly targets HPC and enterprise server settings with its CHx80 in-rack offering. ([coolitsystems.com](https://www.coolitsystems.com/cdu-product/chx80/))
2. Cooling | Equinix Product Documentation
   • Customer-supplied CDU sourcing is permitted within Equinix's documented provider engagement, separating equipment sourcing from facility operation. ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))
3. The Anatomy of a Direct-to-Chip Liquid Cooling System
   • Equinix describes the customer as purchasing liquid-cooled computing hardware and coordinating with the OEM and colocation provider. Facility operation and equipment procurement are distinct roles. ([blog.equinix.com](https://blog.equinix.com/blog/2026/xx.xx/xx.xx/the-anatomy-of-a-direct-to-chip-liquid-cooling-system/))
4. Energy Performance Evaluation of Aquila's Aquarius Fixed Cold Plate Cooling System at NREL's High Performance Computing Center
   • Sandia provided hardware for the Aquila installation hosted at NREL, illustrating distinct hardware-providing and receiving institutional roles rather than a universal academic purchasing arrangement. ([datacenters.lbl.gov](https://datacenters.lbl.gov/sites/default/files/Aquila_NREL_white_paper_73356.pdf))
5. Modular Technology Cooling System for “Cloud Scale”: Design & Delivery of Liquid to Rack Distribution Systems
   • OCP identifies hyperscale, telecommunications, colocation and enterprise participants. Its service-level discussion separates provider, design-team and IT-tenant responsibilities, including lifecycle liability and contractual obligations. ([opencompute.org](https://www.opencompute.org/documents/ocp-modular-tcs-rev-xx.xx-final-2025-pdf))
6. In-Rack Coolant Distribution Unit
   • Motivair markets its in-rack CDU for telecommunications, enterprise and colocation data centers, higher education and government. Supplier targeting establishes an offering route, not particular deployments or purchasing ownership. ([motivaircorp.com](https://www.motivaircorp.com/products/in-rack-cdu/))
7. Telia Helsinki Data Center
   • Telia Helsinki Data Center provides hosting, cloud and infrastructure services to business customers. This corroborates a hosting role without establishing a network-purpose in-rack CDU purchase. ([telia.fi](https://www.telia.fi/business/data-center-services/data-center/helsinki-data-center))

12.1. Cloud, AI, and Internet Platform Operators

Table 61. Global Integrated In-Rack CDUs Market Size, by Cloud, AI, and Internet Platform Operators, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 62. Global Integrated In-Rack CDUs Market Size, by Cloud, AI, and Internet Platform Operators, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 63. Global Integrated In-Rack CDUs Market Size, by Cloud, AI, and Internet Platform Operators, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

12.2. Enterprise IT Operators

Table 64. Global Integrated In-Rack CDUs Market Size, by Enterprise IT Operators, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 65. Global Integrated In-Rack CDUs Market Size, by Enterprise IT Operators, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 66. Global Integrated In-Rack CDUs Market Size, by Enterprise IT Operators, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

12.3. Colocation Operators

Table 67. Global Integrated In-Rack CDUs Market Size, by Colocation Operators, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 68. Global Integrated In-Rack CDUs Market Size, by Colocation Operators, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 69. Global Integrated In-Rack CDUs Market Size, by Colocation Operators, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

12.4. Government, Academic, and Research Institutions

Table 70. Global Integrated In-Rack CDUs Market Size, by Government, Academic, and Research Institutions, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 71. Global Integrated In-Rack CDUs Market Size, by Government, Academic, and Research Institutions, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 72. Global Integrated In-Rack CDUs Market Size, by Government, Academic, and Research Institutions, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

12.5. Telecommunications Operators

Table 73. Global Integrated In-Rack CDUs Market Size, by Telecommunications Operators, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 74. Global Integrated In-Rack CDUs Market Size, by Telecommunications Operators, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 75. Global Integrated In-Rack CDUs Market Size, by Telecommunications Operators, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

13. Integrated In-Rack CDUs Market, by Integration Model

[illegible] Independent CDU Supply includes finished in-rack units selected separately from the computing package. Vertiv's CoolChip CDU xx.xx illustrates a separately described equipment offering with accompanying manufacturer services, so independent selection need not mean purchasing unsupported hardware.

Partial Rack Integration and Full Rack Integration differ in supplied content. [illegible] Buyers should classify the actual package rather than rely on the word integrated.

Independent or partial purchasing preserves more control over computing selection when the buyer can allocate the remaining integration and acceptance obligations. Full Rack Integration is a defensible alternative when the provider accepts responsibility for the specified computing-and-cooling package and its support scope. [illegible]

Figure 23. Global Integrated In-Rack CDUs Market, by Integration Model: Market share evolution, 2025-2032

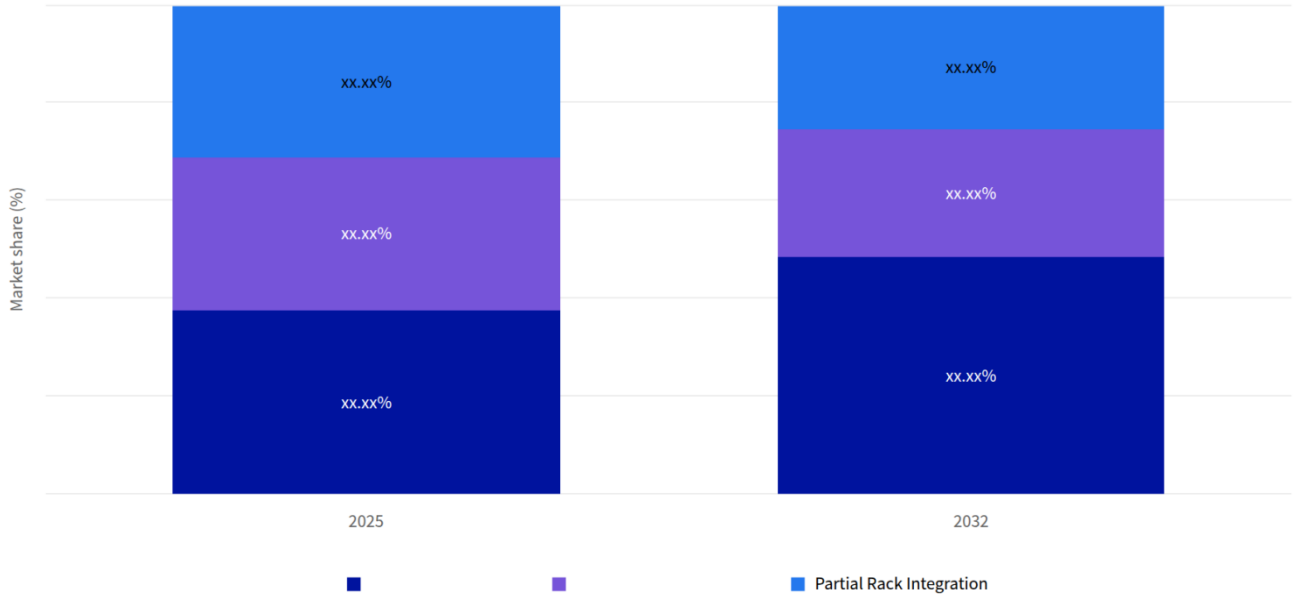


Figure 24. Global Integrated In-Rack CDUs Market, by Integration Model: Market size by category, 2025



Figure 25. Global Integrated In-Rack CDUs Market, by Integration Model: Market size and growth, 2025-2032

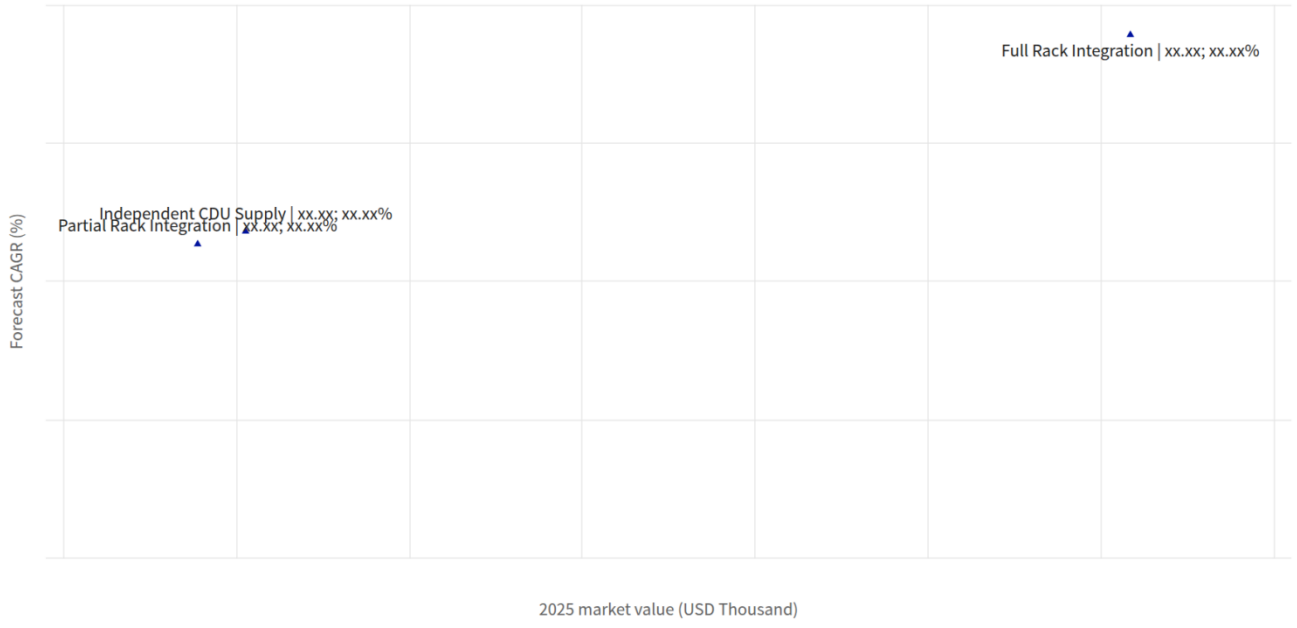


Table 76. Global Integrated In-Rack CDUs Market, by Integration Model growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 77. Global Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Vertiv CoolChip CDU 100
   - Vertiv separately markets the finished CoolChip CDU xx.xx in-rack offering and advertises manufacturer services alongside it. ([go.vertiv.com](https://go.vertiv.com/CoolChip-CDU-xx.xx))
2. Artificial Intelligence is Accelerating the Need for Liquid Cooling
   - Dell describes DLC3000 with a rack, manifold and in-rack CDU ready to accept factory-built servers, professional services and rack support coverage. ([dell.com](https://www.dell.com/en-us/blog/artificial-intelligence-is-accelerating-the-need-for-liquid-cooling/))
3. Liquid Cooling Integration and Logistics White Paper - Revision 1.0
   - The document distinguishes partial cooling-infrastructure rack integration from fuller packages containing IT equipment and power infrastructure. ([opencompute.org](https://www.opencompute.org/documents/ocp-liquid-cooling-integration-and-logistics-white-paper-revision-xx.xx-xx.xx-xx.xx-pdf))

13.1. Full Rack Integration

Table 78. Global Integrated In-Rack CDUs Market Size, by Full Rack Integration, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 79. Global Integrated In-Rack CDUs Market Size, by Full Rack Integration, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 80. Global Integrated In-Rack CDUs Market Size, by Full Rack Integration, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

13.2. Independent CDU Supply

Table 81. Global Integrated In-Rack CDUs Market Size, by Independent CDU Supply, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 82. Global Integrated In-Rack CDUs Market Size, by Independent CDU Supply, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 83. Global Integrated In-Rack CDUs Market Size, by Independent CDU Supply, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

13.3. Partial Rack Integration

Table 84. Global Integrated In-Rack CDUs Market Size, by Partial Rack Integration, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 85. Global Integrated In-Rack CDUs Market Size, by Partial Rack Integration, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 86. Global Integrated In-Rack CDUs Market Size, by Partial Rack Integration, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

14. Integrated In-Rack CDUs Market, by Project Purpose

New-Build Deployment and Retrofit & Expansion create different purchasing prerequisites. ■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■ ■■■ ■■■■■■■■ ■■■■ ■■■■■■■■ ■ ■■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■ ■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■ ■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■■ A new facility does not, by itself, establish that an in-rack rather than shared CDU arrangement has been selected.

Retrofit & Expansion begins with the installed environment. CoolIT markets CHx80 for existing standard racks and identifies facility-water access as a requirement. ■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■ ■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■■ ■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■ ■■■ ■■■■■■■■■ ■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■ ■■■■■■■■■■■■

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Figure 26. Global Integrated In-Rack CDUs Market, by Project Purpose: Market share evolution, 2025-2032

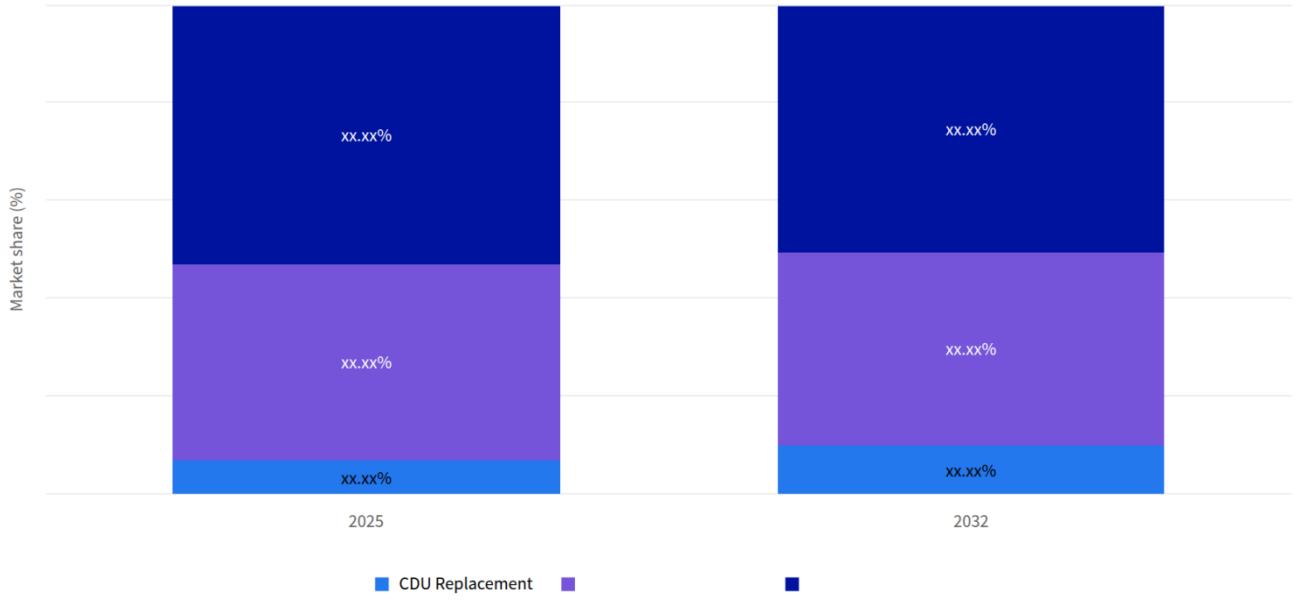


Figure 27. Global Integrated In-Rack CDUs Market, by Project Purpose: Market size by category, 2025

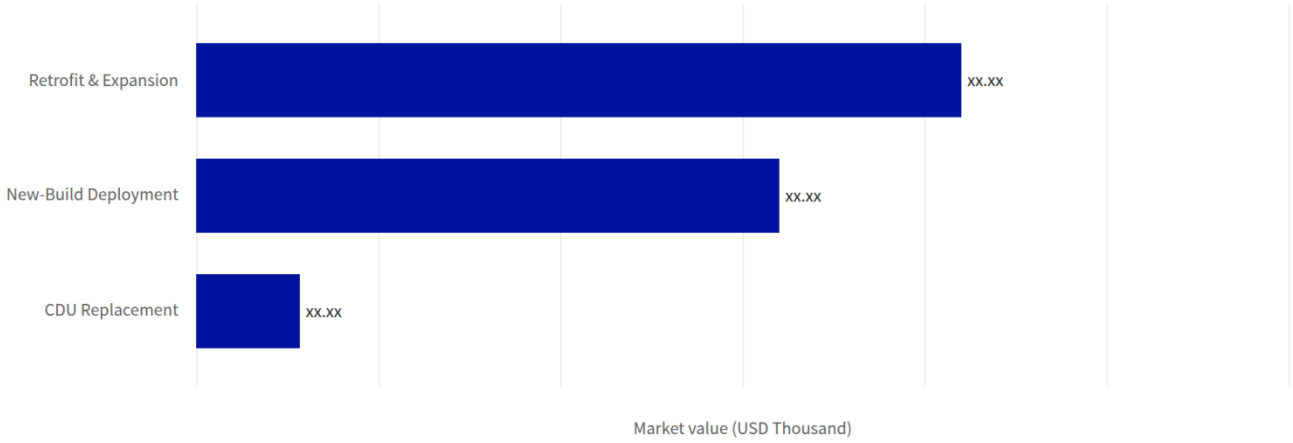


Figure 28. Global Integrated In-Rack CDUs Market, by Project Purpose: Market size and growth, 2025-2032



Table 87. Global Integrated In-Rack CDUs Market, by Project Purpose growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 88. Global Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   · CoolIT markets CHx80 for existing standard racks and states that it requires facility-water access; its portfolio also distinguishes in-rack and row-based alternatives.
   ([coolitsystems.com](https://www.coolitsystems.com/cdu-product/chx80/))
2. Cooling | Equinix Product Documentation
   · Equinix's self-contained liquid-to-air engagement requires a private cage, equipment and safety documentation, and agreed terms.
   ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))
3. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   · Lenovo requires Professional Services review and approval for RM100 factory integration and associated warranty and extended services; this is not a universal replacement policy.
   ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp2128-thinksystem-sr650a-v4-server))
4. Coolant Distribution Unit - Open Compute Project
   · OCP's CDU sub-project explicitly addresses deployment in both new and existing data centers.
   ([opencompute.org](https://www.opencompute.org/projects/cooling-environments/coolant-distribution-unit/))

14.1. Retrofit & Expansion

Table 89. Global Integrated In-Rack CDUs Market Size, by Retrofit & Expansion, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 90. Global Integrated In-Rack CDUs Market Size, by Retrofit & Expansion, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 91. Global Integrated In-Rack CDUs Market Size, by Retrofit & Expansion, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

14.2. New-Build Deployment

Table 92. Global Integrated In-Rack CDUs Market Size, by New-Build Deployment, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 93. Global Integrated In-Rack CDUs Market Size, by New-Build Deployment, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 94. Global Integrated In-Rack CDUs Market Size, by New-Build Deployment, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

14.3. CDU Replacement

Table 95. Global Integrated In-Rack CDUs Market Size, by CDU Replacement, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 96. Global Integrated In-Rack CDUs Market Size, by CDU Replacement, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 97. Global Integrated In-Rack CDUs Market Size, by CDU Replacement, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

15. Integrated In-Rack CDUs Market, by Sales Channel

[illegible] Vertiv provides a manufacturer inquiry route for CoolChip CDU xx.xx. A direct buyer should establish model availability for the destination and identify who owns integration, facility acceptance and continuing support before relying on the equipment order as a complete deployment commitment.

[illegible] This establishes a specific OEM relationship, not the original manufacturer of every downstream branded CDU. Suppliers pursuing this channel should verify the named platform relationship and purchasing requirements rather than infer access from an OEM's general liquid-cooling portfolio.

[illegible] Buyers should verify the model, territory, service scope and contracting principal; the seller need not be the authorized maintenance party. An intermediary is useful when it supplies an enforceable local obligation the direct offer does not, but adds a contractual handoff and cannot substitute for facility permission.

Figure 29. Global Integrated In-Rack CDUs Market, by Sales Channel: Market share evolution, 2025-2032

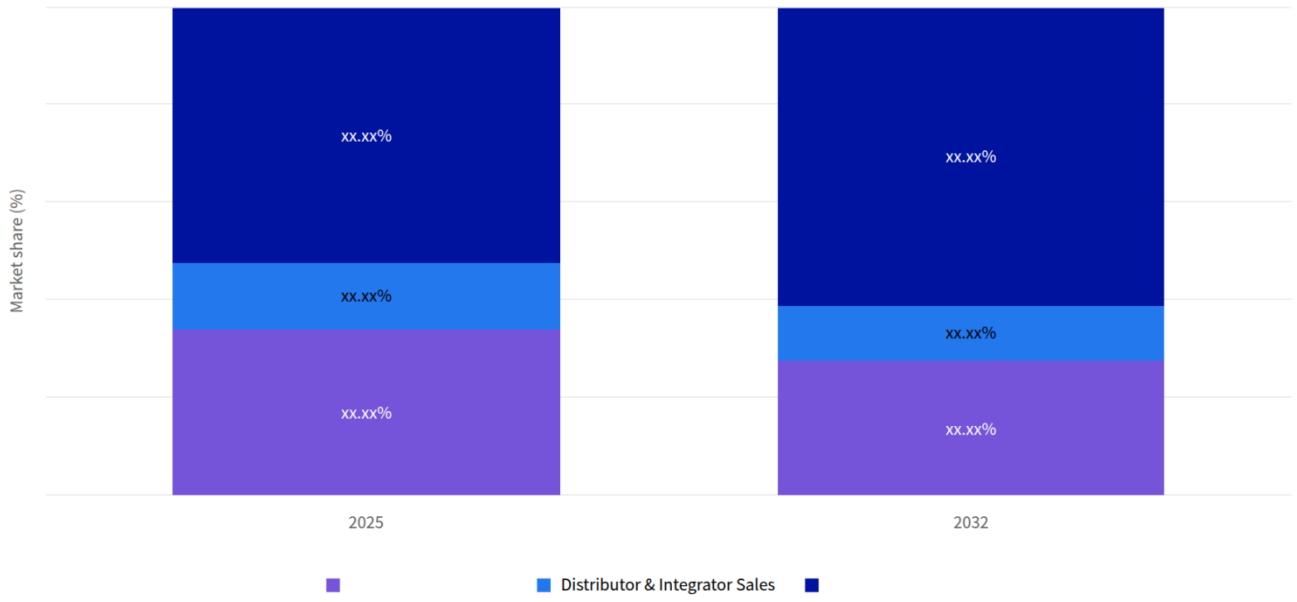


Figure 30. Global Integrated In-Rack CDUs Market, by Sales Channel: Market size by category, 2025

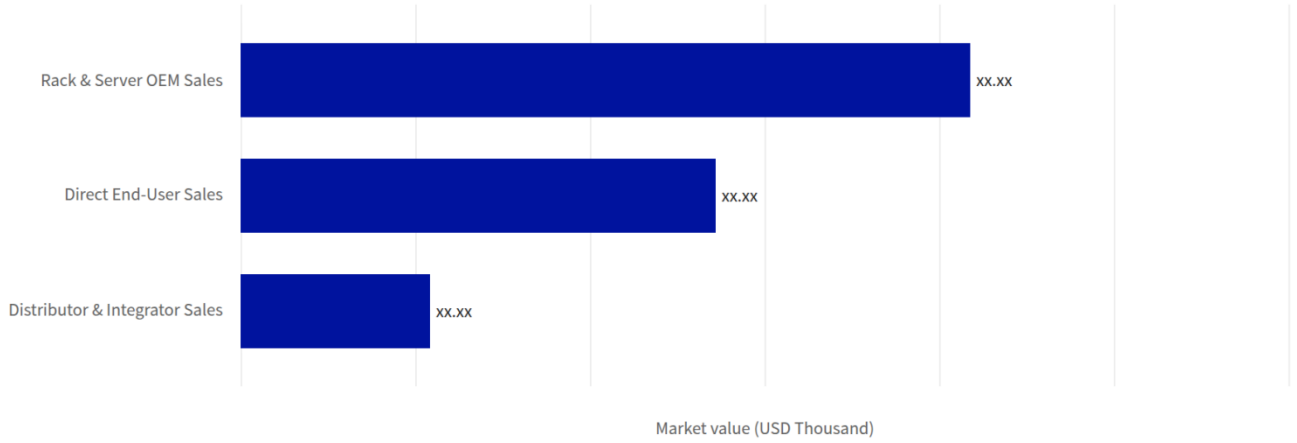


Figure 31. Global Integrated In-Rack CDUs Market, by Sales Channel: Market size and growth, 2025-2032

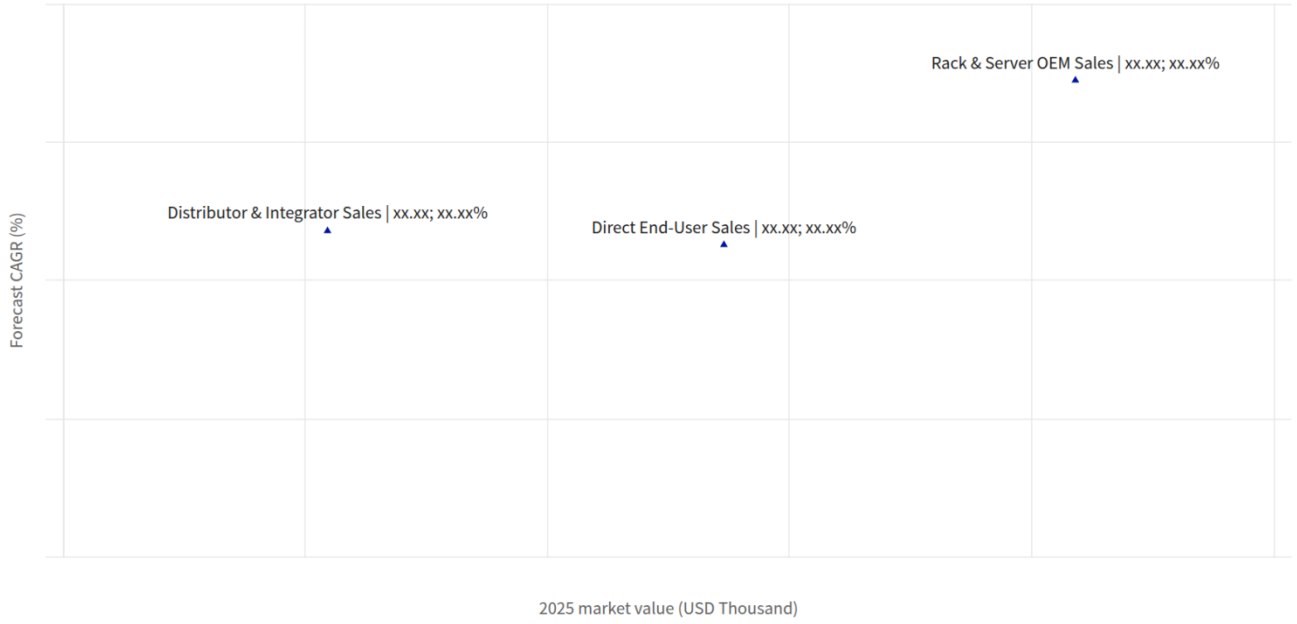


Table 98. Global Integrated In-Rack CDUs Market, by Sales Channel growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 99. Global Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Vertiv CoolChip CDU 100
   · The CoolChip CDU xx.xx page provides a manufacturer inquiry route for prospective purchasers. ([go.vertiv.com](https://go.vertiv.com/CoolChip-CDU-xx.xx))
2. Cooling | Equinix Product Documentation
   · Equinix permits customer-supplied CDUs under liquid-to-cage while retaining facility engagement and acceptance conditions; equipment sourcing and facility permission are distinct. ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))
3. Worldwide Liquid Cooling Services
   · CoolIT uses Authorized Service Providers alongside internal teams and retains internal oversight and escalation support. ([coolitsystems.com](https://www.coolitsystems.com/products-services/global-professional-services/))
4. Partners
   · Vertiv describes trained reseller routes for selling and supporting its portfolio; this does not establish authorization for every CDU model. ([vertiv.com](https://www.vertiv.com/en-us/about/news-and-events/topics/partners/))
5. Nidec Starts Shipping OCP-standard, In-rack-type, 4U-size 250KW CDU to Supermicro
   · On December xx.xx 2024, Nidec announced that it had begun supplying jointly developed in-rack CDUs to Supermicro for a complete rack solution. ([nidec.com](https://www.nidec.com/en/product/news/2024/news1205-xx.xx/))

15.1. Rack & Server OEM Sales

Table 100. Global Integrated In-Rack CDUs Market Size, by Rack & Server OEM Sales, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 101. Global Integrated In-Rack CDUs Market Size, by Rack & Server OEM Sales, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 102. Global Integrated In-Rack CDUs Market Size, by Rack & Server OEM Sales, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

15.2. Direct End-User Sales

Table 103. Global Integrated In-Rack CDUs Market Size, by Direct End-User Sales, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 104. Global Integrated In-Rack CDUs Market Size, by Direct End-User Sales, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 105. Global Integrated In-Rack CDUs Market Size, by Direct End-User Sales, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

15.3. Distributor & Integrator Sales

Table 106. Global Integrated In-Rack CDUs Market Size, by Distributor & Integrator Sales, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 107. Global Integrated In-Rack CDUs Market Size, by Distributor & Integrator Sales, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 108. Global Integrated In-Rack CDUs Market Size, by Distributor & Integrator Sales, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

16. Integrated In-Rack CDUs Market, by Cooling Capacity

[redacted] These are supplier catalog ratings, not assured outcomes for every receiving rack. OCP's capacity-reporting guidance supports requesting a comparable declared rating basis before comparing proposals.

The comparison must also preserve the finished-unit boundary. Nidec separately describes individual in-rack models and its STC xx.xx multi-unit stack, so an assembly total should not be substituted for one CDU's rating. [redacted]

Figure 32. Global Integrated In-Rack CDUs Market, by Cooling Capacity: Market share evolution, 2025-2032

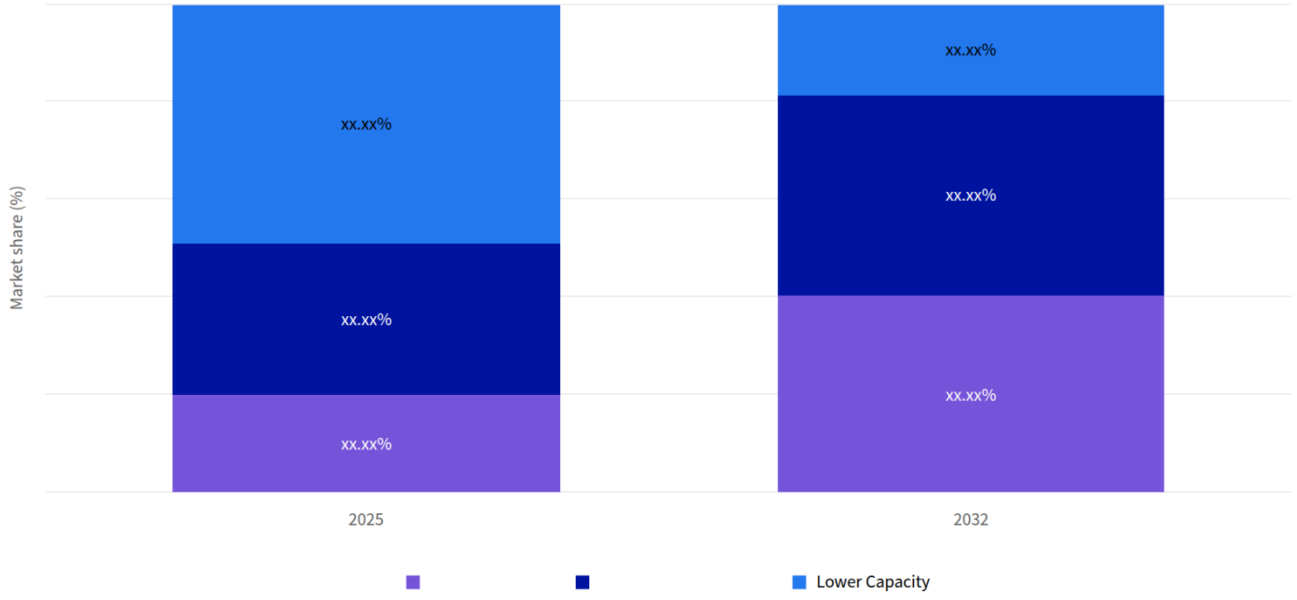


Figure 33. Global Integrated In-Rack CDUs Market, by Cooling Capacity: Market size by category, 2025

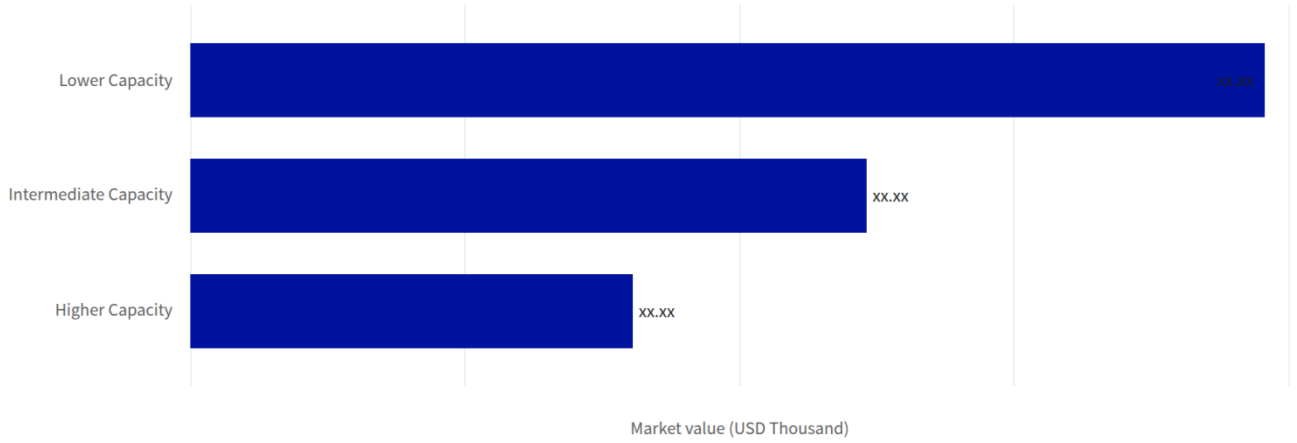


Figure 34. Global Integrated In-Rack CDUs Market, by Cooling Capacity: Market size and growth, 2025-2032



Table 109. Global Integrated In-Rack CDUs Market, by Cooling Capacity growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 110. Global Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   • CoolIT publishes an xx.xx kW CHx80 rating and identifies CHx200 as a xx.xx kW in-rack alternative. These are supplier product ratings. ([coolitsystems.com](https://www.coolitsystems.com/cdu-product/chx80/))
2. In-Rack CDU | Nidec's Thermal Solutions
   • Nidec lists Gen3.xx.xx OCP at up to xx.xx kW and separately describes individual in-rack models and the STC xx.xx multi-unit stack.
   ([nidec.com](https://www.nidec.com/en/product/liquid-cooling-line-up/products/in-rack/))
3. Liquid to Liquid CDU Test Methodology and Performance Rating - Revision 1.0
   • OCP recommends capacity-reporting conventions to improve communication among suppliers, integrators and end users, supporting comparable commercial rating declarations.
   ([opencompute.org](https://www.opencompute.org/documents/ocp-wp-l-lcdu-test-methodology-performance-rating-r1-pdf))

16.1. Lower Capacity

Table 111. Global Integrated In-Rack CDUs Market Size, by Lower Capacity, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 112. Global Integrated In-Rack CDUs Market Size, by Lower Capacity, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 113. Global Integrated In-Rack CDUs Market Size, by Lower Capacity, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

16.2. Intermediate Capacity

Table 114. Global Integrated In-Rack CDUs Market Size, by Intermediate Capacity, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 115. Global Integrated In-Rack CDUs Market Size, by Intermediate Capacity, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 116. Global Integrated In-Rack CDUs Market Size, by Intermediate Capacity, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

16.3. Higher Capacity

Table 117. Global Integrated In-Rack CDUs Market Size, by Higher Capacity, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 118. Global Integrated In-Rack CDUs Market Size, by Higher Capacity, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 119. Global Integrated In-Rack CDUs Market Size, by Higher Capacity, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

17. Integrated In-Rack CDUs Market, by Pump Redundancy

[redacted] APALTEK states that a remaining pump in its RCDU-150P-xx.xx can maintain the rated requirement, providing an explicit commercial claim of internal spare capability. Operators should obtain confirmation that the offered coverage applies to the purchased configuration rather than extend a catalog statement to an unverified rack arrangement.

[redacted] Such services do not create internal pump redundancy, and redundant equipment does not establish a local response commitment. The choice trades internal backup against reliance on agreed recovery arrangements; changes in workload criticality or service coverage should prompt reassessment.

Figure 35. Global Integrated In-Rack CDUs Market, by Pump Redundancy: Market share evolution, 2025-2032

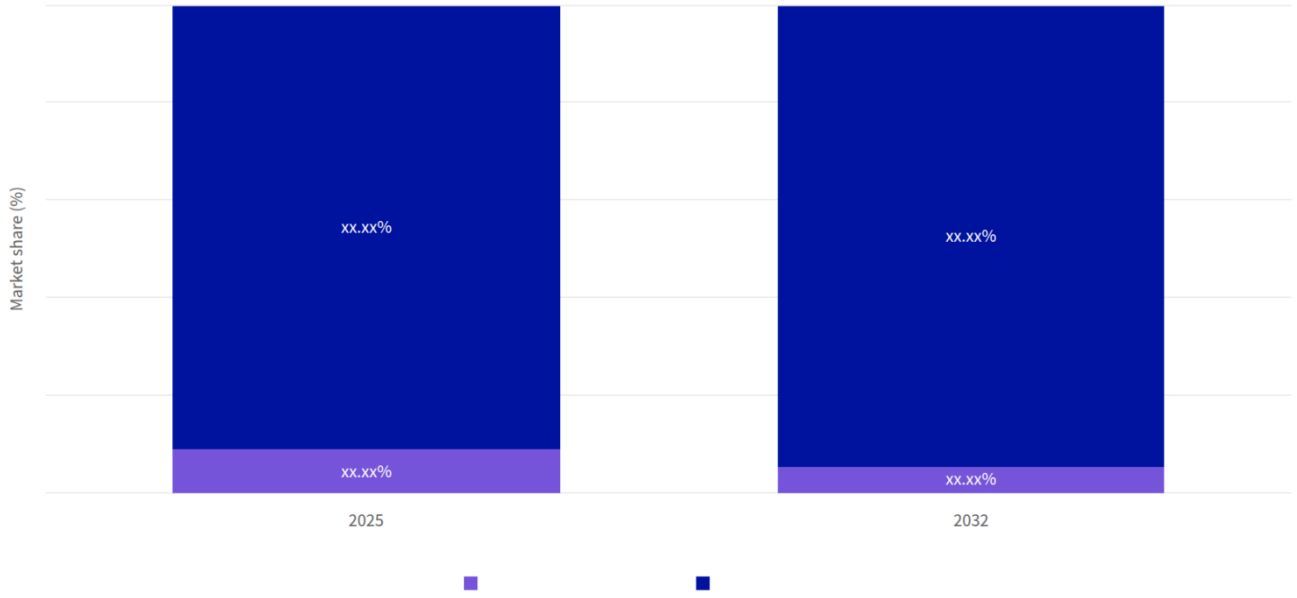


Figure 36. Global Integrated In-Rack CDUs Market, by Pump Redundancy: Market size by category, 2025

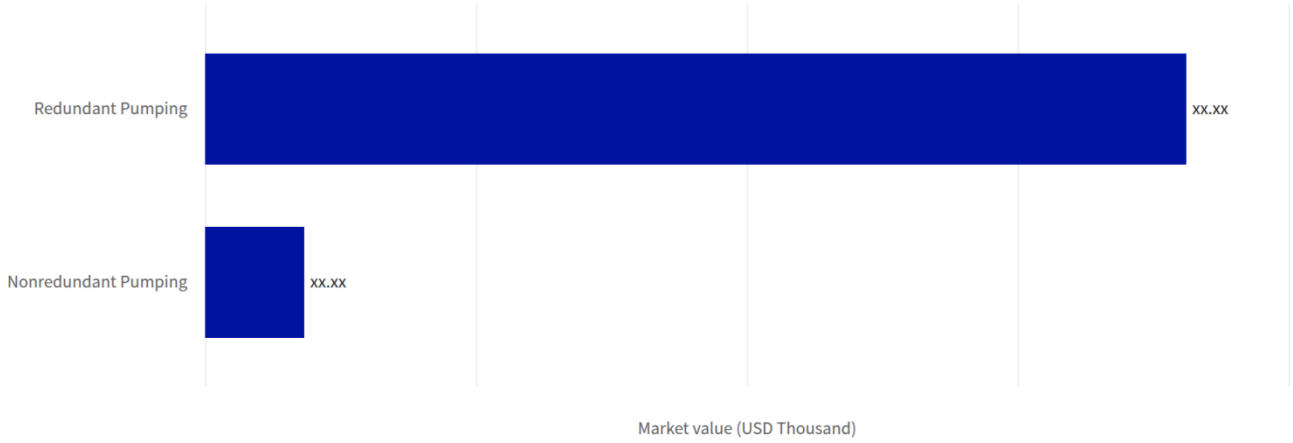


Table 120. Global Integrated In-Rack CDUs Market, by Pump Redundancy growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 121. Global Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Worldwide Liquid Cooling Services

   · CoolIT offers maintenance packages and service-level agreements including spare parts and remote support, establishing contractual recovery offerings separate from internal pump features. ([coolitsystems.com](https://www.coolitsystems.com/products-services/global-professional-services/))

2. In-Rack CDU 150 kW - APALTEK

   · APALTEK states that a remaining pump in RCDU-150P-xx.xx maintains the rated requirement, providing an explicit manufacturer claim of internal spare pumping capability. ([apaltek.com](https://www.apaltek.com/product/in-rack-cdu-xx.xx-kw/))

17.1. Redundant Pumping

Table 122. Global Integrated In-Rack CDUs Market Size, by Redundant Pumping, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 123. Global Integrated In-Rack CDUs Market Size, by Redundant Pumping, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 124. Global Integrated In-Rack CDUs Market Size, by Redundant Pumping, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

17.2. Nonredundant Pumping

Table 125. Global Integrated In-Rack CDUs Market Size, by Nonredundant Pumping, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 126. Global Integrated In-Rack CDUs Market Size, by Nonredundant Pumping, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 127. Global Integrated In-Rack CDUs Market Size, by Nonredundant Pumping, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

RESEARCH SAMPLE REPORT

18. Integrated In-Rack CDUs Market, by Region

Asia-Pacific access combines jurisdiction-specific purchasing criteria with supplier-specific support routes. [redacted] Singapore's policy criteria and a supplier's regional presence should be qualified separately before committing to another destination.

[redacted] Buyers should verify documentation for the delivered CDU and destination before shipment. A supplier with suitable documented coverage can simplify purchasing, but neither U.S. approval nor an Ontario authorization should be generalized across every North American jurisdiction.

Latin American procurement can be anchored to an identified receiving facility rather than a broad regional readiness assumption. [redacted] Independent equipment selection preserves choice only where the receiving arrangement accepts it; facility readiness alone does not identify the CDU supplier or architecture.

[redacted] Suppliers should agree product documentation and reporting information with EU customers while keeping equipment claims separate from facility outcomes. EU obligations should not be generalized to every European jurisdiction.

[redacted]

[redacted] CoolIT's UAE office offers a local engagement point, but its presence does not establish the purchased model's support terms elsewhere in the Middle East. A regional relationship is useful only when destination-specific obligations are enforceable.

Africa includes documented completed infrastructure that still leaves equipment placement open. [redacted] The Johannesburg example does not establish equivalent access or support throughout Africa.

Figure 37. Global Integrated In-Rack CDUs Market, by Region: Market share evolution, 2025-2032

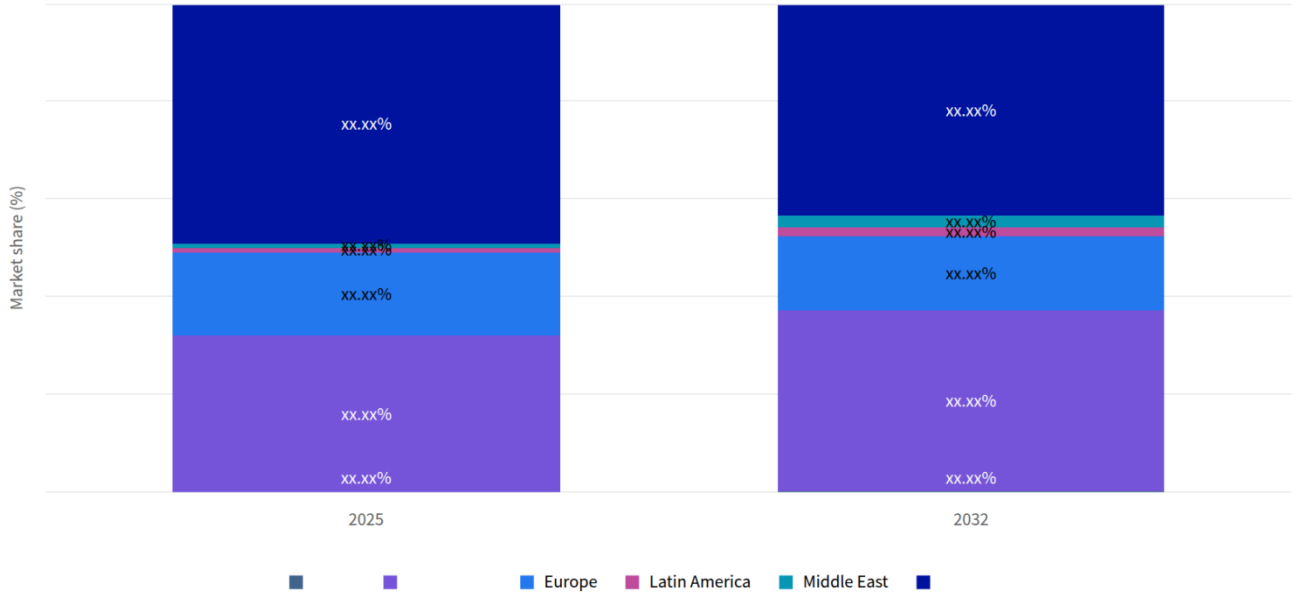


Figure 38. Global Integrated In-Rack CDUs Market, by Region: Market size by category, 2025

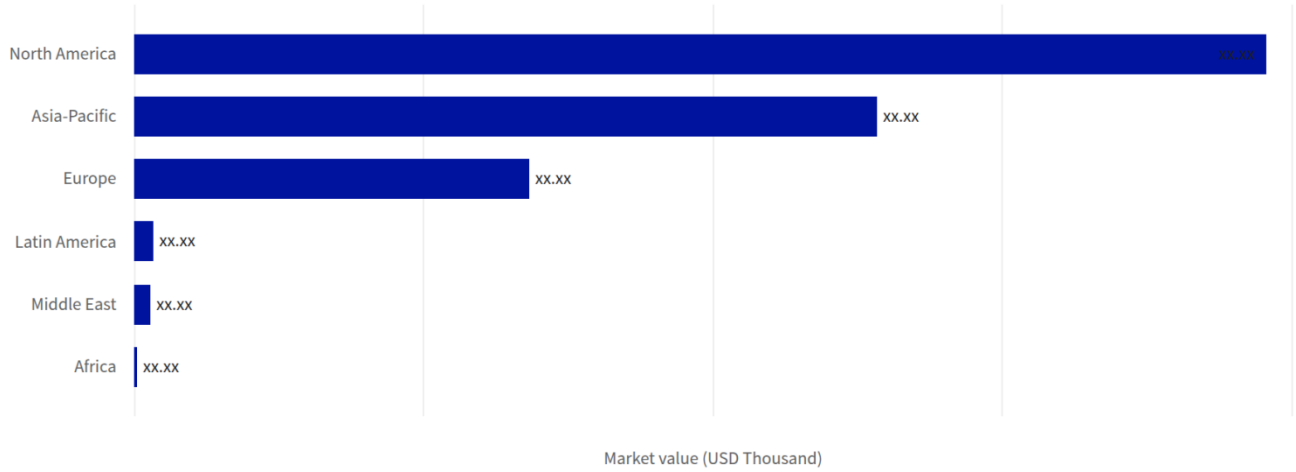


Figure 39. Global Integrated In-Rack CDUs Market, Regional growth by Sales Channel, 2025-2032 (CAGR %)

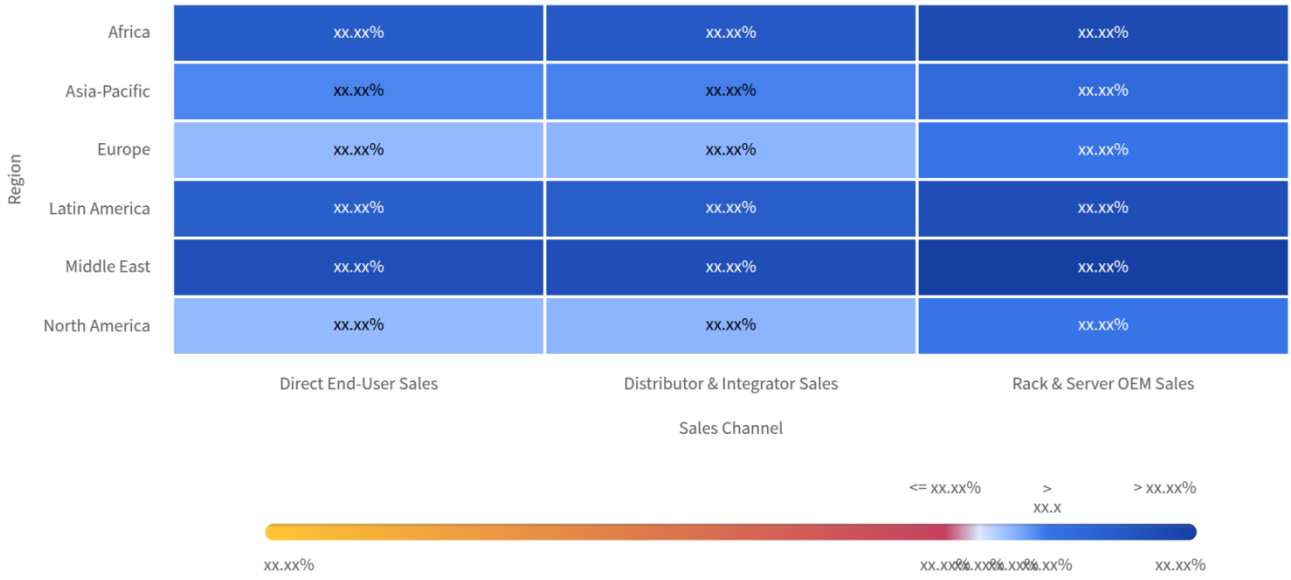


Table 128. Global Integrated In-Rack CDUs Market, by Region growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 129. Global Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Asia-Pacific	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Europe	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latin America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Middle East	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North America	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Worldwide Liquid Cooling Coverage
   - CoolIT identifies a Taiwan office supporting Asian operations and customer engagement and a UAE office supporting operations and engagement in the UAE. ([coolitsystems.com](https://www.coolitsystems.com/resources/data-center-deployments-map/))
2. Energy performance of data centres
   - EU data center reporting is established. On September xx.xx 2026, the Commission proposed a common rating scheme and launched consultation on minimum performance standards. ([energy.ec.europa.eu](https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-directive/energy-performance-data-centres_en))
3. CE marking
   - CE marking concerns conformity under applicable product legislation and is not approval by an EU authority. ([single-market-economy.ec.europa.eu](https://single-market-economy.ec.europa.eu/single-market/goods/ce-marking_en))
4. OSHA's Nationally Recognized Testing Laboratory Program - Frequently Asked Questions
   - OSHA distinguishes applicable U.S. NRTL certification requirements from CE marking, which does not satisfy those requirements. ([osha.gov](https://www.osha.gov/nationally-recognized-testing-laboratory-program/frequently-asked-questions))

5. DPM Heng Swee Keat at the Asia Tech x Singapore 2024 Opening Ceremony
   · Singapore's government states that additional data center allocation will prioritize operators emphasizing sustainability and economic value.
   ([pmo.gov.sg](https://www.pmo.gov.sg/newsroom/dpm-heng-swee-keat-at-the-asia-tech-x-singapore-2024-opening-ceremony/))
6. Factsheet: Charting Green Growth Pathways at Scale for Data Centres in Singapore
   · Singapore's roadmap calls for cooling solutions tailored to facility needs and recognizes different cooling arrangements for different workloads rather than prescribing in-rack CDU placement.
   ([mci.gov.sg](https://www.mci.gov.sg/files/Speeches%xx.xx/1__Factsheet_IMDA_Green_DC_Roadmap.pdf))
7. Recognized Approval Marks - Electrical Safety Authority
   · Ontario's Electrical Safety Authority requires recognized approval of electrical equipment offered or used in Ontario and identifies accepted certification and evaluation marks.
   ([esasafe.com](https://esasafe.com/electrical-products/recognized-certification-marks/))
8. Step Inside Equinix SP6: Photos of Our Newest AI-Ready Data Center in São Paulo
   · Equinix's April xx.xx 2026 SP6 disclosure describes São Paulo infrastructure prepared for advanced liquid cooling; it does not identify a customer's in-rack CDU selection.
   ([blog.equinix.com](https://blog.equinix.com/blog/2026/xx.xx/xx.xx/step-inside-equinix-sp6-photos-of-our-newest-ai-ready-data-center-in-sao-paulo/))
9. Khazna Awarded Tier III Certification of Design Documents for Ajman, UAE Facility
   · Khazna announced Ajman Tier III Certification of Design Documents on February xx.xx 2026; the release distinguishes design certification from assurance after construction.
   ([khaznadatacenters.com](https://khaznadatacenters.com/press-release/khazna-awarded-tier-iii-certification-of-design-documents-for-ajman-uae-facility/))
10. Teraco Completes Significant JB4 Hyperscale Data Centre Expansion, Incorporating New Sustainability Designs
    · Teraco announced completion of the JB4 expansion on August xx.xx 2025, with liquid-to-liquid enabled halls supporting air-cooled cloud and direct-to-chip deployments.
    ([teraco.co.za](https://www.teraco.co.za/news/teraco-completes-significant-jb4-hyperscale-data-centre-expansion-incorporating-new-sustainability-designs/))

18.1. North America

Table 130. North America Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unallocated / remaining scope	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 131. North America Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 132. North America Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 133. North America Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 134. North America Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 135. North America Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 136. North America Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 137. North America Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 138. North America Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 139. North America Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 140. North America Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 141. North America Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 142. North America Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

18.2. Asia-Pacific

Table 143. Asia-Pacific Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Indonesia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Malaysia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Philippines	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Singapore	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Taiwan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Thailand	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unallocated / remaining scope	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 144. Asia-Pacific Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Indonesia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Malaysia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Philippines	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Singapore	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Taiwan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Thailand	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 145. Asia-Pacific Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 146. Asia-Pacific Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 147. Asia-Pacific Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 148. Asia-Pacific Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 149. Asia-Pacific Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 150. Asia-Pacific Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 151. Asia-Pacific Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 152. Asia-Pacific Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 153. Asia-Pacific Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 154. Asia-Pacific Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 155. Asia-Pacific Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

18.3. Europe

Table 156. Europe Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Austria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Belgium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Denmark	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Finland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Netherlands	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Norway	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Poland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Portugal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sweden	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Switzerland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unallocated / remaining scope	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 157. Europe Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Austria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Belgium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Denmark	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Finland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Netherlands	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Norway	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Poland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Portugal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sweden	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Switzerland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 158. Europe Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 159. Europe Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 160. Europe Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 161. Europe Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 162. Europe Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 163. Europe Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 164. Europe Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 165. Europe Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 166. Europe Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 167. Europe Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 168. Europe Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

18.4. Latin America

Table 169. Latin America Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Argentina	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Chile	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colombia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Peru	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unallocated / remaining scope	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 170. Latin America Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Argentina	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Chile	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colombia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Peru	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 171. Latin America Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 172. Latin America Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 173. Latin America Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 174. Latin America Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 175. Latin America Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 176. Latin America Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 177. Latin America Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 178. Latin America Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 179. Latin America Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 180. Latin America Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 181. Latin America Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

18.5. Middle East

Table 182. Middle East Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Israel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Qatar	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Saudi Arabia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Turkey	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unallocated / remaining scope	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Arab Emirates	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 183. Middle East Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Israel	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Qatar	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Saudi Arabia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Turkey	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Arab Emirates	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 184. Middle East Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 185. Middle East Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 186. Middle East Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 187. Middle East Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 188. Middle East Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 189. Middle East Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 190. Middle East Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 191. Middle East Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 192. Middle East Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 193. Middle East Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 194. Middle East Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

18.6. Africa

Table 195. Africa Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Egypt	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Kenya	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nigeria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unallocated / remaining scope	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 196. Africa Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand)

Region	2023	2024	2025	2026	2027	2032	CAGR (%)
Egypt	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Kenya	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Nigeria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 197. Africa Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 198. Africa Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 199. Africa Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 200. Africa Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 201. Africa Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 202. Africa Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 203. Africa Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 204. Africa Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 205. Africa Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 206. Africa Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 207. Africa Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

19. Integrated In-Rack CDUs Market, by Group

[illegible] Americas and Europe, Middle East & Africa organize cross-border delivery relationships; other groups organize regulatory cooperation, infrastructure or procurement access. Their overlapping coverage is non-additive, and membership does not establish a qualified in-rack offering or a common service commitment.

In the Americas, regional purchasing arrangements must distinguish trade origin from the seller's location. USMCA benefits depend on applicable origin rules for trade among the United States, Canada and Mexico; this framework does not extend to Brazil. [illegible]

[illegible] Buyers seeking a consolidated relationship should require the agreement to name the destination provider and escalation owner, particularly before transferring European or UAE assurances to South Africa, Nigeria or Kenya. Separate country contracts preserve local accountability but increase coordination; regional consolidation is appropriate only where those obligations remain enforceable.

[illegible] A supplier should distinguish documentation recognized under the regional arrangements from requirements imposed by the destination and receiving operator. Regional distribution becomes useful when this distinction is documented; otherwise, country-specific qualification remains necessary.

GCC offers a shared conformity framework through the Gulf Conformity Mark, but its compulsory application follows the product categories covered by Gulf technical regulations. Suppliers addressing Saudi Arabia, United Arab Emirates, Qatar, Bahrain, Kuwait and Oman should therefore determine the selected CDU's regulatory scope rather than assume every electrical cooling product requires the same marking. [illegible]

[redacted]

Australasia has a specific trade-access mechanism in Australia's Trans-Tasman mutual-recognition legislation. [redacted] Direct Australian qualification remains an alternative where the mutual-recognition conditions do not fit.

Nordic procurement can involve district-heating buyers alongside data center operators, but heat reuse remains site-specific across Denmark, Finland, Iceland, Norway and Sweden. Fortum's May xx.xx 2026 announcement distinguished operating heat-production facilities in Finland from Microsoft data center waste-heat recovery planned to begin in phases during 2027. [redacted]

European Union access combines shared product-conformity responsibilities with facility-level energy-performance reporting. [redacted] A facility-level requirement or proposed rule should not be converted into an unsupported product purchase mandate.

BRICS provides cooperation rather than evidence of interchangeable market-access conditions. [redacted] Cooperation initiatives may help develop relationships, but they do not establish tender eligibility, export authorization or support for a particular rack configuration.

G7 public-sector access is better assessed through procurement agreements than through the group label. The Government Procurement Agreement connects the United States, Canada, Japan, the United Kingdom and the European Union, including France, Germany and

Italy, through covered procurement commitments. [redacted] A qualifying tender route can provide access, but requires call-specific compliance and delivery responsibility rather than a general regional sales assumption.

Figure 40. Global Integrated In-Rack CDUs Market Size, by Group, 2025 vs 2026 vs 2032

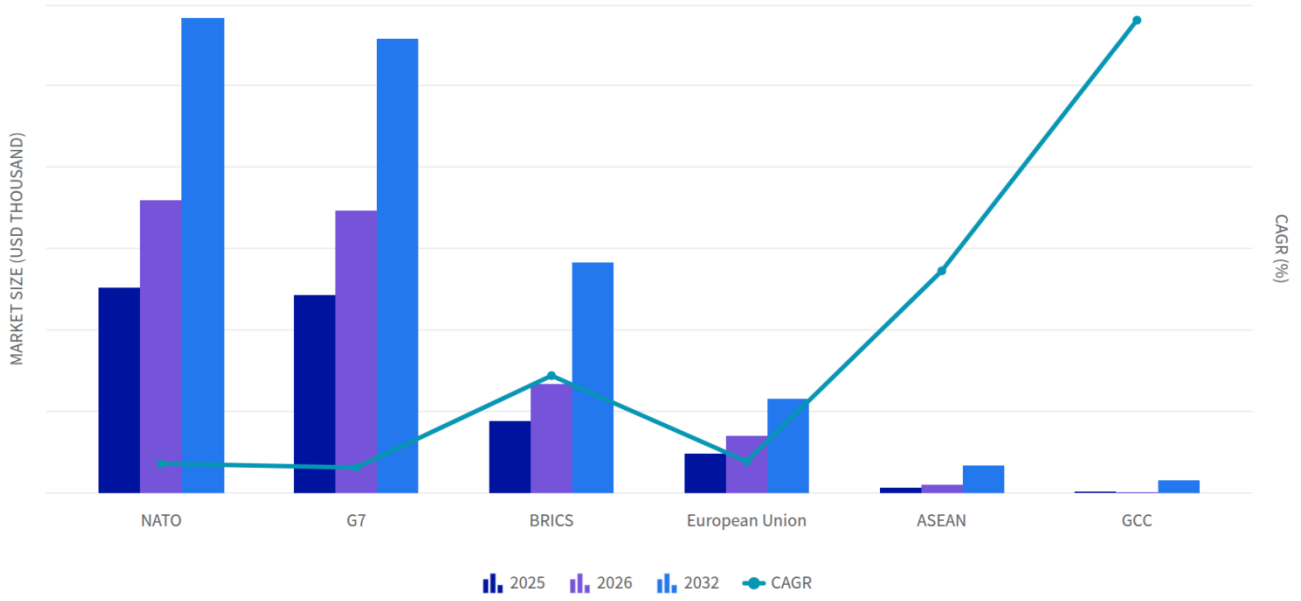


Table 208. Global Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
ASEAN	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
BRICS	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
European Union	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
G7	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
GCC	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
NATO	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Sources & Evidence

1. Worldwide Liquid Cooling Coverage
   · CoolIT lists European and UAE offices and states that highlighted countries identify onsite service and support coverage; this establishes differentiated presence, not site-specific contractual commitments. ([coolitsystems.com](https://www.coolitsystems.com/resources/data-center-deployments-map/))
2. Energy performance of data centres
   · The Commission distinguishes established data center reporting from its common rating-scheme proposal dated September xx.xx 2026; the page concerns facility performance rather than CDU placement. ([energy.ec.europa.eu](https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-directive/energy-performance-data-centres_en))
3. CE marking
   · CE marking assigns conformity responsibilities to manufacturers and obligations to importers and distributors for applicable products placed on the EEA market. ([single-market-economy.ec.europa.eu](https://single-market-economy.ec.europa.eu/single-market/goods/ce-marking_en))
4. NAFTA and the United States-Mexico-Canada Agreement (USMCA)
   · USMCA origin rules determine eligibility for agreement benefits and include product-specific rules; the agreement concerns the United States, Mexico and Canada. ([congress.gov](https://www.congress.gov/crs_external_products/R/PDF/R44981/R44981.xx.xx.pdf))
5. Press Releases | Equinix
   · Equinix's December xx.xx 2023 announcement named Brazil, Mexico and Colombia in planned direct-to-chip liquid-cooling support expansion; it was an announcement, not site-by-site completion evidence. ([newsroom.equinix.com](https://newsroom.equinix.com/2023-xx.xx-xx.xx-Equinix-acelera-e-simplifica-implantacao-de-resfriamento-liquido-para-potencializar-cargas-de-trabalho-empresariais-de-IA))
6. ASEAN Trade in Goods Agreement
   · ATIGA incorporates electrical and electronic equipment recognition arrangements and requires national authorities to maintain conformity enforcement and market surveillance. ([asean.org](https://asean.org/wp-content/uploads/2021/xx.xx/ASEAN-Trade-in-Goods-Agreement.pdf))
7. Singapore launches world's first liquid cooling standard for data centres in tropical climates
   · Singapore launched SS xx.xx:2026, Liquid Cooling in Tropical Data Centres, providing a constituent-specific reference within ASEAN. ([enterprisesg.gov.sg](https://www.enterprisesg.gov.sg/resources/media-centre/media-releases/2026/august/mr03826_singapore-launches-worlds-first-liquid-cooling-standard-for-data-centres-in-tropical-climates))
8. Gulf Conformity Mark
   · GSO describes Gulf Conformity Marking as a cross-border conformity framework whose compulsory application follows categories covered by Gulf technical regulations. ([gso.org.sa](https://www.gso.org.sa/en/conformity/gcc-conformity-mark/))
9. Trans-Tasman Mutual Recognition Act 1997
   · The Australian Act permits qualifying goods lawfully sold in New Zealand to be sold in Australia, subject to conditions, retained obligations, exclusions and exemptions. ([legislation.gov.au](https://www.legislation.gov.au/C2004A05284/2025-xx.xx-xx.xx/2025-xx.xx-xx.xx/text/original/pdf))
10. Fortum has started heat production at two large data centre sites in Finland
    · Fortum announced operating Finnish heat-production facilities on May xx.xx 2026, while Microsoft data center waste-heat recovery was planned to begin progressively in 2027. ([fortum.com](https://www.fortum.com/media/2026/xx.xx/fortum-has-started-heat-production-two-large-data-centre-sites-finland))
11. BRICS - Ministério de Minas e Energia
    · Brazil's ministry describes BRICS as a political-diplomatic cooperation forum and records approval of an energy-cooperation roadmap in May 2025. ([gov.br](https://www.gov.br/mme/pt-br/atos-internacionais/organismos-internacionais/brics))

12. Department for Promotion of Industry and Internal Trade Annual Report 2024-25
· India's central-government procurement framework differentiates qualifying supplier categories and excludes locally resold imported items from local-content calculations. ([dpiit.gov.in](https://www.dpiit.gov.in/static/uploads/2025/xx.xx/e266b2694ebc0cbfa72a929e22790301.pdf))
13. Russia and Belarus | Bureau of Industry and Security
· BIS describes expanded export and in-country transfer controls involving Russia for items subject to the EAR, requiring transaction-specific jurisdiction and authorization review. ([bis.gov](https://www.bis.gov/licensing/country-guidance/russia-belarus))
14. Trade Act 2021 - Explanatory Notes: Commentary on provisions of Act
· The Trade Act notes identify U.S., Canadian, EU and Japanese GPA participation and UK independent membership; coverage follows schedules of institutions and procurement requirements. ([legislation.gov.uk](https://www.legislation.gov.uk/ukpga/2021/xx.xx/notes/division/xx.xx/index.htm))
15. Procurement Opportunities
· NATO states that procurement eligibility is specified in each call and opportunities are generally reserved for firms registered in member nations, with possible exceptions. ([nato.int](https://www.nato.int/en/work-with-us/business-and-project-opportunities/procurement-opportunities))

19.1. NATO

Table 209. NATO Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Albania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Belgium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Bulgaria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Croatia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Czech Republic	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Denmark	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Estonia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Finland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Greece	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Hungary	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Iceland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latvia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithuania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

RESEARCH SAMPLE REPORT

Table 209 - continued

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Luxembourg	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Montenegro	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Netherlands	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North Macedonia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Norway	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Poland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Portugal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Romania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovakia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovenia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sweden	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Turkey	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 210. NATO Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
Albania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Belgium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Bulgaria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Croatia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Czech Republic	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Denmark	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Estonia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Finland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Greece	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Hungary	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Iceland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latvia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithuania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Luxembourg	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Montenegro	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Netherlands	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
North Macedonia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Norway	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Poland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Portugal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Romania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovakia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovenia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sweden	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Turkey	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 211. NATO Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 212. NATO Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 213. NATO Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 214. NATO Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 215. NATO Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 216. NATO Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 217. NATO Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 218. NATO Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 219. NATO Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 220. NATO Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 221. NATO Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

19.2. G7

Table 222. G7 Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 223. G7 Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 224. G7 Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 225. G7 Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 226. G7 Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 227. G7 Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 228. G7 Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 229. G7 Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 230. G7 Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 231. G7 Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 232. G7 Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 233. G7 Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 234. G7 Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

19.3. BRICS

Table 235. BRICS Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 236. BRICS Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Africa	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 237. BRICS Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 238. BRICS Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 239. BRICS Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 240. BRICS Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 241. BRICS Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 242. BRICS Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 243. BRICS Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 244. BRICS Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 245. BRICS Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 246. BRICS Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 247. BRICS Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

19.4. European Union

Table 248. European Union Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Austria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Belgium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Bulgaria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Croatia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cyprus	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Czech Republic	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Denmark	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Estonia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Finland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Greece	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Hungary	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Ireland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latvia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithuania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Luxembourg	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Malta	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Netherlands	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Poland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Portugal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Romania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovakia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovenia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sweden	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 249. European Union Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
Austria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Belgium	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Bulgaria	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Croatia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cyprus	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Czech Republic	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Denmark	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Estonia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Finland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Greece	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Hungary	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Ireland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Latvia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lithuania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Luxembourg	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Malta	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Netherlands	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Poland	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Portugal	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Romania	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovakia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Slovenia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Sweden	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 250. European Union Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 251. European Union Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 252. European Union Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 253. European Union Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 254. European Union Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 255. European Union Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 256. European Union Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 257. European Union Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 258. European Union Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 259. European Union Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 260. European Union Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

19.5. ASEAN

Table 261. ASEAN Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Brunei	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cambodia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Indonesia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lao People's Democratic Republic	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Malaysia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Myanmar	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Philippines	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Singapore	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Thailand	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Vietnam	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 262. ASEAN Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
Brunei	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Cambodia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Indonesia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lao People's Democratic Republic	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Malaysia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Myanmar	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Philippines	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Singapore	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Thailand	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Vietnam	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 263. ASEAN Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 264. ASEAN Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 265. ASEAN Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 266. ASEAN Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 267. ASEAN Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 268. ASEAN Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 269. ASEAN Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 270. ASEAN Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 271. ASEAN Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 272. ASEAN Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 273. ASEAN Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

19.6. GCC

Table 274. GCC Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Bahrain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Kuwait	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Oman	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Qatar	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Saudi Arabia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Arab Emirates	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 275. GCC Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand)

Group	2023	2024	2025	2026	2027	2032	CAGR (%)
Bahrain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Kuwait	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Oman	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Qatar	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Saudi Arabia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Arab Emirates	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx

Table 276. GCC Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 277. GCC Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 278. GCC Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 279. GCC Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 280. GCC Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 281. GCC Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 282. GCC Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 283. GCC Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 284. GCC Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 285. GCC Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 286. GCC Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20. Integrated In-Rack CDUs Market, by Country

The United States and Canada illustrate why a North American product label is insufficient for destination approval. ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ Ontario's rules should not be generalized to every Canadian jurisdiction; a cross-border equipment package must identify the relevant destination requirements.

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The United Kingdom requires a more precise destination decision than a blanket assumption that CE marking must be replaced. ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪ ▪▪▪▪▪ ▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ Reusing an applicable CE route can avoid unnecessary duplication, but neither CE nor UKCA establishes OEM warranty coverage or the receiving facility's acceptance.

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South Africa provides a completed facility-readiness example without proving an in-rack CDU order. ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ Colocation can provide a receiving infrastructure route, but CDU

placement and support responsibilities still require customer acceptance; shared cooling arrangements remain possible alternatives.

India's central-government procurement route differs from ordinary local resale. DPIIT's published procurement framework excludes imported items sourced through local resellers or distributors from local-content calculations and attaches eligibility and preference to qualifying supplier categories. ■■ ■■■■■■■■ ■■■■■■■ ■■■ ■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■ ■■■■■■■ ■■■■■■ ■■■■■■■ ■■ ■■■■■■ ■■■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■ ■■■■ ■■ ■■■■■■■ ■■■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■

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Figure 41. Global Integrated In-Rack CDUs Market Size, by Country, 2025 vs 2032 (%)

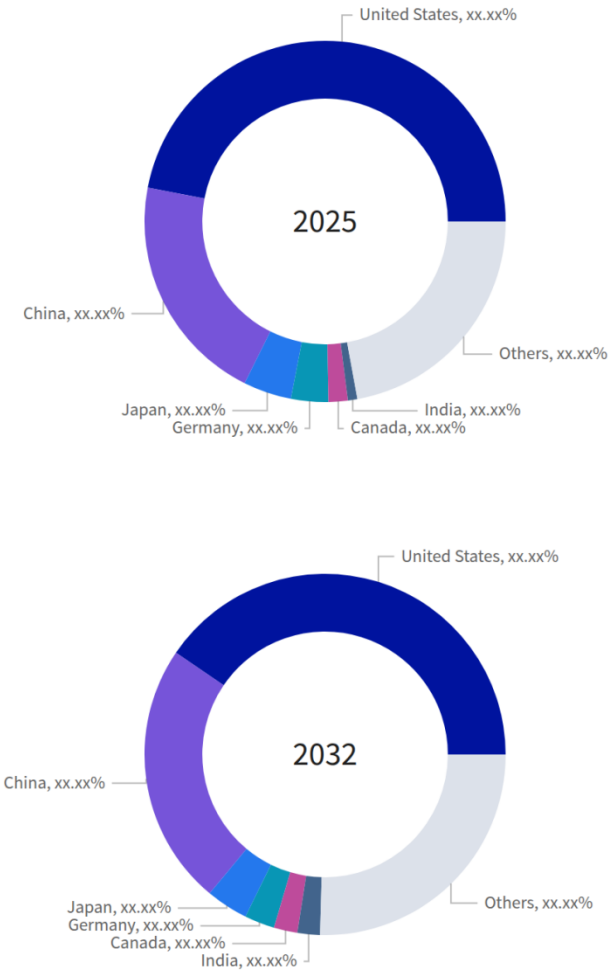


Figure 42. Global Integrated In-Rack CDUs Market Size, by Country, 2025 vs 2026 vs 2032

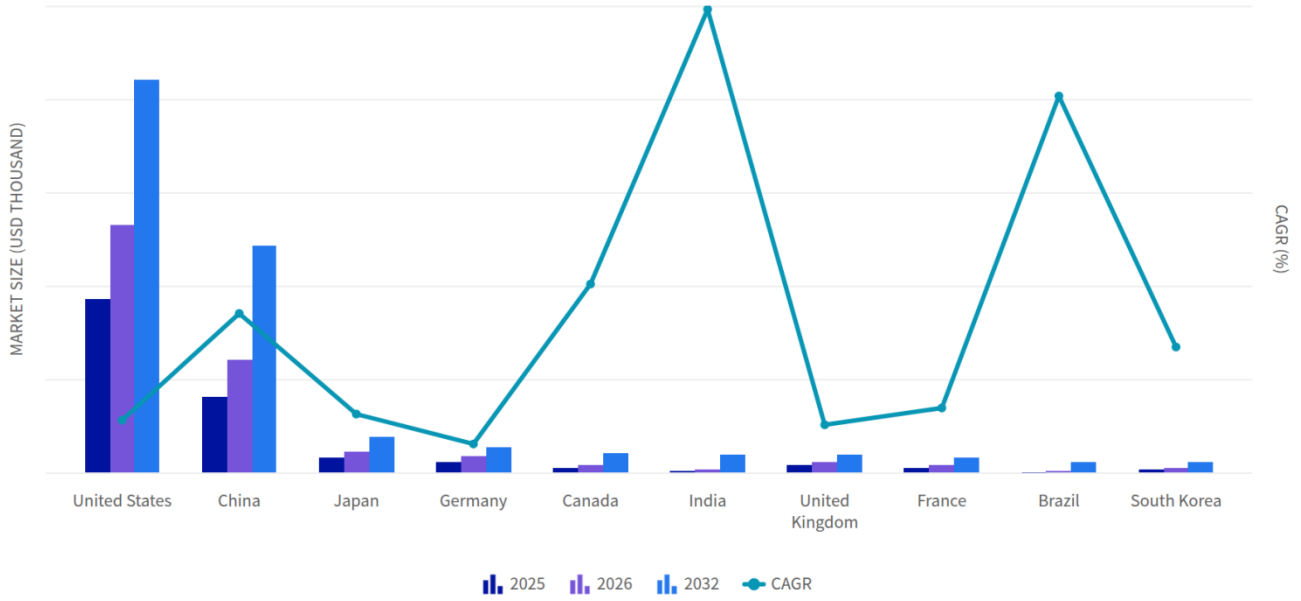


Figure 43. Global Integrated In-Rack CDUs Market, Forecast growth by country, 2025-2032 (CAGR %)

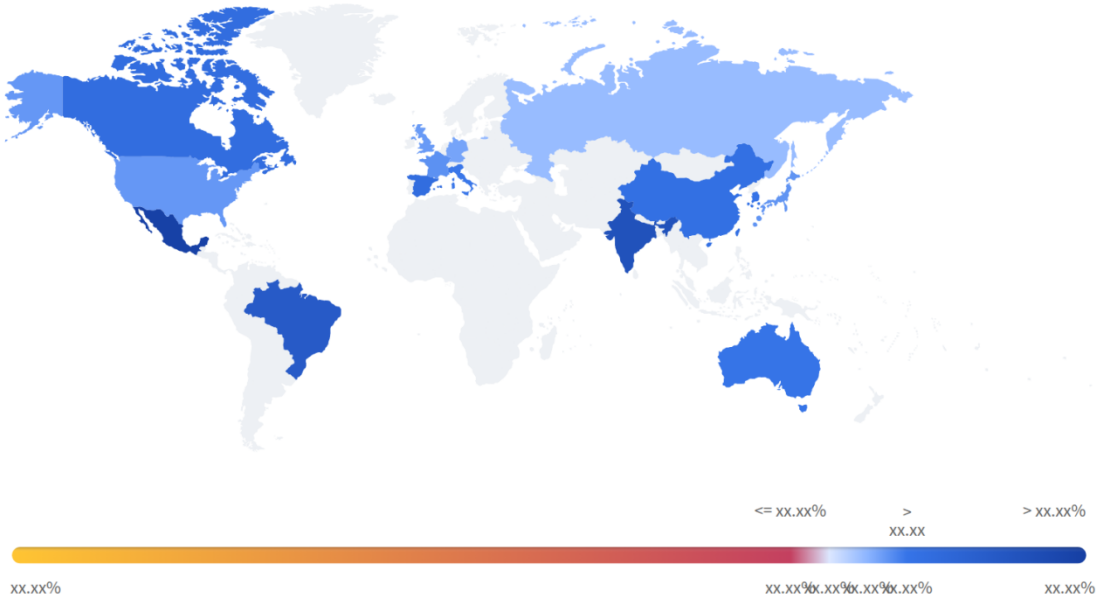


Table 287. Global Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032

Category	2025 value (USD Thousand)	2032 value (USD Thousand)	Added value (USD Thousand)	2025 share (%)	2032 share (%)	Change (pp)	Growth share (%)	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Unallocated / remaining scope	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scope total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 288. Global Integrated In-Rack CDUs Market Size, by Country, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Brazil	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Canada	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
China	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
France	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Germany	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
India	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Italy	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Japan	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mexico	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Russia	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
South Korea	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Spain	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United Kingdom	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
United States	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Others	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Sources & Evidence

1. Cooling | Equinix Product Documentation

   · Equinix's liquid-to-cage documentation permits customer-supplied or operator-purchased CDUs and defines a cooling demarcation; application to a Brazilian site remains conditional on service availability. ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))

2. OSHA's Nationally Recognized Testing Laboratory Program - Frequently Asked Questions

   · OSHA requires NRTL approval for many workplace electrical-equipment categories and states that CE marking does not satisfy its NRTL approval requirements. ([osha.gov](https://www.osha.gov/nationally-recognized-testing-laboratory-program/frequently-asked-questions))

3. Recognized Approval Marks - Electrical Safety Authority

   · Ontario's ESA requires recognized approval for electrical products and distinguishes complete-product approval from component recognition and panel-only evaluation markings. ([esasafe.com](https://esasafe.com/electrical-products/recognized-certification-marks/))

4. Teraco Completes Significant JB4 Hyperscale Data Centre Expansion, Incorporating New Sustainability Designs

   · Teraco announced completed JB4 expansion on August xx.xx 2025 and described liquid-to-liquid-enabled halls supporting direct-to-chip and air-cooled deployments, without selecting in-rack CDU placement. ([teraco.co.za](https://www.teraco.co.za/news/teraco-completes-significant-jb4-hyperscale-data-centre-expansion-incorporating-new-sustainability-designs/))

5. Press Releases | Equinix
   · Brazil was included in Equinix's announced liquid-cooling expansion plans, supporting investigation of an operator-mediated route without establishing every Brazilian site's availability. ([newsroom.equinix.com](https://newsroom.equinix.com/2023-xx.xx-xx.xx-Equinix-acelera-e-simplifica-implantacao-de-resfriamento-liquido-para-potencializar-cargas-de-trabalho-empresariais-de-IA))
6. Singapore launches world's first liquid cooling standard for data centres in tropical climates
   · The August xx.xx 2026 release identifies the launched standard and its joint development by IMDA and Enterprise Singapore through the Singapore Standards Council. ([enterprisesg.gov.sg](https://www.enterprisesg.gov.sg/resources/media-centre/media-releases/2026/august/mr03826_singapore-launches-worlds-first-liquid-cooling-standard-for-data-centres-in-tropical-climates?utm_source=openai))
7. Department for Promotion of Industry and Internal Trade Annual Report 2024-25
   · DPIIT states that imported goods sourced through local resellers or distributors are excluded from local content and that resellers must provide OEM origin documentation. ([dpiit.gov.in](https://www.dpiit.gov.in/static/uploads/2025/xx.xx/e266b2694ebc0cbfa72a929e22790301.pdf))
8. Placing UKCA or CE marked products on the market in Great Britain
   · Great Britain continues recognizing CE marking for covered regimes; the guidance distinguishes Northern Ireland and assigns responsibilities to the relevant economic operators. ([gov.uk](https://www.gov.uk/guidance/placing-ukca-or-ce-marked-products-on-the-market-in-great-britain))
9. Energieeffizienzgesetz - § 11 Klimaneutrale Rechenzentren
   · Germany's Section xx.xx differentiates data centers commencing before and from July xx.xx 2026, and includes efficiency, energy-reuse, implementation and exception provisions. ([gesetze-im-internet.de](https://www.gesetze-im-internet.de/enefg/__11.html))

20.1. United States

Table 289. United States Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
United States	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 290. United States Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 291. United States Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 292. United States Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 293. United States Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 294. United States Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 295. United States Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 296. United States Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 297. United States Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 298. United States Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 299. United States Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 300. United States Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.2. China

Table 301. China Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
China	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 302. China Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 303. China Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 304. China Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 305. China Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 306. China Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 307. China Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 308. China Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 309. China Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 310. China Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 311. China Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 312. China Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.3. Japan

Table 313. Japan Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Japan	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 314. Japan Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 315. Japan Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 316. Japan Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 317. Japan Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 318. Japan Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 319. Japan Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 320. Japan Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 321. Japan Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 322. Japan Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 323. Japan Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 324. Japan Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.4. Germany

Table 325. Germany Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Germany	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 326. Germany Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 327. Germany Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 328. Germany Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 329. Germany Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 330. Germany Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 331. Germany Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 332. Germany Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 333. Germany Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 334. Germany Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 335. Germany Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 336. Germany Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.5. United Kingdom

Table 337. United Kingdom Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
United Kingdom	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 338. United Kingdom Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 339. United Kingdom Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 340. United Kingdom Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 341. United Kingdom Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 342. United Kingdom Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 343. United Kingdom Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 344. United Kingdom Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 345. United Kingdom Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 346. United Kingdom Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 347. United Kingdom Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 348. United Kingdom Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.6. France

Table 349. France Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
France	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 350. France Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 351. France Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 352. France Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 353. France Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 354. France Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 355. France Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 356. France Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 357. France Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 358. France Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 359. France Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 360. France Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.7. Canada

Table 361. Canada Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Canada	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 362. Canada Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 363. Canada Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 364. Canada Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 365. Canada Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 366. Canada Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 367. Canada Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 368. Canada Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 369. Canada Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 370. Canada Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 371. Canada Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 372. Canada Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.8. South Korea

Table 373. South Korea Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
South Korea	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 374. South Korea Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 375. South Korea Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 376. South Korea Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 377. South Korea Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 378. South Korea Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 379. South Korea Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 380. South Korea Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 381. South Korea Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 382. South Korea Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 383. South Korea Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 384. South Korea Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.9. Australia

Table 385. Australia Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Australia	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 386. Australia Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 387. Australia Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 388. Australia Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 389. Australia Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 390. Australia Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 391. Australia Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 392. Australia Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 393. Australia Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 394. Australia Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 395. Australia Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 396. Australia Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.10. Italy

Table 397. Italy Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Italy	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 398. Italy Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 399. Italy Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 400. Italy Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 401. Italy Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 402. Italy Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 403. Italy Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 404. Italy Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 405. Italy Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 406. Italy Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 407. Italy Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 408. Italy Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.11. India

Table 409. India Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
India	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 410. India Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 411. India Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 412. India Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 413. India Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 414. India Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 415. India Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 416. India Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 417. India Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 418. India Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 419. India Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 420. India Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.12. Spain

Table 421. Spain Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Spain	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 422. Spain Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 423. Spain Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 424. Spain Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 425. Spain Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 426. Spain Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 427. Spain Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 428. Spain Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 429. Spain Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 430. Spain Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 431. Spain Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 432. Spain Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.13. Brazil

Table 433. Brazil Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Brazil	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 434. Brazil Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 435. Brazil Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 436. Brazil Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 437. Brazil Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 438. Brazil Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 439. Brazil Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 440. Brazil Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 441. Brazil Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 442. Brazil Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 443. Brazil Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 444. Brazil Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.14. Russia

Table 445. Russia Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Russia	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 446. Russia Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 447. Russia Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 448. Russia Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 449. Russia Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 450. Russia Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 451. Russia Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 452. Russia Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 453. Russia Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 454. Russia Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 455. Russia Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 456. Russia Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

20.15. Mexico

Table 457. Mexico Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand)

Country	2023	2024	2025	2026	2027	2032	CAGR (%)
Mexico	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 458. Mexico Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand)

Heat Rejection Interface	2023	2024	2025	2026	2027	2032	CAGR (%)
Liquid-to-Air CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Liquid-to-Liquid CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 459. Mexico Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand)

Coolant Phase	2023	2024	2025	2026	2027	2032	CAGR (%)
Single-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Two-Phase CDUs	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 460. Mexico Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand)

Rack Platform	2023	2024	2025	2026	2027	2032	CAGR (%)
OCP Open Rack	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Project Scorpio Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
System-Specific Computing Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
xx.xx-Inch Standard Racks	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 461. Mexico Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand)

Cooling Application	2023	2024	2025	2026	2027	2032	CAGR (%)
Combined Cold-Plate and Rack Air Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Direct-to-Chip Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack Air Heat-Exchanger Cooling	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 462. Mexico Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand)

Workload	2023	2024	2025	2026	2027	2032	CAGR (%)
Artificial Intelligence	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
General-Purpose Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Mixed Workloads	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Scientific and Engineering Computing	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 463. Mexico Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand)

End User	2023	2024	2025	2026	2027	2032	CAGR (%)
Cloud, AI, and Internet Platform Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Colocation Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Enterprise IT Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Government, Academic, and Research Institutions	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Telecommunications Operators	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 464. Mexico Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand)

Integration Model	2023	2024	2025	2026	2027	2032	CAGR (%)
Full Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Independent CDU Supply	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Partial Rack Integration	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 465. Mexico Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand)

Project Purpose	2023	2024	2025	2026	2027	2032	CAGR (%)
CDU Replacement	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
New-Build Deployment	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Retrofit & Expansion	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 466. Mexico Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand)

Sales Channel	2023	2024	2025	2026	2027	2032	CAGR (%)
Direct End-User Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Distributor & Integrator Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Rack & Server OEM Sales	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 467. Mexico Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand)

Cooling Capacity	2023	2024	2025	2026	2027	2032	CAGR (%)
Higher Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Intermediate Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Lower Capacity	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

Table 468. Mexico Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand)

Pump Redundancy	2023	2024	2025	2026	2027	2032	CAGR (%)
Nonredundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Redundant Pumping	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx	xx.xx
Total	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**	**xx.xx**

21. Competitive Landscape

21.1. Market Share Analysis, 2025

Competitive positioning in Integrated In-Rack CDUs depends on the route into a supported account. Vertiv, CoolIT Systems, Motivair Corporation, and DCX Liquid Cooling Systems provide identifiable separately supplied equipment propositions, whereas Dell Technologies and Bull place cooling within broader rack or computing-system relationships. ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪

Named rack relationships provide stronger account-access evidence than ecosystem association alone. ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ Independent supply is a credible alternative where the buyer can coordinate those responsibilities without an OEM package.

▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ Equinix's customer-supplied CDU option provides a counterexample to universal bundled sourcing. Replacement buyers should therefore obtain written acceptance before changing an installed configuration; new entrants should target an accepted configuration rather than assume that matching the in-rack category creates account access.

Local intermediaries contribute different capabilities. ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪ ▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ Buyers should compare the intermediary's accepted delivery and execution obligations with a manufacturer-led route, preserving a named warranty and escalation owner across either arrangement.

For Wesco International, PerfilGlobal, Asirep, Nanotec, Favortron, RSC, and Cooltech Solution, the unresolved access distinction is the qualifying model and the authority to sell or support it under the proposed arrangement. United Force Trading Company, KOMPLEKT, and Aamtron Group require the same model-specific confirmation together with identification of the contracting principal and covered territory. ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪

For ScreenCheck Middle East FZ LLC, Noventraxis Global Limited, VCB-AI (Pty) Ltd, HSSL Technologies, Technology Access Group (Pty) Ltd, Best PC, and TDK Solutions Limited, the unresolved purchasing question is who undertakes equipment delivery, acceptance coordination, and continuing service for the destination. ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ An additional intermediary is useful only when its contracted contribution resolves a genuine delivery or support obligation rather than adding an unallocated handoff.

RDP Computers India Private Limited, Standard Cooling Systems, IMMERSEKOOL, ManyCoreSoft, UPS Solutions, DataCool Technologies, DataPravah, and NPower retain unresolved distinctions between a finished-equipment sale and a broader integration or advisory proposition. Before choosing among them, buyers should require a named qualifying CDU, its original supplier, the delivered rack scope, and the party accepting continuing obligations. ▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪ ▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪ ▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪

Figure 44. Global Integrated In-Rack CDUs Market Share, by Key Player, 2025

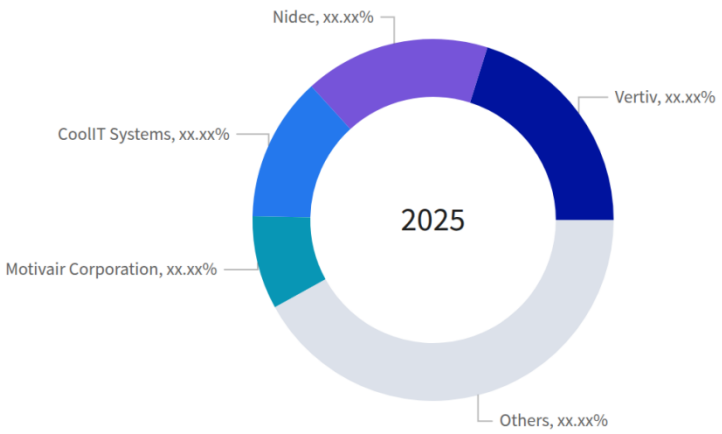


Table 469. Global Integrated In-Rack CDUs Market Share, by Key Player, 2025

Key Player	Share (%)
Accelsius	xx.xx
ATTOM	xx.xx
Beehe	xx.xx
Bull	xx.xx
CoolIT Systems	xx.xx
Eaton	xx.xx
Envicool	xx.xx
Koolance	xx.xx
META Green Cooling	xx.xx
Motivair Corporation	xx.xx
Nidec	xx.xx
nVent	xx.xx
RSC	xx.xx
Super Micro Computer, Inc.	xx.xx
Valeo	xx.xx
Vertiv	xx.xx
ZutaCore	xx.xx
Others	xx.xx

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   · CHx80 establishes an identifiable separately supplied rack-local equipment proposition.
2. Cooling | Equinix Product Documentation
   · Equinix permits a customer-supplied CDU under its liquid-to-cage offering while retaining receiving-facility conditions. ([docs.equinix.com](https://docs.equinix.com/colocation/about/colo-cooling-intro/))
3. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   · Lenovo requires Professional Services review and approval for RM100 factory integration and the associated warranty and extended-service scope. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp2128-thinksystem-sr650a-v4-server))
4. In-Rack Coolant Distribution Unit
   · Motivair markets an In-Rack CDU for standard computing racks and provides a sales-contact route. ([motivaircorp.com](https://www.motivaircorp.com/products/in-rack-cdu/))
5. Nidec Starts Shipping OCP-standard, In-rack-type, 4U-size 250KW CDU to Supermicro
   · Nidec announced shipping an in-rack CDU jointly developed with Supermicro for a complete rack solution. ([nidec.com](https://www.nidec.com/en/product/news/2024/news1205-xx.xx/))

6. Vertiv CoolChip CDU 121
   - Vertiv markets CoolChip CDU xx.xx as an in-rack liquid-to-liquid offering for single-rack direct-to-chip applications and provides a manufacturer sales route. ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/thermal-management/high-density-solutions/vertiv-coolchip-cdu-xx.xx/))
7. Dell Integrated Rack Scalable Systems-Simplified, Reliable & Efficient Liquid Cooling for Modern Data Centers
   - Dell Technologies includes PowerCool Rack-mount Coolant Distribution Unit within Integrated Rack Scalable Systems and positions Dell as the support contact. ([infohub.delltechnologies.com](https://infohub.delltechnologies.com/en-us/p/dell-integrated-rack-scalable-systems-simplified-reliable-efficient-liquid-cooling-for-modern-data-centers/))
8. BullSequana XH3500
   - The catalog supports a computing-system purchasing boundary rather than establishing an independently substitutable CDU accessory.
9. Liquid Cooling Distribution Technology | Alexander Schneider
   - Alexander Schneider advertises Vertiv CoolChip CDU121 and implementation support in Israel from its thermal-management team. ([schneider.co.il](https://www.schneider.co.il/en/product/vertiv-xdu-liquid-cooling-system/))
10. nVent | RackChiller CDU - DC ASIA Ltd.
    - DC ASIA's Japanese-facing catalog identifies nVent RackChiller CDU40 and CDU100 as rack-mounted products and distinguishes floor-standing equipment. ([dcasia-ltd.com](https://www.dcasia-ltd.com/product/cooling/cdu/nvent-cdu/))
11. InRack CDU
    - The product page establishes a separately supplied rack-local purchasing proposition.
12. Wiwynn Showcases Next-Generation AI Infrastructure at COMPUTEX 2025
    - Wiwynn's announcement identifies nVent collaboration on an in-rack CDU showcased within a NVIDIA GB300 NVL72 rack. ([wiwynn.com](https://www.wiwynn.com/news/wiwynn-showcases-next-generation-ai-infrastructure-at-computex-2025))
    - The announcement describes showcased integration rather than confirmed customer delivery of that configuration.
13. Delta's Power, Cooling and Microgrid Solutions Showcased at NVIDIA GTC to Bolster the 800 VDC Architecture of Next-gen AI Factories
    - Delta's March xx.xx 2026 announcement identifies an in-rack liquid-to-liquid CDU within its NVIDIA GB300 NVL72 platform showcase. ([delta-americas.com](https://www.delta-americas.com/en-US/news/xx.xx))
    - The showcase does not independently establish an executable customer purchasing arrangement.
14. CDU Supplier - Data Centre Liquid Cooling | Xfinite Trading
    - Xfinite Trading advertises multi-origin CDU sourcing, in-rack configurations, and Singapore-based stockholding and logistics. ([xfinitetrading.com](https://www.xfinitetrading.com/businesses/it-services/cdu-liquid-cooling/))
    - The broader sourcing description does not identify model-specific manufacturer authorization for every offered unit.

21.2. Market Concentration Analysis, 2025

Competitive control resides in separate commercial permissions rather than a single supplier list. Lenovo controls approval for the documented RM100 factory-integration support scope, while Equinix retains facility acceptance conditions even when customers supply their own CDU. ■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■

[redacted]

Ownership integration is widening potential proposal scope. [redacted] Buyers should identify which obligations the combined group actually accepts before trading supplier independence for a broader relationship.

Branded bids are not necessarily independent original-supply alternatives. Nidec's documented Super Micro Computer, Inc. relationship connects upstream CDU supply with rack-OEM purchasing, while Alexander Schneider advertises a represented Vertiv product. [redacted]

Other overlapping identities retain material attribution questions. INVT catalogs an SC-series in-rack CDU, but that brand record does not settle distinct selling or warranty responsibilities between INVT and Shenzhen INVT Electric Co., Ltd. [redacted]

Channel access can organize local execution without transferring every control point. Alexander Schneider's implementation proposition and DC ASIA Ltd.'s named-brand catalog illustrate different intermediary contributions. [redacted]

Sources & Evidence

1. Cooling | Equinix Product Documentation
   - Customer sourcing choice and facility acceptance remain separate commercial permissions, providing a counterexample to universal bundled sourcing.
2. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   - The documented requirement establishes an arrangement-specific OEM support control point.

3. Schneider Electric completes transaction to acquire Motivair Corporation
   - The completed transaction connects Motivair's cooling business with a broader infrastructure group; project-level bundling remains a contractual question.
4. Ecolab Closes CoolIT Acquisition and Expands AI Cooling Platform
   - The transaction joins CoolIT's cooling business to Ecolab's broader services proposition; ownership does not independently establish individual contract integration.
5. Nidec Starts Shipping OCP-standard, In-rack-type, 4U-size 250KW CDU to Supermicro
   - The named upstream-supplier and rack-OEM relationship supports original-supply diligence behind branded proposals.
6. Dell Integrated Rack Scalable Systems-Simplified, Reliable & Efficient Liquid Cooling for Modern Data Centers
   - The Dell-branded publication belongs to the Dell Technologies infrastructure portfolio; it does not establish Dell and Dell Technologies as separate hardware alternatives.
7. The French State finalises the acquisition of Bull and positions France at the forefront of high-performance computing and AI
   - The transfer requires dated attribution of inherited Bull offerings; it does not independently establish a separate surviving Eviden in-rack proposition.
8. Liquid Cooling Distribution Technology | Alexander Schneider
   - The represented Vertiv offering illustrates an intermediary contribution rather than independent original-CDU manufacture.
   - Advertised implementation support does not establish every OEM or facility permission.
9. nVent | RackChiller CDU - DC ASIA Ltd.
   - The named-brand catalog supports intermediary equipment access, not automatic transfer of manufacturer, OEM, or facility responsibilities.
10. Eaton completes acquisition of leading liquid-cooling solutions provider Boyd Thermal, creating an industry-leading grid-to-chip solution for data centers
    - The announcement describes combining the acquired thermal business with Eaton's power-management portfolio; this supports potential wider proposal scope, not demonstrated project integration.
11. Flex's Liquid Cooling Business Expands Portfolio with High-Performance Coolant Distribution Unit for AI and HPC Applications
    - Flex's April xx.xx 2025 announcement presents JetCool as its liquid-cooling business and introduces the in-rack liquid-to-liquid SmartSense CDU with associated lifecycle services. ([investors.flex.com](https://investors.flex.com/news/news-details/2025/Flexs-Liquid-Cooling-Business-Expands-Portfolio-with-High-Performance-Coolant-Distribution-Unit-for-AI-and-HPC-Applications/default.aspx))
12. SC Series In-rack CDU - INVT Electric Global
    - INVT's official catalog identifies an SC-series in-rack CDU. ([invt.com](https://www.invt.com/products/sc-series-in-rack-cdu-xx.xx))
    - The brand-level product record does not independently settle separate selling and warranty responsibilities between the two captured INVT identities.
13. CDU 冷却液分配单元_液气液液 CDU_东吉热控
    - ToneCooling's catalog separately lists rack-mounted liquid-to-air, rack-mounted liquid-to-liquid, and in-row CDU lines. ([tonecooling.com.cn](https://tonecooling.com.cn/products/cdu/))
    - This brand catalog does not independently establish ToneCooling Europe OÜ's contracting relationship or separate commercial contribution.

21.3. Recent Developments & Impact Analysis, 2025

Completed ownership transactions are changing the potential scope of competing proposals.

[redacted]

■■■■■ ■■■■■■ ■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■ ■■ ■■■■■■■ Their purchasing relevance depends on delivered integration and contractual accountability, however; acquisition completion alone does not demonstrate that a bundled proposal replaces separate equipment and service agreements.

Ecolab completed its CoolIT Systems acquisition on July xx.xx 2026, while the same announcement described a combined-platform introduction planned for November 2026. ■■■■ ■■■■■■■■■ ■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■ ■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ Buyers evaluating renewals or new deployments should confirm the services and configurations available under the actual agreement rather than assume that a planned parent-group platform has already changed coverage.

■■■■■■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■ ■■ ■■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■ ■■■ ■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■ ■■■■■■■■■■ ■■■ ■■■ ■■■■■ ■■■■■■■■ ■■ ■■■■■ ■■ ■■■■■■■ ■■■ ■■■■■■■■■ ■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■ Alphacool International GmbH's product page states expected availability from the third quarter of 2026 for its CDU offerings, but that expectation is not confirmation that the milestone was achieved. Buyers should tie deployment commitments to confirmed commercial release and accepted configurations, keeping future offerings as conditional alternatives.

Koolance's August xx.xx 2026 availability announcement for ALR-10KA adds a documented direct-order option. ■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■ ■■■■ ■■■■■■■■ ■■■■ ■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■ ■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■ ■ ■■■■■■■■■■■■■ ■■■■■■■■■■ Buyers capable of coordinating integration independently can evaluate that route; buyers requiring contracted local continuity should secure the additional obligations before relying on the equipment order.

The French State completed its acquisition of Bull from Atos on March xx.xx 2026. ■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■ ■■■■■■■■■■■■■ ■■ ■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■ ■■■■■■■■■■■ ■■■■ ■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■ ■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■ ■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■■ ■■■■■ ■■ ■■■ ■■■ ■■ ■■■■■■ ■■■■■■ That product-specific withdrawal affects proposals expecting the intermediary to supply both rack equipment and adjacent facility cooling; it does not establish withdrawal of the separately listed CDU portfolio.

Sources & Evidence

1. Schneider Electric completes transaction to acquire Motivair Corporation
   · Schneider Electric announced completion of its controlling acquisition of Motivair Corporation on February xx.xx 2025.
   ([se.com](https://www.se.com/ww/en/assets/xx.xx/document/xx.xx/Schneider%20Electric-completes-acquisition-of-Motivair-Corporation.pdf?p_File_Name=Schneider+Electric+completes+acquisition+of+Motivair+Corporation&p_enDocType=Consensus))

2. Ecolab Closes CoolIT Acquisition and Expands AI Cooling Platform
   · Ecolab announced completion of its CoolIT Systems acquisition on July xx.xx 2026 and separately described a combined-platform introduction planned for November 2026. ([ecolab.com](https://www.ecolab.com/en-us/media-center/news/ecolab-closes-coolit-acquisition-and-expands-ai-cooling-platform))
3. Nidec Develops In-Rack CDU with Up to 300 kW Cooling Capacity
   · Nidec's June xx.xx 2026 announcement describes a new in-rack prototype and targets mass production for the first quarter of 2027. ([nidec.com](https://www.nidec.com/files/user/www-nidec-com/corporate/news/2026/xx.xx-xx.xx/xx.xx-01en.pdf))
   · The production target is not a completed commercial-readiness milestone.
4. News - Koolance
   · Koolance's August xx.xx 2026 announcement identifies ALR-10KA as available. ([koolance.com](https://koolance.com/news))
   · This establishes an announced commercial option rather than project-specific acceptance or site-support coverage.
5. Warranty Policy
   · The warranty establishes product remedies rather than a contracted site-response commitment, limiting the support implications of direct-order availability.
6. The French State finalises the acquisition of Bull and positions France at the forefront of high-performance computing and AI
   · Bull announced completion of the French State's acquisition of Bull from Atos on March xx.xx 2026. ([bull.com](https://www.bull.com/en/press-releases/the-french-state-finalises-the-acquisition-of-bull-and-positions-france-at-the-forefront-of-high-performance-computing-and-ai))
   · The ownership announcement does not establish changes to every existing customer contract.
7. Motivair | フリークーリングチラー - DC ASIA Ltd.
   · DC ASIA's Motivair free-cooling-chiller page states that Japanese sales ended at the end of March 2026. ([dcasia-ltd.com](https://www.dcasia-ltd.com/product/cooling/etc/motivair-free-cooling/))
   · The notice concerns the chiller line and does not establish withdrawal of the separately listed CDU portfolio.
8. Eaton completes acquisition of leading liquid-cooling solutions provider Boyd Thermal, creating an industry-leading grid-to-chip solution for data centers
   · Eaton announced completion of its Boyd Thermal acquisition on March xx.xx 2026. ([eaton.com](https://www.eaton.com/us/en-us/company/news-insights/news-releases/2026/eaton-completes-acquisition-of-leading-liquid-cooling-solutions-provider-boyd-thermal.html))
9. Coolant Distribution Unit (CDU)
   · Alphacool's CDU page describes water-air and water-water offerings and states expected availability from the third quarter of 2026. ([alphacool.com](https://www.alphacool.com/en/coolant-distribution-unit-cdu-xx.xx))
   · The stated expectation does not confirm that the availability milestone was achieved.

21.4. Product Portfolio Analysis, 2025

The most directly comparable standalone portfolios are finished in-rack offerings with a declared receiving interface and application. ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ Buyers should construct a model-specific shortlist rather than compare the suppliers' entire cooling businesses.

Interface breadth and coolant phase distinguish different purchasing choices. ■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■ ■ ■■■■■■■■■ ■■■ ■■■■ ■■■■ ■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■ ■■■■■■■ ■■■■ ■■ ■■■ ■■■■■■■■■ ■■■ ■■■■■■■■ These alternatives change the delivered package and receiving-facility dependency; they do not establish unrestricted substitution across two-phase suppliers or equivalence with single-phase arrangements.

■■■■■■■■ ■■■■■■■■ ■■ ■■■■■■■■■■■■■■■■■■■■■■■ ■■■■■ ■■■■■■■■■■■■ ■■■ ■■■ ■■■ ■■■■■ ■■■■■■■■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■ ■■ ■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■ ■■■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■ ■■■ ■■■ ■■■■■■ ■■■■■ ■■■■■■■■■ ■■■■■■■■■ An enclosure-oriented purchase preserves a different equipment-selection boundary from a system-specific purchase. Neither route should be preferred until the buyer establishes the accepted platform, delivered contents, and replacement rights.

Rack portfolios compete on packaging as well as equipment breadth. ■■■■ ■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■ ■■■■■■■ ■■ ■■■■■■ ■■■ ■■■■■■■■ ■■■ ■■■■■ ■■■■■■■ ■ ■■■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■ ■ ■■■■■■■■■■■■■■■ ■■■■ The meaningful comparison is whether the purchased scope includes computing, cooling infrastructure, integration, and continuing support-not whether each supplier uses the term integrated rack.

Compact rack-format equipment forms a distinct comparison set. Koolance's ALR-10KA provides a direct-order ambient cooling offering, while Dynatron catalogs a fan-equipped rack-format CDU for computing applications. ■■■■ ■■■■■■■■ ■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■■ ■■■■■■■ ■■ ■■■■■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■■■■■■■■■■■■■■ ■■■■■ ■ ■■■■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■ ■ ■■■■■ ■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■ ■■■■■ ■■■ ■■■■■■ ■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■

Beehe's IR-series liquid-to-liquid catalog distinguishes EIA and ORv3 in-rack configurations, while KSTAR separately catalogs LiquiX rack-mounted liquid-to-air and liquid-to-liquid CDUs. These provide additional offering-level comparison routes, subject to the selected rack, receiving interface and purchased support scope. ■■■■■■■■■ ■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■ ■■■■■■ ■■■■■■■■■ ■■■■ ■■■■■■■■■■ ■■■■■ ■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■ ■■■■ ■■■■■■ ■■ ■ ■■■■■■■■ ■■■■■■■■ ■■■■ ■■■■■■ ■■■■■■■■■■■■ ■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■

CorefloX distinguishes rack-, row-, and room-level CDU categories, and Cooltechx describes a separate rack-mounted liquid-to-liquid series. The remaining commercial qualification is the exact delivered unit, installation declaration, original supplier, and support counterparty. ▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪

Broader thermal portfolios can compete at the architecture decision without automatically qualifying as standalone in-rack alternatives. Airedale by Modine's CDU catalog explicitly describes in-row and skid-based equipment. ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪

The finished-unit boundary also matters when evaluating KAORI, LITE-ON Technology Corp., Auras Technology, Guangdong Shenling, Asia Vital Components, Forcecon Technology Co., Ltd., and Cooler Master. ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪ These questions affect component sourcing and complete-equipment sourcing differently.

For Chilldyne, Aquila, LiquidCool Solutions, Valeo, Iceotope, GRC, and Shinohara Denki, the portfolio comparison requires a documented relationship between a named complete in-rack CDU and a wider cooling system, chassis arrangement, or licensed proposition. ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ Buyers seeking an independently sourced replacement should obtain the complete-unit identity and supported purchasing boundary before comparing these alternatives with cataloged standalone units.

CANATAL Environmental AC Inc., AIRSYS, ATTOM, Kehua Tech, and Canovate Group require a further placement and delivery distinction: whether the proposed equipment is installed within the computing rack, beside it, or within a broader packaged facility. ▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪ ▪▪▪▪ ▪▪▪▪▪ ▪▪▪ ▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪ ▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪ The comparison should remain open until a named configuration resolves it, rather than treating a general liquid-cooling description as either qualifying participation or evidence of nonparticipation.

RESEARCH SAMPLE REPORT

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   · CoolIT markets CHx80 as an in-rack liquid-to-liquid CDU for HPC and enterprise deployments and explicitly identifies facility-water access as a requirement.
   ([coolitsystems.com](https://www.coolitsystems.com/cdu-product/chx80/))
2. HyperCool - Server Liquid Cooling System
   · ZutaCore describes its two-phase HyperCool ecosystem and separately markets air-based in-rack equipment without a facility-water requirement and facility-water in-rack configurations.
   ([zutacore.com](https://zutacore.com/solutions))
3. Accelsius Makes NVIDIA GTC Debut with NeuCool® IR150, the Industry's First Integrated Rack for Two-Phase Liquid Cooling
   · Accelsius introduced NeuCool IR150 as an enclosure combining a two-phase CDU, computing-rack space and manifolds; the announcement does not establish a particular customer's delivery or substitution acceptance.
   ([accelsius.com](https://accelsius.com/neucool-ir150-announcement/))
4. In-Rack CDU | Nidec's Thermal Solutions
   · Nidec attaches EIA and OCP ORv3 rack declarations to identified in-rack configurations rather than declaring universal family interchangeability.
   ([nidec.com](https://www.nidec.com/en/product/liquid-cooling-line-up/products/in-rack/))
5. HPE Cray Supercomputing EX - QuickSpecs, Version 18
   · HPE's Cray EX documentation places an in-rack CDU within the EX2500 configuration and separately describes the EX4000 in-row arrangement. This configuration record does not establish present project availability.
   ([hpe.com](https://www.hpe.com/psnow/downloadDoc/HPE%20Cray%20Supercomputing%20EX-a00094635enw.pdf?contentDisposition=attachment&form=false&hf=regular&id=a00094635enw.pdf&isFutureVersion=true&isLinearized=false&preview=false&ver=xx.xx))
6. In-Rack Coolant Distribution Unit
   · Motivair markets a finished In-Rack CDU for installation within standard computing racks.
   ([motivaircorp.com](https://www.motivaircorp.com/products/in-rack-cdu/))
7. Vertiv CoolChip CDU 121
   · Vertiv identifies CoolChip CDU xx.xx as an in-rack liquid-to-liquid offering for single-rack direct-to-chip applications.
   ([vertiv.com](https://www.vertiv.com/en-us/products-catalog/thermal-management/high-density-solutions/vertiv-coolchip-cdu-xx.xx/))
8. Coolant Distribution Units
   · Coolcentric identifies CDRM as a rack-mounted CDU installed within an EIA IT enclosure to support rear-door heat exchangers, establishing an application-specific equipment comparison.
   ([coolcentric.com](https://coolcentric.com/coolant-distribution-units/))
9. Dell Integrated Rack Scalable Systems-Simplified, Reliable & Efficient Liquid Cooling for Modern Data Centers
   · Dell includes PowerCool Rack-mount CDU within Integrated Rack Scalable Systems and presents Dell as the contact for services, support and maintenance.
   ([infohub.delltechnologies.com](https://infohub.delltechnologies.com/en-us/p/dell-integrated-rack-scalable-systems-simplified-reliable-efficient-liquid-cooling-for-modern-data-centers/))
10. ALR-10KA Liquid Cooling System
    · Koolance catalogs ALR-10KA as a rack-mounted ambient liquid-cooling system with a direct ordering route; the product listing does not establish an enterprise site-response agreement.
    ([koolance.com](https://koolance.com/liquid-cooling-system-alr-10ka))
11. BullSequana XH3500
    · Bull's BullSequana XH3500 catalog explicitly identifies an in-rack CDU within a direct-liquid-cooled computing platform, supporting a system-specific purchasing boundary.
    ([bull.com](https://www.bull.com/hubfs/Documents/Bull-FS-BullSequana%20XH3500-RGB.pdf?hsLang=en))

12. InRack CDU

    · DCX markets InRack CDU for individual high-density server racks and provides a quotation route. ([dcx.eu](https://www.dcx.eu/product/in-rack-cdu))

13. 3343230 Cooling Distribution Unit CDU In-Rack

    · Rittal identifies article SK xx.xx as an in-rack liquid-to-liquid CDU and specifies OCP ORv3 as its suitable enclosure type. ([rittal.com](https://www.rittal.com/ca-en/products/PG20231215KLI101/PG20231245KLI1005/PG20240116KLI207/PRO136622?variantId=xx.xx))

14. nVent HOFFMAN RackChiller CDU40

    · nVent's commercial documentation identifies RackChiller CDU40 as rack-based cooling equipment for HPC applications. ([nvent.com](https://www.nvent.com/sites/default/files/dam/zx9yomvt2r/hoffman-slsh-h88639-cdu40-en.pdf))

15. Coolant Distribution Unit (CDU) | CDU Liquid Cooling for Data Centers

    · Eaton's catalog distinguishes rack-format liquid-to-liquid and liquid-to-air CDUs from in-row products. ([eaton.com](https://www.eaton.com/gb/en-gb/catalog/thermal-management-solutions/coolant-distribution-unit-cdu.html))

16. CDU - Envicool

    · Envicool's CDU brochure separately identifies in-rack liquid-to-liquid and liquid-to-air offerings and centralized cooling equipment. ([en.envicool.com](https://en.envicool.com/upload/file/xx.xx/xx.xx.pdf))

17. Advanced Cooling Technologies - Two-Phase Direct-to-Chip Liquid Cooling CDUs

    · Advanced Cooling Technologies' commercial catalog identifies an in-rack CDU separately from its end-of-row offering within a two-phase direct-to-chip portfolio. ([xx.xx-act.com](https://www.xx.xx-act.com/wp-content/uploads/2025/xx.xx/CDU200-CS-03_CDU200kW-CutSheet_V3_10-xx.xx-2025_Web.pdf))

18. Liquid Cooled Server Rack Solutions

    · Supermicro markets in-rack CDUs within system-level and rack-scale liquid-cooling solutions and separately identifies in-row and sidecar alternatives. ([supermicro.com](https://www.supermicro.com/en/solutions/liquid-cooling))

19. GIGABYTE Direct Liquid Cooling Solution

    · GIGABYTE's GIGAPOD catalog identifies computing configurations with in-rack and in-row CDU alternatives. ([gigabyte.com](https://www.gigabyte.com/Solutions/gigabyte-dlc))

20. DLC Rack Scale Solution HPC

    · 2CRSi's Cloe rack-scale HPC catalog identifies an in-rack liquid-to-liquid CDU within the computing configuration. ([2crsi.com](https://2crsi.com/catalog/rack-cloe-xx.xx-xx.xx?page=xx.xx))

21. 4U CDU | Dynatron

    · Dynatron catalogs CDU-3000W-FAN in a rack format for AI workstations, GPU platforms and other computing systems, with a fan-equipped radiator. ([dynatron.co](https://www.dynatron.co/xx.xx-cdu))

22. In-Rack Liquid-to-Liquid CDU - BEEHE TECHNOLOGY

    · Beehe's in-rack liquid-to-liquid catalog identifies IR-series models and distinguishes EIA and ORv3 rack compatibility by configuration. ([beehe.com](https://www.beehe.com/productinfo/xx.xx.html))

23. LiquiX 系列 - 机架式风液 CDU

    · KSTAR's LiquiX product page describes a rack-mounted liquid-to-air CDU placed within the cabinet. ([kstar.com](https://www.kstar.com/cn/index.php/product/info/xx.xx.html))

24. LiquiX 系列 - 机架式液液 CDU

    · KSTAR separately catalogs a LiquiX rack-mounted liquid-to-liquid CDU placed within the cabinet. ([kstar.com](https://www.kstar.com/cn/index.php/product/info/xx.xx.html))

25. USystems - CL20 Active Rear Door Heat Exchanger
· USystems identifies CL20 as an active rear-door heat exchanger. That product record identifies cooling-application equipment rather than a complete in-rack CDU; it does not establish the scope of another supplier proposal. ([usystems.com](https://www.usystems.com/fast-track-products/rear-door-heat-exchangers/cl20-proactive-rear-door-heat-exchanger))
26. Data Center Liquid Cooling Products | CorefloX
· CorefloX's product catalog separately lists rack-, row- and room-level CDU categories, without resolving every delivered model's placement or contracting attribution. ([coreflox.net](https://coreflox.net/products/))
27. What Is a Data Center CDU? Functions and Selection
· Cooltechx describes a rack-mounted liquid-to-liquid CDU series separately from in-row and room-level series. ([cooltechx.com](https://www.cooltechx.com/what-is-a-cdu-in-a-data-center/))
28. Coolant Distribution Unit (CDU) - Airedale by Modine
· Airedale by Modine's CDU catalog identifies in-row and skid-based equipment, supporting an architecture comparison distinct from equipment installed within a computing rack. ([airedale.com](https://www.airedale.com/data-centers/liquid-cooling/cdu/))
29. Carrier CDU | Coolant Distribution Unit for Data Centers
· Carrier describes its CDU cabinet as suitable for placement in compact mechanical galleries within its broader QuantumLeap proposition; that description does not identify equipment installed within computing-rack space. ([carrier.com](https://www.carrier.com/us/en/commercial/coolant-distribution-units/))
30. Coolant Distribution Unit | CDU | Nortek Data Center Cooling
· Nortek describes a CDU range serving secondary cooling equipment and available in common rack-sized cabinets. Cabinet size alone does not establish installation within computing-rack equipment space. ([nortekdatacenter.com](https://www.nortekdatacenter.com/cdu/))

21.5. Benchmarking Analysis, 2025

[redacted] Across those groups, the decisive criteria are the named model, accepted rack platform, receiving interface, supported cooling application, delivered contents, and allocation of warranty and service obligations. Lower Capacity, Intermediate Capacity, Higher Capacity, Nonredundant Pumping, and Redundant Pumping remain useful procurement classifications, but a category label cannot establish suitability or contractual continuity.

Service propositions are especially easy to miscompare. [redacted] Equipment-only purchasing remains a realistic alternative when the buyer can contract integration and continuity support separately.

Installed-system support and new-order access require separate benchmarks. Lenovo's SD665 V3 documentation identifies Vertiv as the RM100 warranty vendor, while its rack-cabinet change history records RM100 withdrawal on September xx.xx 2025 and retains ordering language. [redacted]

[illegible]

Product markings and platform descriptions should be treated as specific supplier declarations. Motivair Corporation advertises UL, CSA, and CE credentials for its in-rack product, while Nidec and Rittal attach rack-platform declarations to identified configurations. [illegible]

For QCT, Inspur Information, AMAX Engineering, Cisco Systems, Inc., Celestica, Fujitsu, Jabil, MiTAC Computing Technology, ASUS, Foxconn, ZT IT, and SuperX, the unresolved benchmarking distinction is whether the proposal supplies a named CDU, partial rack integration, a complete computing rack, or another customer-facing supply role. Original-CDU attribution and continuing warranty responsibility also remain unsettled in this comparison. [illegible]

For Apx DCS, Gerchamp, Inc., Wandtung, Gottog Power, Shenglin, BlackShields, Mingde Yuanneng, XINKE LCS, and SLiquid Global, consistent model placement and the responsible selling entity remain unresolved comparison requirements. AmpLink Tech Corp., INNO Industry, Far East Electric, and Shuguang Shuju Jichu Sheshi Chuangxin Jishu (Beijing) Gufen Youxian Gongsi additionally require attribution between the named business and the offered finished unit. [illegible] Buyers should require explicit model and application matching rather than substitute evidence concerning an EIA rack, OCP rack, rear-door application, or direct-to-chip application alone. A wider integration package can be useful when it allocates those interfaces clearly; it is unsuitable as a like-for-like benchmark when the qualifying unit and obligations remain undefined.

Sources & Evidence

1. Worldwide Liquid Cooling Services
   - CoolIT describes internal oversight and escalation alongside Authorized Service Providers, maintenance packages, and service-level agreements. ([coolitsystems.com](https://www.coolitsystems.com/products-services/global-professional-services/))
   - This establishes an advertised execution model, not every site's response commitment.

2. In-Rack CDU | Nidec’s Thermal Solutions
   · The rack-platform declarations are attached to named offerings rather than a universally interchangeable family.
3. In-Rack Coolant Distribution Unit
   · Motivair advertises UL, CSA, and CE credentials for its in-rack product; this is a supplier declaration, not independently inspected certification documentation.
4. Liquid Cooling Services
   · Vertiv's service-contract comparison distinguishes emergency response, labor, travel, and parts coverage across tiers. ([vertiv.com](https://www.vertiv.com/en-us/campaigns/liquid-cooling-services/))
   · The advertised services support contract-scope benchmarking rather than a presumption of identical coverage.
5. Lenovo 42U and 48U Heavy Duty Rack Cabinets Product Guide
   · Lenovo's rack-cabinet guide records RM100 withdrawal in its September xx.xx 2025 change history while retaining ordering information. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp1498-lenovo-42u-48u-heavy-duty-rack-cabinets))
   · The conflicting documentation leaves new-order availability unresolved.
6. Lenovo ThinkSystem SD665 V3 Neptune DWC Server Product Guide
   · Lenovo's SD665 V3 guide identifies Vertiv as the RM100 warranty vendor separately from server and enclosure warranties. ([lenovopress.lenovo.com](https://lenovopress.lenovo.com/lp1612-thinksystem-sd665-v3-server))
   · Support attribution remains relevant independently of unresolved new-order availability.
7. Warranty Policy
   · Koolance requires authorized warranty returns and excludes third-party repair reimbursement and consequential-loss coverage. ([koolance.com](https://koolance.com/general-warranty))
8. 3343230 Cooling Distribution Unit CDU In-Rack
   · The catalog's enclosure declaration supports configuration-specific platform benchmarking.
9. InRackCDU - For Liquid-Cooled Data Centers
   · Asetek's InRackCDU description appears within its heritage-technology and data-center collection. ([asetek.com](https://www.asetek.com/company/about-asetek/asetek-heritage-technology/data-center/technology-for-data-centers/inrackcdu/))
   · The historical product description does not independently confirm current new-order access.

22. Company Profiles

22.1. Vertiv

[redacted] Its model page provides manufacturer sales contacts, while the supporting datasheet identifies the finished rack-local offering. This gives buyers an alternative to purchasing cooling only within a computing-OEM package, without establishing unrestricted compatibility with every receiving rack.

Vertiv's liquid-cooling services include preventive and corrective maintenance, response agreements, spare-parts support and remote troubleshooting. Its contract portfolio distinguishes emergency response, labor, travel and parts coverage. [redacted]

Combining equipment and services can simplify escalation when the contract names the destination provider and covered interfaces. Separate integrator sourcing preserves provider choice but requires explicit responsibility across those interfaces. [redacted]

Sources & Evidence

1. Vertiv CoolChip CDU 121
   - Vertiv identifies CoolChip CDU xx.xx as an in-rack liquid-to-liquid offering for single-rack direct-to-chip applications and provides a manufacturer sales-contact route.
   - Company verification: Vertiv currently markets CoolChip CDU xx.xx as an in-rack product for single-rack direct-to-chip applications.
   - Company verification: The model-specific page provides a sales-contact route and associated liquid-cooling service offerings.
   - Company verification: Vertiv's current model-specific page markets CoolChip CDU xx.xx as an in-rack product for single-rack direct-to-chip applications and provides a sales-contact route.
2. Vertiv CoolChip CDU - In-rack liquid-to-liquid coolant distribution unit
   - The datasheet identifies CoolChip CDU xx.xx as an in-rack liquid-to-liquid unit for single-rack direct-to-chip applications and advertises associated global services.
3. Liquid Cooling Services
   - Vertiv offers preventive and corrective maintenance, response agreements, spare-parts support and remote troubleshooting.
   - Its service-contract comparison separately identifies emergency response, labor and travel coverage, and parts coverage.
4. Vertiv CoolChip CDU - In-rack liquid-to-liquid coolant distribution unit
   - Company verification: Vertiv's CoolChip CDU xx.xx is presented as a complete liquid-to-liquid unit installed within an IT rack for direct-to-chip applications.

22.2. CoolIT Systems

CoolIT Systems markets CHx80 as an in-rack liquid-to-liquid CDU for HPC and enterprise deployments. ■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■ ■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ Buyers evaluating incremental rack deployments should first establish whether that receiving-facility arrangement is available.

■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■ ■■■■■ ■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■■ European, Taiwan, U.S. and UAE offices support regional engagement, but office presence does not determine a site's response commitment. Operators should identify the executing provider, escalation owner and covered obligations before awarding equipment and maintenance together.

■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■ ■■■■■■ ■■ ■■■■ ■■ ■■■■■ ■■■ ■■■■■■■■■ ■■■■■■ ■■■■ ■■■ ■■■■■■ ■■■■■■■■■ ■■■■ ■■ ■■■■■■■■ ■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■ Renewing operators should confirm contractual scope rather than substitute broader group reach for local commitments. Authorized local execution can widen support options, while internal execution remains an alternative where available.

Sources & Evidence

1. CHx80: In-Rack CDU for HPC and Enterprise
   - CoolIT markets CHx80 for HPC and enterprise deployments as a rack-based liquid-to-liquid CDU requiring facility-water access.
   - The page distinguishes its in-rack placement from row-based CDU infrastructure.
   - Company verification: CoolIT markets CHx80 as an in-rack CDU for HPC and enterprise server deployments.
2. Worldwide Liquid Cooling Services
   - CoolIT offers maintenance packages and service-level agreements covering servicing, spare parts and remote support; internal teams provide oversight and escalation alongside Authorized Service Providers.
   - The page identifies European, Taiwan, U.S. and UAE offices.
3. Ecolab has closed its acquisition of CoolIT Systems
   - CoolIT's July xx.xx 2026 announcement confirms that Ecolab completed its acquisition of CoolIT Systems.
   - Company verification: CoolIT announced that Ecolab completed its acquisition on July xx.xx 2026.
4. MiTAC Computing Unveils Advanced AI Cluster and Cooling Solutions at Supercomputing 2025
   - Company verification: A rack-OEM announcement identifies CoolIT CHx200+ as the in-rack CDU within MiTAC's showcased liquid-cooled rack.
5. Ecolab Closes CoolIT Acquisition and Expands AI Cooling Platform as Global High Tech Business Targets $4 Billion by 2030
   - Company verification: Ecolab's July xx.xx 2026 announcement confirms completion of its acquisition of CoolIT Systems.
   - Company verification: The announcement describes continuing CoolIT data-center cooling activity and distinguishes a planned November 2026 platform introduction from an already completed launch.

22.3. Nidec

Nidec's in-rack portfolio distinguishes EIA and OCP ORv3 configurations, including Gen2.xx.xx EIA and Gen2.xx.xx OCP. These platform declarations belong to identified offerings, not a universally interchangeable family. ■■■■■■■■ ■■■■■■ ■■■■■■ ■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■■ ■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■ ■■ ■■■■■■■■■■ ■■■■■■■■■■■■

Nidec's 2024 announcement that it had begun shipping an in-rack CDU jointly developed with Supermicro establishes a concrete original-supplier-to-OEM route into complete rack purchasing. This supports evaluating Nidec as a rack-program partner, subject to model acceptance and agreed delivery and support responsibilities. ■■ ■■■■ ■■■ ■■■■■■■■■ ■■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■ ■■■■■ ■■ ■■■■■ ■■■■ ■■■■■■■■■■■■■■ ■■■■■■

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Sources & Evidence

1. In-Rack CDU | Nidec's Thermal Solutions
   - Nidec's in-rack lineup identifies Gen2.xx.xx EIA as EIA rack compliant and Gen2.xx.xx OCP as OCP ORv3 rack compliant, with platform declarations attached to named configurations.
   - Company verification: Nidec markets an In-Rack CDU lineup covering EIA and OCP rack formats.
2. Nidec Starts Shipping OCP-standard, In-rack-type, 4U-size 250KW CDU to Supermicro
   - Nidec's 2024 corporate announcement states that it had begun shipping an OCP-standard in-rack CDU jointly developed with Supermicro for a complete rack solution.
3. Nidec Develops In-Rack CDU with Up to 300 kW Cooling Capacity
   - Nidec's June xx.xx 2026 announcement describes the new in-rack CDU as a prototype and targets commencement of mass production in the first quarter of 2027.
   - Company verification: Nidec Corporation's June xx.xx 2026 announcement establishes continuing in-rack CDU business development.
   - Company verification: The newly announced xx.xx kW product is explicitly a prototype, with mass production targeted for the first quarter of 2027 rather than established current production.
4. Nidec Starts Shipping OCP-standard, In-rack-type, 4U-size 250KW CDU to Supermicro
   - Company verification: Nidec's December xx.xx 2024 corporate announcement states that it began shipping an OCP-standard in-rack CDU jointly developed with Supermicro.
   - Company verification: The announcement establishes a specific original-supplier and rack-OEM relationship, separate from Nidec's subsequent prototype announcement.

22.4. Lenovo

Lenovo documents Neptune DWC RM100 as an in-rack CDU within its supported rack arrangements. ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■ The commercial value is a

defined OEM acceptance path: buyers maintaining an affected supported configuration should obtain approval before substitution, rather than rely on category matching.

Warranty responsibility also requires configuration-specific attention. The SD665 V3 guide identifies Vertiv as the RM100 warranty vendor, separately from server and enclosure warranties. ■■■■■■ ■■■■■■ ■■■■■■■■ ■■■ ■■■ ■■■■■■ ■■■■■■■■ ■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■■■ ■■■■■■■ ■■ ■■■■■■■■ ■■■■■ ■■■■ ■■ ■■■ ■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■

New-order availability remains unsettled. ■■■ ■■■■■ ■■■■ ■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■ ■■■■■ ■■■■■■■■■■ ■■ ■■■ ■■■■■■■■■ ■■■ ■■■■ ■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■ ■■■■■ ■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■ ■■■ ■■■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■ ■■■■■ ■■■■■■■ ■ ■■■■■■■■■ ■■■■■■■■■■■ Installed-system owners should separately verify replacement entitlement; the availability conflict does not erase the documented integration-approval requirement.

Sources & Evidence

1. Lenovo ThinkSystem SR650a V4 and SR650i V4 Servers Product Guide
   - Lenovo identifies Neptune DWC RM100 as a supported in-rack CDU and retains configure-to-order information.
   - Factory integration requires Lenovo Professional Services review and approval for warranty and associated extended services.
2. Lenovo 42U and 48U Heavy Duty Rack Cabinets Product Guide
   - The guide's September xx.xx 2025 change-history entry states that RM100 was withdrawn.
   - The same guide retains an RM100 section with configure-to-order language, creating an unresolved availability inconsistency.
   - Company verification: Lenovo's commercial product guide identifies Neptune DWC RM100 as an in-rack CDU.
   - Company verification: The guide provides an orderable configuration model for the unit.
3. Lenovo ThinkSystem SD665 V3 Neptune DWC Server Product Guide
   - The SD665 V3 guide identifies Vertiv as the RM100 warranty vendor, separately from server and enclosure warranties.
   - Its August xx.xx 2026 update directs purchasers to their Lenovo sales representative for in-rack CDU support.
4. Lenovo ThinkSystem SR650 V3 Server
   - Company verification: The Lenovo guide identifies Neptune DWC RM100 as an in-rack CDU with a commercial configuration reference.
5. Neptune® | Tecnologías de refrigeración líquida para centros de datos y GPU | Lenovo República Dominicana
   - Company verification: Lenovo's Dominican Republic commercial page markets Neptune liquid cooling and rack-level RDHX/CDU options.
   - Company verification: Country-targeted marketing does not establish locally fulfilled RM100 sales or deployments.
6. Neptune® | Data Center & GPU Liquid Cooling Technologies | Lenovo Morocco
   - Company verification: Lenovo's Morocco-facing business page markets Neptune liquid-cooling technologies.
   - Company verification: The regional page does not establish RM100-specific orderability or a Moroccan deployment.
7. HPC Solutions | High-Performance Computing | Lenovo Ghana
   - Company verification: Lenovo's Ghana-facing HPC portfolio markets Neptune liquid cooling and liquid-cooled computing systems.
   - Company verification: The inspected page does not establish a Ghanaian in-rack CDU transaction.

RESEARCH SAMPLE REPORT

22.5. ZutaCore

ZutaCore markets in-rack CDUs within its two-phase HyperCool direct-to-chip ecosystem, including an air-based configuration without a facility-water requirement and separate facility-water configurations. These choices distinguish coolant phase from heat-rejection interface. [redacted]

ZutaCore's service proposition includes deployment coordination, remote support, field assistance and warranty fulfillment. Its published engagement model involves third-party vendors in confirming facility compatibility. [redacted]

Sources & Evidence

1. HyperCool - Server Liquid Cooling System
   - ZutaCore's two-phase HyperCool portfolio includes in-rack direct-to-chip CDUs with an air-based configuration requiring no facility water and separate facility-water configurations.
   - Company verification: ZutaCore markets HyperCool in-rack CDUs as part of its two-phase direct-to-chip cooling portfolio.
   - Company verification: The offering includes rack-level air-based and facility-water configurations.
2. ZutaCore Services & Support For a Sustainable Data Center
   - ZutaCore describes third-party vendor involvement in facility-compatibility confirmation.
   - Its service portfolio includes deployment coordination, remote technical support, field assistance and warranty fulfillment.
3. ZutaCore Unveils Waterless End-of-Row CDU Family to Power the Next Generation of AI Data Centers
   - Company verification: ZutaCore's November xx.xx 2025 corporate announcement identifies continuing HyperCool commercial activity and named customer and OEM relationships.
   - Company verification: The announcement identifies ZutaCore, Inc. and its Foster City headquarters; its end-of-row launch is not itself treated as an in-rack product.

22.6. Coolcentric

Coolcentric's CDRM anchors a distinct application-specific offering: a rack-mounted CDU installed within a standard EIA IT enclosure to support rear-door heat exchangers. [redacted] The supported application, not installation format alone, should determine the shortlist.

Coolcentric identifies itself as part of The Heico Companies' Thermal Solution Segment and advertises worldwide on-site support for its cooling systems and accessories. That combination

supports evaluating an equipment-and-service relationship, but group affiliation is not a substitute for naming the seller and service obligor. ■■■■■■■■■■■ ■■■■■■ ■■■■■■ ■ ■■■■■ ■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■ ■■■■■■■■■■■ ■■■■ ■■■ ■■■■ ■■■■■■■■■■■■

Sources & Evidence

1. Coolant Distribution Units
   - Coolcentric identifies CDRM as a rack-mounted CDU for a standard EIA IT enclosure supporting rear-door heat exchangers.
   - The portfolio distinguishes rack-mounted and floor-mounted equipment and describes a chilled-water receiving interface.
   - Company verification: Coolcentric markets the rack-mounted CDRM CDU for rear-door heat-exchanger applications.
   - Company verification: The page establishes the commercial brand and offering but not its current legal ownership.
2. Who We Are - About Coolcentric
   - Coolcentric identifies itself as part of The Heico Companies' Thermal Solution Segment and describes its cooling equipment and service business.
   - Company verification: Coolcentric identifies itself as part of The Heico Companies' Thermal Solution Segment and describes its continuing data-center cooling product and service business.
3. On-Site Services
   - Coolcentric advertises worldwide on-site technician support for its data-center cooling systems and accessories, complementing product warranties and parts replacement.
4. Coolcentric's Privacy Policy
   - Company verification: Coolcentric's official privacy statement identifies Heico Holding, Inc. as its ultimate parent; it does not identify the exact product-selling legal subsidiary.

22.7. Dell Technologies

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Dell's December xx.xx 2023 DLC3000 example describes a pre-integrated rack, manifold and in-rack CDU ready to accept compatible factory-built servers, backed by professional services and ProSupport. ■■■■■■■■■■■■ ■■■■■■■■■■■■■■ ■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■ ■ ■■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■ This dated example explains the delivery model but does not establish continued orderability of every historical configuration.

Buyers prioritizing consolidated support should specify delivered contents, compatible computing equipment and the handover boundary before preferring an OEM package. Independent sourcing may preserve component choice when the purchaser can coordinate acceptance and service separately. ■■■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■

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Sources & Evidence

1. Artificial Intelligence is Accelerating the Need for Liquid Cooling
   - Dell's December xx.xx 2023 DLC3000 example includes a pre-integrated rack, manifold and in-rack CDU ready to accept compatible factory-built servers.
   - The example describes professional-services handover and Dell ProSupport maintenance and warranty coverage.
2. Dell Integrated Rack Scalable Systems-Simplified, Reliable & Efficient Liquid Cooling for Modern Data Centers
   - Dell's November xx.xx 2025 publication includes PowerCool Rack-mount Coolant Distribution Unit within Integrated Rack Scalable Systems.
   - It positions Dell as the contact for services, support and maintenance.
   - Company verification: Dell's November xx.xx 2025 business publication includes the PowerCool Rack-mount Coolant Distribution Unit within its Integrated Rack Scalable Systems portfolio.
   - Company verification: Dell markets Integrated Rack Scalable Systems as a liquid-cooling infrastructure portfolio.
3. FAQ - Dell Technologies, Inc.
   - Company verification: Dell's current investor FAQ identifies Dell Technologies as the operating public-company reporting identity and describes its server and data-center infrastructure business.
4. Trademarks - Dell USA
   - Company verification: Dell's official trademark statement binds the Dell Technologies and Dell names to the same Dell trademark family.
5. Dell PowerEdge MX7000 and MX760c Liquid Cooling for Maximum Efficiency
   - Company verification: Dell describes the DLC3000 commercial rack solution as including an in-rack CDU, rack manifold, and pre-integrated computing equipment.
   - Company verification: Dell describes delivery and support of the integrated rack solution; this does not establish independent CDU manufacture or current model orderability.
6. Beat the Heat in Your Data Centre with AI-Driven Cooling Innovations
   - Company verification: Dell's South Africa-facing business publication discusses its liquid-cooled IR7000 integrated-rack infrastructure, establishing regional marketing rather than a local CDU deployment.

22.8. Koolance

Koolance offers a compact direct-order route through ALR-10KA, an ambient liquid-cooling system cataloged in a standard rack-mounted format. Its August xx.xx 2026 announcement identifies the model as available, and the product page offers web ordering with U.S. or South Korean shipping origins. ■■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■ ■■■■■■■■■■ ■■■■■■■ ■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■

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Koolance also warns that cross-border web orders can require import duties before delivery. Purchasers should confirm shipping origin, delivery responsibility and the receiving system's

acceptance before ordering. ■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■ ■■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■ ■■ ■■■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■■■■■ ■■■■■■■■ ■■ ■■■■■■■■■■ ■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■ ■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■

Sources & Evidence

1. ALR-10KA Liquid Cooling System
   - Koolance catalogs ALR-10KA as a rack-mountable ambient liquid-cooling system and provides a direct web-ordering route with U.S. and South Korean shipping-origin options.
   - Company verification: Koolance's ALR-10KA catalog specifies a xx.xx-inch, 4U rack format.
   - Company verification: The product page provides a US shipping option and an active commercial ordering route.
2. News - Koolance
   - Koolance's August xx.xx 2026 announcement identifies ALR-10KA as available.
   - Its July xx.xx 2025 web-order announcement explains shipping-origin choice and warns that cross-border orders can require import duties before delivery.
   - Company verification: Koolance's August xx.xx 2026 business announcement identifies rack-mounted CDU products and states that ALR-10KA is available.
3. Warranty Policy
   - Koolance's warranty requires purchase proof, excludes purchases through unofficial dealers or third-party marketplaces, and requires authorized returns.
   - The policy excludes third-party repair reimbursement and consequential-loss coverage, establishing a product-remedy rather than a site-response commitment.
4. Contact Us - Koolance
   - Company verification: Koolance provides an official business address in Auburn, Washington, United States.

22.9. Bull

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Bull also advertises installation, commissioning, maintenance and managed services for advanced computing infrastructure. ■■■■■ ■■■■■■■■■ ■■■■■■ ■ ■■■■■■■■■ ■■■■■■■■■■■■■■■■ ■■■■■ ■■■ ■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■ ■■■■■■■■■ ■■ ■■■ ■■■■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■ ■■ ■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■■ ■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■■■ Consolidated system accountability is the potential benefit; component-level purchasing freedom remains a contractual question.

The French State completed its acquisition of Bull from Atos on March xx.xx 2026. ■■■■ ■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■ ■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■ ■■■■■■■■ ■■■■ ■■ ■■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■ ■■ ■ ■■■■■■■■■■■ ■■■■■■ ■■■■■■■ ■■ ■■■■■■■■ ■■■■■ ■■■■ ■■■■■■■■ ■ ■■■■■■■■■■

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Sources & Evidence

1. BullSequana XH3500
   - Bull's commercial datasheet identifies an in-rack CDU within the direct-liquid-cooled BullSequana XH3500 platform for AI and simulation workloads.
   - The catalog describes interchangeable CPU/GPU computing blades.
   - Company verification: Bull's BullSequana XH3500 commercial catalog explicitly identifies an in-rack coolant distribution unit within the computing-rack system.
2. Bull Lifecycle Services
   - Bull advertises installation and commissioning, maintenance and managed services for advanced computing infrastructure.
   - These are supplier-advertised service offerings, supporting a conditional consolidated delivery-and-support option rather than establishing an individual customer's contracted coverage.
3. The French State finalises the acquisition of Bull and positions France at the forefront of high-performance computing and AI
   - Bull announced completion of the French State's acquisition of Bull from Atos Group on March xx.xx 2026.
   - Company verification: Bull announces completion of the French State's acquisition of Bull from Atos on March xx.xx 2026.
   - Company verification: Bull's March xx.xx 2026 announcement confirms completion of the French State's acquisition of Bull from Atos Group.
4. Santos Dumont, LNCC supercomputer, receives fourfold upgrade
   - The July xx.xx 2025 announcement identifies Eviden as the leader and integrator of the Santos Dumont upgrade at Brazil's LNCC using BullSequana XH3000.
   - Bull identifies the retained announcement as originally published on Eviden.com, establishing historical attribution rather than a new XH3500 deployment.
   - Company verification: The July xx.xx 2025 announcement documents the Eviden-built Santos Dumont upgrade at Brazil's LNCC using BullSequana systems.
   - Company verification: The current Bull site preserves this announcement as a disclosure originally published by Eviden.
5. The French State finalises the acquisition of Bull and positions France at the forefront of high-performance computing and AI
   - Company verification: Bull announced completion of its acquisition from Atos Group by the French State on March xx.xx 2026, establishing the current ownership distinction from Atos.
6. Bull and Foxconn partner to scale Europe’s manufacturing capabilities for artificial intelligence infrastructures
   - Company verification: Bull announces a European AI-infrastructure manufacturing partnership with Foxconn.
7. Bull and Kaizen Expand AI-ready Infrastructure Across Southern Africa
   - Company verification: Bull announces a Southern African route to market involving Kaizen Technologies and a South African reseller role for Data Sciences Corporation.

22.10. Alexander Schneider

Alexander Schneider offers an Israeli procurement and implementation route for Vertiv's CoolChip CDU121. ■■■■■■ ■■■■■■■■■■ ■■■■ ■■■■■ ■■ ■■ ■■■■■■■ ■■■■■■■■■■■■■■■ ■■■ ■■■ ■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■ ■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■■■■■■■■ ■■■■■ The commercial

distinction is a represented manufacturer product combined with local execution, not evidence of independent CDU manufacture.

Its broader offering includes data center assessment, integration and commissioning. ■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■■ ■■■■■■■■■ ■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■ ■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■ ■ ■■■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■ ■ ■■■■■■■■ ■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■ ■■■■■■■ The potential coordination benefit depends on those obligations being contracted; general integration services do not establish completed CDU121 deployments or manufacturer-authorized service coverage.

■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■ ■■■ ■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■ ■■■ ■■■■■ ■■■■■■■■■ ■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■■■ ■■ ■■■■■■ ■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■ Alexander Schneider's local route is defensible when its accepted implementation responsibilities reduce project handoffs while preserving manufacturer support. Where the buyer can coordinate local execution separately, a manufacturer-led service arrangement may offer a clearer escalation relationship.

Sources & Evidence

1. Liquid Cooling Distribution Technology | Alexander Schneider
   - Alexander Schneider's catalog offers the Vertiv CoolChip CDU121 in a rack-mounted format.
   - The page explicitly advertises Vertiv liquid-cooling implementation support in Israel from Alexander Schneider's thermal-management team.
   - Company verification: Alexander Schneider's commercial catalog offers the Vertiv CoolChip CDU121 in a compact 4RU form factor.
   - Company verification: The page explicitly states that liquid-cooling implementation support is available in Israel from Alexander Schneider's thermal-management team.
2. Vertiv CoolChip CDU
   - Vertiv's datasheet identifies CoolChip CDU121 as an in-rack liquid-to-liquid unit for single-rack direct-to-chip cooling.
   - Vertiv advertises global services around the unit, including installation, startup and continuing support; this does not establish a destination-specific service commitment.
3. Company Profile - The Power of Excellence
   - Alexander Schneider lists data center assessment, integration and commissioning among its customer services.
   - Its company profile describes an Israeli infrastructure business serving data center and OEM customers.
   - Company verification: Alexander Schneider's official company profile identifies its Israeli infrastructure-distribution and integration business and Netanya address.
   - Company verification: This narrows the commercial-identity question, but does not establish the registered contracting entity or product-specific CDU deployments.
4. Data Center Integration - The Power of Excellence
   - Alexander Schneider's data center integration page advertises project management and integration across cooling, power, networking and management solutions.
   - This supports a conditional local project-coordination proposition, not an independently demonstrated CDU121 delivery outcome.

22.11. DC ASIA Ltd.

DC ASIA Ltd. provides a Japanese-facing commercial route for nVent RackChiller CDUs and a separately listed Motivair CDU portfolio. ■■■ ■■■■■■■■■ ■■■■■ ■■■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■ ■■■ ■■■■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■■■■■■■■ The relevant capability is named-brand representation and equipment access; the catalogs do not establish a DC ASIA-designed CDU or universal manufacturer authorization.

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DC ASIA's Motivair free-cooling-chiller page states that Japanese sales ended at the end of March 2026. ■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■ ■■■ ■ ■■■■■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■ ■■ ■■■■■■■■ ■■ ■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■■■■ ■■ ■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■ ■ ■■■■■■■■■■■ ■■■■■■ ■■■■■■■■■■■■ ■■■■ ■■■ ■■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■ ■■■■■■■■ ■■■ ■■■■■■■■■ ■■■■■■■■■ ■■■■■■■■ ■■■■■■ ■■■■■■■■■■■■ ■■■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■ ■■■ ■■■■■ ■■■■■■■■ ■■■■■■■■■■ If those responsibilities cannot be consolidated, buyers should compare separately contracted equipment and service arrangements.

Sources & Evidence

1. DC ASIA について - DC ASIA Ltd.
   - The company profile identifies the Japanese operating company as DC ASIA Ltd. and provides its Tokyo business location.
   - Company verification: DC ASIA's company profile identifies 株式会社 DC ASIA as DC ASIA Ltd. and provides its Tokyo business address.
   - Company verification: The profile identifies 共同カイテック株式会社 as its sole corporate shareholder, resolving the operating-company reporting level without adding a parent row.
2. nVent | RackChiller CDU - DC ASIA Ltd.
   - DC ASIA's nVent RackChiller catalog identifies CDU40 and CDU100 as rack-mounted products and separately describes the floor-standing CDU800.
   - The listing establishes DC ASIA's advertised representation of named nVent equipment rather than original manufacture.
   - Company verification: DC ASIA's own Japanese product page offers nVent RackChiller CDUs and distinguishes rack-mounted from floor-mounted models.
   - Company verification: This establishes DC ASIA's channel role, not independent manufacture of the represented products.
3. CDU - DC ASIA Ltd.
   - DC ASIA's CDU category separately lists Motivair and nVent portfolios.
   - The category supports an advertised multi-brand comparison route without establishing a currently orderable Motivair in-rack configuration.

4. Motivair | フリークーリングチラー - DC ASIA Ltd.

· DC ASIA's Motivair free-cooling-chiller product page states that Japanese sales ended at the end of March 2026.

· The withdrawal notice is attached to the chiller product line, supporting product-specific availability diligence rather than a conclusion that the separately listed CDU range was withdrawn.

5. Motivair | CDU - DC ASIA Ltd.

· Company verification: DC ASIA's Motivair product page includes rack-mounted and floor-standing CDU ranges.

· Company verification: The page supports a Japanese commercial channel relationship with the represented Motivair offering.

23. Companies Covered

Table 470. Global Integrated In-Rack CDUs Market, Companies Covered

Company
2CRSi
Aamtron Group
Accelsius
Advanced Cooling Technologies, Inc.
Airedale by Modine
AIRSYS
Alexander Schneider
Alphacool International GmbH
AMAX Engineering
AmpLink Tech Corp.
Apx DCS
Aquila
ARA Cooling Solutions
ARETE Research & Innovation
Asetek
Asirep
ASUS
ATTOM
Beehe
Best PC
Bull
CANATAL Environmental AC Inc.
Canovate Group
Carrier
Celestica
Chilldyne
Cisco Systems, Inc.
Coolcentric
Cooler Master
CoolIT Systems

Table 470 - continued

Company
Cooltech Solution
CorefloX
Crealien Co., Ltd.
Data Sciences Corporation
DataCool Technologies
DataPravah
DC ASIA Ltd.
DCX Liquid Cooling Systems
Dell
Dell Technologies
Delta Electronics
Dynatron
Eaton
Envicool
Exclusive Networks
EXTRCOOL INDUSTRY LIMITED
Far East Electric
Favortron
FläktGroup
Forcecon Technology Co., Ltd.
Foxconn
Gerchamp, Inc.
GIGABYTE
Gottog Power
GRC
Guangdong Shenling
Hewlett Packard Enterprise
HiRef S.p.A.
HSSL Technologies
Iceotope
IMMERSEKOOL
Ingram Micro

Table 470 - continued

Company
Inova
Inspur Information
INVT
Jabil
JETCOOL Technologies Inc.
Kaizen Technologies
KAORI
Kehua Tech
Kentec Inc.
KOMPLEKT
Koolance
KSTAR
Lenovo
LG Electronics
LiquidCool Solutions
LITE-ON Technology Corp.
ManyCoreSoft
META Green Cooling
MiTAC Computing Technology
Motivair Corporation
Nanotec
Nidec
Nortek Data Center Cooling
NPower
nVent
PerfilGlobal
QCT
RDP Computers India Private Limited
Rittal
RSC
ScreenCheck Middle East FZ LLC
Shandong Liangdi Energy Saving Technology Co., Ltd.

Table 470 - continued

Company
Shenglin
Shenzhen INVT Electric Co., Ltd.
Shenzhen Lianli Liquid Cooling Technology Co., Ltd
Shenzhen Toploong Technology Co., Ltd.
Shinohara Denki
SLiquid Global
Standard Cooling Systems
STULZ
Sunny Core
Super Micro Computer, Inc.
Technology Access Group (Pty) Ltd
technotrans SE
ToneCooling Europe OÜ
United Force Trading Company
UPS Solutions
USystems
Valeo
VCB-AI (Pty) Ltd
Vertiv
Wandtung
Wesco International
Wiwynn
Xfinite Trading
XINKE LCS
ZT IT
ZutaCore

Sources & Evidence

1. Vertiv CoolChip CDU 121

   · Company verification: Vertiv currently markets CoolChip CDU xx.xx as an in-rack product for single-rack direct-to-chip applications.

   · Company verification: The model-specific page provides a sales-contact route and associated liquid-cooling service offerings.

   · Company verification: Vertiv's current model-specific page markets CoolChip CDU xx.xx as an in-rack product for single-rack direct-to-chip applications and provides a sales-contact route.

2. Coolant distribution unit - CDU liquid cooling for AI and enterprise data centers
   - Company verification: Eaton's commercial catalog identifies RAL110-04U19 and named rack-format liquid-to-air CDU products.
   - Company verification: The catalog presents these products within Boyd Thermal by Eaton's commercial cooling and lifecycle-support portfolio.
3. Delta's Power, Cooling and Microgrid Solutions Showcased at NVIDIA GTC to Bolster the 800 VDC Architecture of Next-gen AI Factories
   - Company verification: Delta's March xx.xx 2026 business announcement identifies its 4RU In-Rack liquid-to-liquid CDU for the NVIDIA GB300 NVL72 ecosystem.
   - Company verification: The announcement corroborates continuing market-specific activity; it does not establish shipment volume.
4. Nidec Develops In-Rack CDU with Up to 300 kW Cooling Capacity
   - Company verification: Nidec Corporation's June xx.xx 2026 announcement establishes continuing in-rack CDU business development.
   - Company verification: The newly announced xx.xx kW product is explicitly a prototype, with mass production targeted for the first quarter of 2027 rather than established current production.
5. Nidec Starts Shipping OCP-standard, In-rack-type, 4U-size 250KW CDU to Supermicro
   - Company verification: Nidec's December xx.xx 2024 corporate announcement states that it began shipping an OCP-standard in-rack CDU jointly developed with Supermicro.
   - Company verification: The announcement establishes a specific original-supplier and rack-OEM relationship, separate from Nidec's subsequent prototype announcement.
   - Company verification: Nidec identifies Supermicro as the joint-development partner and recipient of the announced in-rack CDU shipments.
   - Company verification: This supports a specific supplier relationship, not attribution of every Supermicro CDU model to Nidec.
6. ZutaCore Unveils Waterless End-of-Row CDU Family to Power the Next Generation of AI Data Centers
   - Company verification: ZutaCore's November xx.xx 2025 corporate announcement identifies continuing HyperCool commercial activity and named customer and OEM relationships.
   - Company verification: The announcement identifies ZutaCore, Inc. and its Foster City headquarters; its end-of-row launch is not itself treated as an in-rack product.
7. 4U CDU - Dynatron
   - Company verification: Dynatron's current product page markets the named CDU-3000W-FAN in a 4U format for AI workstations, GPU platforms, and high-density computing.
   - Company verification: The page identifies Dynatron Corporation and its California business address, supporting the protected Dynatron operating-brand identity.
   - Company verification: Dynatron markets a compact 4U CDU for AI, GPU, and high-density computing applications.
8. About DCX Liquid Cooling Systems
   - Company verification: DCX's corporate page binds DCX Liquid Cooling Systems to DCX Polska and provides Polish registration and VAT identifiers.
   - Company verification: The page presents current commercial activity and retains an InRack CDU product route.
9. LITEON Announces Strategic Investment in Liquid Cooling Technology Company DCX
   - Company verification: The September xx.xx 2026 announcement identifies DCX POLSKA Sp. z o.o. as the business operating under DCX Liquid Cooling Systems.
   - Company verification: The announcement describes LITEON's proposed approximately xx.xx% equity investment using conditional closing language; it does not establish completion.
   - Company verification: The announcement identifies LITEON Technology and its continuing AI-infrastructure business activity.
   - Company verification: Its proposed investment in DCX is an announced minority relationship, not evidence that the two protected suppliers have become one wholly acquired business.

10. Data Center Thermal Management Solutions
    - Company verification: Advanced Cooling Technologies' current data-center business page markets two-phase CDUs and component-to-rack commercial solutions.
    - Company verification: This corroborates continuing business activity; qualification of its in-rack product rests on the separately captured commercial datasheet.
11. About Us - Giga Computing Technology Co., Ltd.
    - Company verification: Giga Computing's corporate page identifies its origin within GIGABYTE and the continued use of the GIGABYTE enterprise brand.
    - Company verification: It describes development, manufacturing, and sales of enterprise products under that brand, supporting one GIGABYTE economic reporting representation rather than a new subsidiary row.
    - Company verification: The historical wholly owned description is not used as a verified current ownership percentage.
12. INVT Network Power (Shenzhen) Co., Ltd. - Company
    - Company verification: INVT Network Power (Shenzhen) Co., Ltd. identifies itself as a subsidiary of Shenzhen INVT Electric Co., Ltd.
    - Company verification: The subsidiary describes its data-center infrastructure business, supporting parent-level reporting of the protected legal-company identity.
    - Company verification: The official operating-company record establishes an INVT-branded data-center business within the Shenzhen INVT group.
    - Company verification: This does not establish the protected INVT brand row as an economically independent supplier from the protected parent row.
13. FAQ - Dell Technologies, Inc.
    - Company verification: Dell's current investor FAQ identifies Dell Technologies as the operating public-company reporting identity and describes its server and data-center infrastructure business.
    - Company verification: The FAQ distinguishes the current Dell Technologies reporting identity from historical Dell Inc. records.
    - Company verification: It supports treating the overlapping protected Dell portfolio row as part of the same group representation, not a second independent manufacturer.
14. Trademarks - Dell USA
    - Company verification: Dell's official trademark statement binds the Dell Technologies and Dell names to the same Dell trademark family.
    - Company verification: The Dell and Dell Technologies names are not evidence of separate economic participation in the same protected rack-cooling portfolio.
15. Avis de situation au répertoire Sirene
    - Company verification: An INSEE SIRENE notice dated May xx.xx 2026 identifies 2CRSI, SIREN xx.xx as an active French société anonyme.
    - Company verification: The official record corroborates the protected company's current legal identity; market participation is established separately by its Cloe rack catalog.
16. DC ASIA について
    - Company verification: DC ASIA's company profile identifies 株式会社 DC ASIA as DC ASIA Ltd. and provides its Tokyo business address.
    - Company verification: The profile identifies 共同カイテック株式会社 as its sole corporate shareholder, resolving the operating-company reporting level without adding a parent row.
17. About MiTAC Computing Technology Corporation
    - Company verification: MiTAC's corporate page identifies MiTAC Computing Technology Corporation as a subsidiary of MiTAC Holdings.
    - Company verification: It describes current integrated-rack business operations and identifies the operating headquarters and affiliated regional businesses.
    - Company verification: This supports reporting the staged identity at the computing-supplier level rather than adding the holding company or regional offices.

18. Liquid Cooling - FläktGroup
    - Company verification: FläktGroup's current liquid-cooling business page markets Liquid-DENCO CDU and identifies FläktGroup Holding GmbH as its headquarters identity.
    - Company verification: The inspected commercial page does not establish a complete CDU installed within IT rack equipment space.
19. ICEraQ - Immersion Cooling Solutions
    - Company verification: GRC's current ICEraQ catalog markets immersion-cooled rack products with integrated CDUs, including ICEraQ Micro and Nano.
    - Company verification: The catalog establishes an integrated immersion-cooling offering, not equivalence to the working conventional IT-rack boundary.
20. Shenglin Rackmount Air-Liquid CDUs Manufacturer
    - Company verification: Shenglin's inspected catalog advertises Rackmount Air-Liquid CDUs.
    - Company verification: The page also discusses deployment beside racks, leaving installation within IT rack space insufficiently resolved.
21. Ingram Micro Announces Distribution Agreement with Supermicro for Middle East and Africa Markets
    - Company verification: Ingram Micro's October xx.xx 2023 announcement establishes a Supermicro distribution agreement covering named Middle Eastern and African markets.
    - Company verification: The agreement concerns server and related hardware portfolios; it does not establish current authorization or transactions for a specific complete in-rack CDU.
22. Ingram Micro office locations
    - Company verification: Ingram Micro's current official locations page identifies a Moroccan office and links its North African business website.
    - Company verification: Office presence does not establish complete in-rack CDU availability or local deployments.
23. Company Profile - KSTAR
    - Company verification: KSTAR's official company profile identifies the business as Shenzhen Kstar Science & Technology Co., Ltd.
    - Company verification: The profile supports the observed KSTAR brand-to-company mapping, but does not establish the commercial scale of its particular rack-mounted CDU.
24. About Us - META Green Cooling
    - Company verification: META Green Cooling's corporate history identifies its operating English name and Chinese corporate identity.
    - Company verification: The company reports Wistron's minority investment, its Suzhou subsidiary relationship, and a January 2026 emerging-market listing.
    - Company verification: These company statements do not replace filing-level verification of current control or consolidation.
    - Company verification: The English company page uses the operating name META Green Cooling and links it to the Chinese corporate identity.
    - Company verification: Its history reports a Wistron investment, acquisition of its Suzhou subsidiary, and an emerging-market listing in January 2026.
25. Company Profile - Alexander Schneider
    - Company verification: Alexander Schneider's official company profile identifies its Israeli infrastructure-distribution and integration business and Netanya address.
    - Company verification: This narrows the commercial-identity question, but does not establish the registered contracting entity or product-specific CDU deployments.
26. Vertiv CoolChip CDU - In-rack liquid-to-liquid coolant distribution unit
    - Company verification: Vertiv's CoolChip CDU xx.xx is presented as a complete liquid-to-liquid unit installed within an IT rack for direct-to-chip applications.

27. In-Rack Coolant Distribution Unit - Motivair
    - Company verification: Motivair markets an In-Rack CDU designed for installation inside a standard computing rack.
    - Company verification: The product page identifies US design and manufacture.
28. Schneider Electric completes transaction to acquire Motivair Corporation
    - Company verification: Schneider Electric completed acquisition of a xx.xx% controlling interest in Motivair Corporation on February xx.xx 2025.
29. CHx80 In-Rack CDU for HPC and Enterprise - CoolIT Systems
    - Company verification: CoolIT markets CHx80 as an in-rack CDU for HPC and enterprise server deployments.
30. Ecolab has closed its acquisition of CoolIT Systems
    - Company verification: CoolIT announced that Ecolab completed its acquisition on July xx.xx 2026.
31. Coolant distribution units - Eaton
    - Company verification: Eaton's own business page identifies in-rack CDUs among its available CDU categories and distinguishes them from freestanding in-row units.
32. Eaton completes acquisition of Boyd Thermal
    - Company verification: Eaton completed acquisition of Boyd Thermal on March xx.xx 2026.
    - Company verification: The acquired thermal business has manufacturing operations across North America, Asia, and Europe.
    - Company verification: Eaton's March xx.xx 2026 announcement confirms completion of its acquisition of the Boyd Thermal business and states that it will be reported within Eaton's Electrical Global business segment.
33. RackChiller CDU40 - nVent HOFFMAN
    - Company verification: nVent's RackChiller CDU40 documentation identifies a CDU installed within rack space for HPC equipment.
34. Wiwynn Showcases Next-Generation AI Infrastructure at COMPUTEX 2025
    - Company verification: Wiwynn's COMPUTEX 2025 announcement describes an in-rack CDU integrated with its NVIDIA GB300 NVL72 rack in collaboration with nVent.
    - Company verification: The announcement establishes showcased integration activity, not independent CDU manufacturing or shipment scale.
    - Company verification: Wiwynn identifies nVent as its collaborator for the showcased in-rack CDU integration.
35. Coolant Distribution Unit - Delta
    - Company verification: Delta's product catalog offers rack-mounted liquid-to-liquid and liquid-to-air CDUs for computing equipment.
36. In-Rack CDU - Nidec's Thermal Solutions
    - Company verification: Nidec markets an In-Rack CDU lineup covering EIA and OCP rack formats.
37. 3343230 Cooling Distribution Unit CDU In-Rack - Rittal
    - Company verification: Rittal's catalog identifies article SK xx.xx as a complete liquid-to-liquid CDU for installation inside an OCP ORV3 rack.
    - Company verification: Rittal's Canadian catalog lists article SK xx.xx as a ready-to-connect CDU In-Rack with a separate control module.
    - Company verification: The localized catalog establishes Canadian-facing product marketing, not Canadian manufacturing or installed-base evidence.
38. Liquid Cooled Server Rack Solutions - Supermicro
    - Company verification: Supermicro offers in-rack CDUs within its system-level and rack-scale liquid-cooling portfolio.
    - Company verification: Its portfolio distinguishes these products from in-row CDUs and sidecars.
39. Lenovo 42U and 48U Heavy Duty Rack Cabinets Product Guide
    - Company verification: Lenovo's commercial product guide identifies Neptune DWC RM100 as an in-rack CDU.
    - Company verification: The guide provides an orderable configuration model for the unit.

40. HPE Cray Supercomputing EX - QuickSpecs
    - Company verification: HPE's Cray EX QuickSpecs identify an in-rack CDU option for the EX2500 rack, separately from its in-row CDU.
41. Coolant Distribution Units - JetCool SmartSense CDU
    - Company verification: JetCool's commercial portfolio identifies SmartSense as a rack-mounted liquid-to-liquid CDU.
    - Company verification: The site identifies JETCOOL Technologies Inc. as the operating company.
42. Flex: Liquid-Cooled Racks for Data Centers with JetCool
    - Company verification: JetCool identifies itself as a Flex company and describes integration of its liquid-cooling portfolio into Flex rack-level solutions.
    - Company verification: The page supplies a Massachusetts business address.
43. HyperCool - Server Liquid Cooling System - ZutaCore
    - Company verification: ZutaCore markets HyperCool in-rack CDUs as part of its two-phase direct-to-chip cooling portfolio.
    - Company verification: The offering includes rack-level air-based and facility-water configurations.
44. Accelsius Makes NVIDIA GTC Debut with NeuCool IR150
    - Company verification: Accelsius announced NeuCool IR150, combining a two-phase CDU, IT rack space, and manifolds in one enclosure.
    - Company verification: The announcement supports a named integrated-rack offering but does not independently establish shipment scale.
45. InRack CDU - DCX Liquid Cooling Systems
    - Company verification: DCX offers an InRack CDU for individual high-density server racks through a product-specific quotation channel.
    - Company verification: The page identifies DCX Liquid Cooling Systems and a Warsaw business address.
46. Coolant Distribution Units - Coolcentric
    - Company verification: Coolcentric markets the rack-mounted CDRM CDU for rear-door heat-exchanger applications.
    - Company verification: The page establishes the commercial brand and offering but not its current legal ownership.
47. Coolinside Full-Chain Liquid Cooling Solution - Envicool
    - Company verification: Envicool's Coolinside brochure identifies in-rack liquid-to-liquid and liquid-to-air CDU products separately from centralized products.
48. NovaCool Rack CDU - Inova
    - Company verification: Inova markets NovaCool Rack CDU as a complete rack-mounted liquid-cooling product.
    - Company verification: The page does not establish the complete contracting-entity or ownership mapping.
49. Coolant Distribution Units - ARA Cooling Solutions
    - Company verification: ARA Cooling Solutions includes in-rack CDUs in its commercial CDU range.
    - Company verification: The inspected page does not resolve specific orderable models or original-manufacturer relationships.
50. Coolant Distribution Units for Data Centre Liquid Cooling - Xfinite Trading
    - Company verification: Xfinite Trading states that it supplies in-rack CDUs sourced from manufacturers.
    - Company verification: Its page advertises distribution across Southeast Asia, the Middle East, and other markets.
    - Company verification: Xfinite Trading publicly offers sourced in-rack CDUs and states that it distributes them from Singapore into the Middle East.
    - Company verification: The inspected offering does not identify specific Middle Eastern customer installations or model-specific manufacturer agreements.

51. CDU System - Sunny Core
    - Company verification: Sunny Core markets a rack-mounted CDU presented as an integrated thermal-management assembly.
    - Company verification: Its commercial page does not resolve the full legal company identity or manufacturing relationships.
52. Rack-Mounted Liquid-to-Air CDU for AI Data Centers - EXTRCOOL
    - Company verification: EXTRCOOL offers rack-mounted liquid-to-air CDUs for data-center applications.
    - Company verification: The page identifies EXTRCOOL INDUSTRY LIMITED and Chinese product origin.
53. Rack-level CDU for In-Rack Liquid Cooling - CorefloX
    - Company verification: CorefloX markets a rack-level CDU explicitly described as an in-rack product.
    - Company verification: The inspected page does not resolve its underlying legal entity or OEM affiliations.
54. 200 kW and 15 kW CDUs - Advanced Cooling Technologies
    - Company verification: Advanced Cooling Technologies' commercial datasheet identifies an in-rack two-phase CDU separately from its larger CDU.
    - Company verification: The document identifies Advanced Cooling Technologies, Inc. and its Pennsylvania address.
55. InRackCDU - Asetek Heritage Technology
    - Company verification: Asetek's heritage material describes an InRackCDU product mounted inside computing racks.
    - Company verification: The historical page does not establish current orderability or ongoing commercial supply.
    - Company verification: Asetek's current heritage page explicitly labels InRackCDU a Legacy Product.
    - Company verification: The page establishes historical rack-mounted CDU participation, not current orderability.
56. CyberCool CDU - STULZ
    - Company verification: STULZ markets CyberCool CDU for liquid-cooling applications and describes integration into server-rack structures.
    - Company verification: The inspected page does not identify an unambiguous CDU model installed within IT rack space.
57. Coolant Distribution Unit - Airedale by Modine
    - Company verification: Airedale by Modine's brochure establishes a commercial CDU portfolio and mentions in-rack server integration.
    - Company verification: The inspected brochure does not resolve a specific in-rack CDU model.
58. CDU588 Cabinet CDU Datasheet - LITE-ON Technology Corp.
    - Company verification: The CDU588 datasheet identifies LITE-ON Technology Corp. and an in-row CDU offering.
    - Company verification: This establishes company identity and adjacent CDU activity, not in-rack qualification.
59. 液冷 CDU - 广东申菱环境系统股份有限公司
    - Company verification: Guangdong Shenling's official product page lists a liquid-cooling CDU.
    - Company verification: The readable page does not establish a specific in-rack model or full official English legal name.
60. GIGABYTE Direct Liquid Cooling Solution
    - Company verification: GIGABYTE's commercial solution page lists rack configurations using in-rack CDUs.
    - Company verification: The page establishes branded rack-solution participation, not independent CDU manufacture or the complete contracting-entity mapping.
61. LiquidMax RackScale 64
    - Company verification: AMAX's LiquidMax RackScale xx.xx catalog describes a fully liquid-cooled rack solution incorporating an integrated CDU and vertical cooling distribution manifold.

62. About - AMAX Engineering
· Company verification: AMAX's corporate business page identifies North American headquarters and describes its liquid-cooling solutions business.
63. Dell PowerEdge MX7000 and MX760c Liquid Cooling for Maximum Efficiency
· Company verification: Dell describes the DLC3000 commercial rack solution as including an in-rack CDU, rack manifold, and pre-integrated computing equipment.
· Company verification: Dell describes delivery and support of the integrated rack solution; this does not establish independent CDU manufacture or current model orderability.
64. News - Koolance
· Company verification: Koolance's August xx.xx 2026 business announcement identifies rack-mounted CDU products and states that ALR-10KA is available.
65. ALR-10KA Liquid Cooling System
· Company verification: Koolance's ALR-10KA catalog specifies a xx.xx-inch, 4U rack format.
· Company verification: The product page provides a US shipping option and an active commercial ordering route.
66. Contact Us - Koolance
· Company verification: Koolance provides an official business address in Auburn, Washington, United States.
67. About CANATAL
· Company verification: The company identifies itself as CANATAL Environmental AC Inc., a Canadian precision-cooling and thermal-management business.
· Company verification: Its official page supplies a Canadian contact location and describes service to North American customers.
68. Liquid Cooling | CANATAL
· Company verification: CANATAL markets compact in-rack CDU assemblies installed within server racks.
· Company verification: Its liquid-cooling portfolio separately identifies an in-rack air-to-liquid CDU offering.
69. AI Server for NVIDIA HGX B300, Liquid Cooled - Cisco
· Company verification: Cisco lists a Cisco-offered Supermicro rack configuration with an in-rack CDU, identified as SRS-48UDLC-B300-M1.
· Company verification: The page states October 2026 availability and describes configured-system ordering identifiers as in progress.
· Company verification: Cisco's documented role includes offering and supporting the Supermicro-built platform, not independent CDU manufacture.
· Company verification: Cisco's September xx.xx 2026 data sheet lists the Supermicro-built SRS-48UDLC-B300-M1 rack package with an in-rack CDU.
· Company verification: The page states October 2026 availability while describing configured-system ordering identifiers as in progress; an exact completed launch or shipment date is not established.
· Company verification: Cisco identifies the offered hardware as Supermicro-built and lists a Supermicro rack package containing an in-rack CDU.
· Company verification: The page establishes an announced commercial channel relationship, not confirmed shipment volume.
· Company verification: Cisco identifies Supermicro as the hardware builder and lists a Supermicro rack package containing an in-rack CDU, corroborating the partner channel relationship without establishing additional manufacturing volume.
70. AI Infrastructure for the Data Center and Beyond | Celestica
· Company verification: Celestica describes its own CDU design business and work with hyperscaler customers.
· Company verification: The article discusses in-rack and in-row CDU categories but does not identify a specific orderable in-rack model.

71. Chilldyne Demo Unit - CF-CDU15 Specifications
    - Company verification: A Chilldyne company document hosted by Brookhaven National Laboratory identifies the CF-CDU15 demo product and states that its units fit a standard computer rack.
    - Company verification: The document provides a Carlsbad, California business address; it does not establish current product availability.
72. Chilldyne CF-CDU300 Spec Sheet B
    - Company verification: Chilldyne's CF-CDU300 commercial sheet describes a rack-sized cabinet offering.
    - Company verification: This sheet does not establish that the product occupies equipment space inside an IT rack.
73. Cooling Server Racks - Our Rack Manifold - Chilldyne
    - Company verification: Chilldyne's current business page identifies the company as a member of the Daikin group.
    - Company verification: The page establishes continuing data-center liquid-cooling business activity, without resolving continuation of the legacy rack-fitting CDU.
74. Energy Performance Evaluation of Aquila's Aquarius Fixed Cold Plate Cooling System at NREL's High Performance Computing Center
    - Company verification: NREL's February 2019 report identifies a 2018 Aquila Aquarius deployment at its US facility.
    - Company verification: The report records delivery of the rack with its CDU already installed, establishing historical integrated-rack participation rather than current orderability.
75. Patentent Direct-to-Chip, Immersion Cooling Technology | LiquidCool Solutions
    - Company verification: LiquidCool Solutions markets liquid-cooled computing in a standard vertical equipment rack.
    - Company verification: The inspected business page does not establish a complete CDU installed inside that rack.
76. HiRef México inicia la construcción de su nueva sede | HiRef S.p.A.
    - Company verification: HiRef identifies an existing Mexican subsidiary and an announced Mexican production facility that is intended to include CDUs.
    - Company verification: Plant operation is expected between late 2027 and early 2028; the announcement does not establish current local CDU production or a qualifying in-rack model.
77. Soluciones de Centros de Datos - Wesco Anixter - Marzo 11, 2026
    - Company verification: Wesco International's company-authored March xx.xx 2026 data-center solutions presentation discusses in-rack CDUs.
    - Company verification: The presentation establishes a named commercial-channel research lead, not a model-specific distribution agreement or confirmed complete-CDU sale.
78. Carrier CDU | Coolant Distribution Unit for Data Centers
    - Company verification: Carrier's US commercial business page markets a coolant distribution unit within its data-center cooling portfolio.
    - Company verification: The inspected page does not establish a specific complete CDU installed within IT rack space.
79. Coolant Distribution Unit | CDU | Nortek Data Center Cooling
    - Company verification: Nortek Data Center Cooling markets complete CDU systems and describes rack-sized cabinet configurations.
    - Company verification: The inspected offering does not unambiguously establish a CDU installed within shared IT rack equipment space.
80. HPE Cray Coolant Distribution Unit | HPE Store Mexico
    - Company verification: HPE's Mexican storefront lists the Cray R9K50A In-Rack Coolant Distribution Unit.
    - Company verification: The storefront provides a quotation route, establishing localized catalog activity rather than Mexican shipments or installations.

81. CDUs
    - Company verification: Beehe's product catalog explicitly markets complete in-rack liquid-to-liquid and liquid-to-air CDUs for data-center applications.
82. Sobre nós
    - Company verification: Beehe identifies its liquid-cooling business and states that it offers Brazilian-market support and partnerships with integrators and data-center operators.
83. Aivres apresenta na NVIDIA GTC 2026 nova geração de Liquid Cooling para AI Factories
    - Company verification: PerfilGlobal identifies itself as an Aivres/Kaytus partner serving Brazil and Latin America.
    - Company verification: The August xx.xx 2026 business article describes infrastructure availability and integration, including architectures with an in-rack CDU option; it does not establish shipments of a specific qualifying configuration.
84. BullSequana XH3500
    - Company verification: Bull's BullSequana XH3500 commercial catalog explicitly identifies an in-rack coolant distribution unit within the computing-rack system.
85. Santos Dumont, LNCC supercomputer, receives fourfold upgrade
    - Company verification: The July xx.xx 2025 announcement documents the Eviden-built Santos Dumont upgrade at Brazil's LNCC using BullSequana systems.
    - Company verification: The current Bull site preserves this announcement as a disclosure originally published by Eviden.
86. The French State finalises the acquisition of Bull and positions France at the forefront of high-performance computing and AI
    - Company verification: Bull announced completion of its acquisition from Atos Group by the French State on March xx.xx 2026, establishing the current ownership distinction from Atos.
87. LiquidRack
    - Company verification: AIRSYS's Brazilian business page markets LiquidRack as an integrated rack-level liquid-cooling offering and refers to distributed CDU architecture.
    - Company verification: The page retains a planned September 2025 launch statement; it does not establish actual launch completion or unambiguous complete in-rack CDU qualification.
88. Data Centers Modulares - Asirep
    - Company verification: Asirep maintains an ATTOM equipment page and provides a Santiago, Chile business address, supporting a local integration or channel role rather than independent CDU manufacture.
89. ATTOM SmoothAir Row Cooling brochure
    - Company verification: Asirep publicly hosts an ATTOM commercial brochure whose liquid-cooling portfolio includes a rack-mounted CDU category.
    - Company verification: The ATTOM brochure distinguishes rack-mounted and row-mounted CDU product categories.
90. ByteCool Liquid Cool CDU
    - Company verification: ATTOM's own ByteCool brochure identifies rack-mounted complete CDU models BT-xx.xx-CL and BT-xx.xx-CA.
    - Company verification: The catalog separately labels floor-mounted and row-mounted models, supporting the distinction from in-rack products.
91. Clima de precisión - NPower
    - Company verification: NPower's precision-cooling catalog lists an SC-series rack-mounted CDU.
    - Company verification: The same page contains unrelated book and template metadata, so the listing alone does not establish reliable commercial availability.
92. CDU em rack da série SC - INVT Electric Português
    - Company verification: INVT's official catalog identifies the SC-series product as an in-rack CDU.
    - Company verification: The page identifies Shenzhen INVT Electric Co., Ltd. in its copyright notice; the responsible CDU-selling group entity and Chilean distribution relationship remain unresolved.

93. Lenovo ThinkSystem SR650 V3 Server
    - Company verification: Nanotec hosts Lenovo's server product guide containing the RM100 In-Rack CDU, supporting a relevant channel-documentation lead but not a Nanotec transaction.
    - Company verification: The Lenovo guide identifies Neptune DWC RM100 as an in-rack CDU with a commercial configuration reference.
94. Centro de datos
    - Company verification: Kehua's official Uruguay case describes a containerized liquid-cooled data-center solution using a CDU and identifies 2023 as its operating year.
    - Company verification: The case does not establish that the CDU is installed inside an IT rack.
95. Atlas · Donde vive el cómputo | ARETE
    - Company verification: ARETE Research & Innovation presents Atlas Loop as liquid-cooling infrastructure incorporating a CDU and manifolds.
    - Company verification: The company lists Brazil, Colombia, and Uruguay in its footprint; the page does not identify a complete in-rack CDU model.
96. Neptune® | Tecnologías de refrigeración líquida para centros de datos y GPU | Lenovo República Dominicana
    - Company verification: Lenovo's Dominican Republic commercial page markets Neptune liquid cooling and rack-level RDHX/CDU options.
    - Company verification: Country-targeted marketing does not establish locally fulfilled RM100 sales or deployments.
97. DLC Rack Scale Solution HPC | 2CRSi
    - Company verification: 2CRSi markets the Cloe xx.xx HPC rack-scale solution with a rack-integrated, in-rack liquid-to-liquid CDU.
    - Company verification: The offering establishes branded rack integration; the original CDU manufacturer is not identified.
98. Модули охлаждения (CDU)
    - Company verification: RSC's Russian catalog separates rack-compatible cooling-distribution modules from standalone CDUs.
    - Company verification: The catalog lists CDU-HM xx.xx and CDU-HM xx.xx within its rack-compatible range and provides a Moscow business address.
99. RSC - Cooling distribution units (CDU)
    - Company verification: RSC's official English catalog uses the RSC commercial identity and lists CDU-HM xx.xx and CDU-HM xx.xx under its xx.xx-inch-compatible CDU category.
100. TC-CDU-A6R - In-Rack Liquid-to-Air CDU - ToneCooling Europe
    - Company verification: The page identifies ToneCooling Europe OÜ as the coordinator of European project inquiries and customer communication.
    - Company verification: It markets TC-CDU-A6R as an in-rack liquid-to-air CDU and provides a commercial inquiry route.
101. Supermicro NVIDIA GB200 NVL72 SuperCluster
    - Company verification: Favortron's supplier-hosted brochure identifies Favortron as an authorized Supermicro reseller with a London business address.
    - Company verification: Its Supermicro GB200 NVL72 rack offering includes an explicitly identified in-rack CDU option.
102. Alphacool at Cloudfest 2026
    - Company verification: The February xx.xx 2026 announcement promotes Alphacool CDUs for rack applications at CloudFest 2026.
    - Company verification: The page identifies Alphacool International GmbH and a Braunschweig, Germany address; no specific current in-rack model is established.

103. technotrans wins further follow-up orders for data centres: order intake reaches a double-digit million-euro volume
- Company verification: The July xx.xx 2026 corporate announcement identifies technotrans SE as a supplier receiving follow-on orders for data-center CDUs.
- Company verification: The announcement establishes commercial CDU activity but does not establish installation inside IT racks.

104. Valeo Showcases Next-Generation Smart Cooling Technologies at Data Centre World Paris 2025
- Company verification: Valeo's October xx.xx 2025 announcement identifies a two-phase direct-to-chip CDU presented for Data Centre World Paris 2025.
- Company verification: The announcement establishes named CDU activity, not a confirmed in-rack model or commercial delivery.

105. Precision Liquid Cooling for High-Density Compute | Iceotope
- Company verification: Iceotope's current data-center business page offers OEM/ODM reference designs through co-design and IP licensing.
- Company verification: The page does not establish current direct commercial supply of a complete in-rack CDU.

106. Coolant Distribution Units (CDU) for Data Center Cooling | nVent
- Company verification: nVent describes its Iceotope Ku:l2 chassis-design partnership and cooling infrastructure integrated within the chassis.
- Company verification: The partnership establishes a rack-system business relationship; it does not independently establish Iceotope as the current supplier of a complete CDU.

107. All Products
- Company verification: USystems markets a ColdLogik CDU for rear-door and in-row cooling deployments.
- Company verification: The catalog describes the CDU as occupying a standard 42U rack footprint, rather than identifying a CDU installed within an occupied IT rack.

108. A Decade of Intelligent Cooling with ColdLogik at Cambridge University
- Company verification: Legrand's customer account describes USystems' rack-mounted CDU involvement in Cambridge University's secondary fluid network deployed in November 2023.
- Company verification: The customer account does not resolve the exact CDU model's installation format or the current contracting entity.

109. 150kW 4U In-Rack CDU Liquid Cooling | Gerchamp
- Company verification: Gerchamp's catalog markets CDU3150 as a 4U in-rack liquid-to-liquid CDU.
- Company verification: The page uses the Gerchamp, Inc. identity; a European contracting or customer relationship is not established.

110. About Us | Our Company · Gerchamp
- Company verification: Gerchamp's company timeline states that a US subsidiary named Gerchamp was established in 2019 within the Huasu business history.
- Company verification: This historical relationship does not establish a separate European operating entity.

111. Coolant Distribution Units (CDU) | Schneider Electric Italia
- Company verification: The Italian Schneider Electric catalog markets Motivair by Schneider Electric rack-mounted liquid-to-liquid CDUs.
- Company verification: The offering is expressly described as installable within standard racks.

112. HPE Cray Coolant Distribution Unit | HPE Store Spain
- Company verification: HPE's Spanish store lists Cray in-rack CDU SKU R9K50A and provides a custom-quotation route.
- Company verification: The listing establishes localized catalog participation, not Spanish shipments or independent CDU manufacture.

113. Doğrudan Sıvı Soğutma - Cooltech Solution
- Company verification: Cooltech Solution's Turkish commercial page offers a DCX direct-liquid-cooling portfolio that explicitly includes rack-internal and 4U rack-based CDUs.
- Company verification: The page distinguishes rack-based offerings from standalone in-row CDU products.

114. COOLTECH SOLUTION tarafından yayınlanan gönderi
- Company verification: Cooltech Solution identifies itself as DCX's representative in Turkey.
- Company verification: Its corporate announcement reports a Turkish proof-of-concept installation incorporating a compact integrated in-rack CDU; this establishes announced demonstration activity, not commercial shipment scale.

115. Liquid Cooling Distribution Technology | Alexander Schneider
- Company verification: Alexander Schneider's commercial catalog offers the Vertiv CoolChip CDU121 in a compact 4RU form factor.
- Company verification: The page explicitly states that liquid-cooling implementation support is available in Israel from Alexander Schneider's thermal-management team.

116. Coolant Distribution Unit CDU In-Rack | United Force KSA
- Company verification: United Force's Saudi commercial catalog provides a quotation listing for Rittal's CDU In-Rack.
- Company verification: The listed product is described as a complete liquid-to-liquid CDU designed for installation in an ORv3 OCP rack.

117. About Us - Electrical Supply Company | United Force KSA
- Company verification: The company's official business page identifies the commercial entity as United Force Trading Company and describes its power-and-control supply business.

118. HPE P55832-B21 | Specifications & Availability Dubai UAE
- Company verification: KOMPLEKT lists the HPE Cray XD P55832-B21 in-rack CDU through a Dubai quotation and sourcing route.
- Company verification: The listing states that commercial availability and order conditions require confirmation; it does not establish a completed sale.

119. About KOMPLEKT | KOMPLEKT
- Company verification: KOMPLEKT describes its business as a Dubai-based technology buying, selling, and sourcing trade desk.

120. Coolant distribution units in Qatar | Aamtron Group
- Company verification: Aamtron Group's Qatar product page publicly offers rack-oriented CDU equipment alongside larger CDU and facility-distribution configurations.
- Company verification: The page identifies a Doha business address and the Aamtron Group commercial identity.

121. Liquid Cooling Solutions | DCX Middle East
- Company verification: The LiquidCoolingME solutions page identifies the business as Aamtron Group and describes its Middle East DCX liquid-cooling distribution role.
- Company verification: This is the channel's own representation; manufacturer confirmation and a specific in-rack model remain unresolved.

122. Direct-To-Chip Liquid Cooling Systems - Canovate
- Company verification: Canovate's official English product page commercially presents direct-to-chip liquid-cooling systems.
- Company verification: The page does not establish a specific complete in-rack CDU model.

123. Karar Vericilerin Buluşma Noktası, Teknolojinin Geleceği: Data Center Ankara Konferansı | Canovate Group
- Company verification: Canovate Group's corporate announcement reports showcasing direct-to-chip cooling together with a CDU at the Data Center Ankara Conference.
- Company verification: The announcement establishes a named Turkish demonstration lead, not confirmed in-rack installation format or shipment status.

124. OceanCool: Immersion Liquid Cooling System Distributor in UAE
    - Company verification: ScreenCheck advertises OceanCool immersion-cooling systems in the UAE and describes C Series cabinet/CDU integration.
    - Company verification: The page identifies ScreenCheck Middle East FZ LLC at a Dubai business address.
    - Company verification: The location of the complete CDU inside IT rack space is not established by the inspected description.
125. ByteCool- Direct to Chip Liquid Cooling system in UAE | ScreenCheck
    - Company verification: ScreenCheck's UAE ByteCool direct-to-chip commercial page lists named coolant-distribution-unit products.
    - Company verification: The inspected page supports CDU channel activity but does not unambiguously establish the installation format of those complete units.
126. HPE Cray Coolant Distribution Unit | HPE Store Saudi Arabia
    - Company verification: HPE's Saudi commercial catalog lists the HPE Cray R9K50A in-rack CDU and provides a reseller quotation route.
    - Company verification: The country catalog establishes a marketed route to supply, not a Saudi customer installation.
127. HPE Cray Coolant Distribution Unit | HPE UAE Store
    - Company verification: HPE's UAE commercial catalog lists the HPE Cray R9K50A in-rack CDU with a request-for-quotation route through regional resellers.
    - Company verification: The listing does not establish local stock or completed UAE deliveries.
128. Dell Integrated Rack Scalable Systems-Simplified, Reliable & Efficient Liquid Cooling for Modern Data Centers
    - Company verification: Dell's November xx.xx 2025 business publication includes the PowerCool Rack-mount Coolant Distribution Unit within its Integrated Rack Scalable Systems portfolio.
    - Company verification: Dell markets Integrated Rack Scalable Systems as a liquid-cooling infrastructure portfolio.
    - Company verification: The inspected Dell-branded portfolio is the same supplier business referenced by the protected Dell Technologies row, rather than evidence of an additional manufacturer.
129. Beat the Heat in Your Data Centre with AI-Driven Cooling Innovations
    - Company verification: Dell's South Africa-facing business publication discusses its liquid-cooled IR7000 integrated-rack infrastructure, establishing regional marketing rather than a local CDU deployment.
130. VCB × Supermicro | Enterprise AI GPU Servers South Africa
    - Company verification: The page identifies VCB-AI (Pty) Ltd and advertises South African supply and local support for Supermicro liquid-cooled GPU systems.
    - Company verification: Its offering includes CDU integration, without identifying a specific in-rack CDU model.
131. Supermicro Solutions & Partner - HSSL Technologies
    - Company verification: HSSL Technologies advertises sourcing, deployment, integration, and support of Supermicro rack-scale systems across Africa.
    - Company verification: Its marketed portfolio includes liquid-cooled AI servers, rack-scale SuperClusters, and direct liquid cooling.
132. Vertiv™ Liebert® XDU Coolant Distribution Units | TechAccess
    - Company verification: TechAccess states that it is a division of Technology Access Group (Pty) Ltd, resolving the operating brand to a named legal business.
    - Company verification: The inspected page's product details did not establish a complete in-rack CDU model.
133. Serveurs & Datacenter Tunisie | Dell, HPE, Lenovo, IA & HPC
    - Company verification: Best PC markets Tunisian enterprise-server and HPC infrastructure services.
    - Company verification: Its business page states that it implements Lenovo Neptune liquid cooling; it does not identify a complete in-rack CDU model.

134. Global Locations | Exclusive Networks Worldwide Presence
   - Company verification: Exclusive Networks' official locations page lists operations in Johannesburg, South Africa, and Casablanca, Morocco.
135. Exclusive Networks Africa appointed as African distributor by Supermicro
   - Company verification: A December xx.xx 2024 news report corroborates Supermicro's appointment of Exclusive Networks Africa as an African distributor.
   - Company verification: The dated appointment does not establish current authorization for a specific in-rack CDU.
136. Data Center Solutions - HVAC | Business | LG Egypt
   - Company verification: LG's Egypt business portfolio markets coolant distribution units within its data-center cooling range.
   - Company verification: The inspected offering does not establish an in-rack CDU format.
137. HPE Cray Coolant Distribution Unit | HPE Store South Africa
   - Company verification: HPE's South Africa store lists SKU R9K50A as an In-Rack Coolant Distribution Unit.
   - Company verification: The listing offers a request-for-quote route and identifies an HPE reseller channel, rather than proving local stock or sales.
138. Cooling Solutions | Schneider Electric South Africa
   - Company verification: Schneider Electric's South Africa cooling catalog identifies Motivair-branded in-rack-mounted coolant distribution units.
   - Company verification: The category describes a complete liquid-to-liquid offering installed within a standard rack.
139. NVIDIA GB200 NVL72 GIGAPOD AI DLC POD Scale Solution - GIGABYTE South Africa
   - Company verification: GIGABYTE's South Africa-facing PAC1 rack-solution catalog lists in-rack and in-row CDU alternatives.
   - Company verification: The in-rack alternative is identified as a complete liquid-to-liquid CDU within the offered rack solution.
140. Neptune® | Data Center & GPU Liquid Cooling Technologies | Lenovo Morocco
   - Company verification: Lenovo's Morocco-facing business page markets Neptune liquid-cooling technologies.
   - Company verification: The regional page does not establish RM100-specific orderability or a Moroccan deployment.
141. HPC Solutions | High-Performance Computing | Lenovo Ghana
   - Company verification: Lenovo's Ghana-facing HPC portfolio markets Neptune liquid cooling and liquid-cooled computing systems.
   - Company verification: The inspected page does not establish a Ghanaian in-rack CDU transaction.
142. CDU-24_CDU_Shenzhen Toploong Technology Co.,Ltd
   - Company verification: The English product catalog identifies Shenzhen Toploong Technology Co.,Ltd and provides a Shenzhen business address.
   - Company verification: The company markets a named CDU within its liquid-cooled server portfolio.
143. 机架式 CDU-36_机架式 CDU_深圳拓普龙科技有限公司
   - Company verification: Toploong's Chinese catalog identifies CDU-xx.xx as a rack-mounted CDU compatible with standard cabinets.
   - Company verification: The stated commercial applications include data centers and intelligent computing.
144. 8KW/12KW/18KW In-Rack Liquid-to-Air CDU | Data Center & Server Liquid Cooling Systems
   - Company verification: The product page markets an in-rack liquid-to-air CDU series.
   - Company verification: The page identifies Shenzhen Lianli Liquid Cooling Technology Co., Ltd and its Shenzhen headquarters and factory addresses.

145. SC Series In-rack CDU - INVT Electric Global
- Company verification: INVT markets the SC Series In-rack CDU as a complete server-rack cooling offering.
- Company verification: The product is presented for high-computing-power and high-density server applications.
- Company verification: The protected INVT row has direct official SC Series in-rack product support.
- Company verification: The same product record does not demonstrate economic independence from the protected Shenzhen INVT row.
- Company verification: The official INVT catalog markets SC Series In-rack CDU products.

146. In-Rack CDU - 元鈦科技股份有限公司
- Company verification: The supplier's product catalog lists named TLS-series In-Rack CDU offerings.
- Company verification: The catalog provides a Taiwan headquarters address.

147. Liquid Cooling Solutions-Solutions-金運科技股份有限公司
- Company verification: Kentec's commercial solutions page explicitly includes In Row/In Rack CDU supply and liquid-cooling integration.
- Company verification: The page identifies a Taipei business address.

148. About Us-金運科技股份有限公司
- Company verification: Kentec describes the thermal-management business's Kenmec Group origins and a launched in-rack CDU offering.
- Company verification: Its timeline reports consolidation of the thermal-management business into Kentec beginning in October 2025.
- Company verification: Kentec's corporate history identifies an In-Rack CDU launch in December 2021 and organizational consolidation of the Kenmec-origin thermal-management business into Kentec beginning in October 2025.
- Company verification: The company history does not independently establish the legal transfer, current control, or present fulfillment of the historical in-rack model.

149. Certificate - KENTEC INC.
- Company verification: The company-hosted certificate identifies the English entity name KENTEC INC. and a Taiwan address.
- Company verification: This record is used for identity support, not as CDU-specific certification evidence.

150. In-Rack CDU - Crealien Co., Ltd.
- Company verification: Crealien Co., Ltd.'s own catalog markets In-Rack CDU solutions for enterprise and high-performance computing applications.
- Company verification: The page identifies the company, a Taiwan business identifier, and a Kaohsiung address.

151. 100 kW Liquid-to-Liquid In-Rack CDU
- Company verification: Cooler Master's official catalog markets a liquid-to-liquid CDU in a compact in-rack chassis.
- Company verification: The inspected page is a Malaysia-localized commercial catalog, not evidence of Malaysian manufacture or deployment.

152. nVent | RackChiller CDU - DC ASIA Ltd.
- Company verification: DC ASIA's own Japanese product page offers nVent RackChiller CDUs and distinguishes rack-mounted from floor-mounted models.
- Company verification: This establishes DC ASIA's channel role, not independent manufacture of the represented products.

153. Motivair | CDU - DC ASIA Ltd.
- Company verification: DC ASIA's Motivair product page includes rack-mounted and floor-standing CDU ranges.
- Company verification: The page supports a Japanese commercial channel relationship with the represented Motivair offering.

154. DRACO 250 kW In-Rack CDU | RDP GPU Mart
   - Company verification: RDP GPU Mart offers the DRACO In-Rack CDU through a quotation route.
   - Company verification: The offering is presented as integrated with RDP GPU servers and rack-scale systems and delivered in India.
155. GPU Mart Policies - Legal, Compliance & Disclaimers
   - Company verification: GPU Mart's legal center identifies RDP Computers India Private Limited as the operating seller.
   - Company verification: The page provides Indian business and manufacturing-facility addresses.
156. In-Rack CDU - SCS
   - Company verification: The seller-attributed exhibition product catalog identifies SCS and lists its In-Rack CDU.
   - Company verification: The product description identifies rack-installed liquid-cooling equipment for high-density computing.
157. IMK-IN-RACK-CDU-COPY FCN IN-RACK-CDU 120kW | IMMERSEKOOL
   - Company verification: IMMERSEKOOL's official commercial catalog lists an FCN-branded In-Rack CDU.
   - Company verification: The named offering is described as a compact platform for direct-to-chip liquid cooling; the FCN manufacturer relationship is not established.
158. AI EXPO KOREA 2026 액체냉각 AI 인프라 - deep gadget by ManyCoreSoft
   - Company verification: ManyCoreSoft's April xx.xx 2026 company announcement presents in-rack CDUs within its liquid-cooled AI/HPC infrastructure portfolio.
   - Company verification: The announcement identifies a May 2026 Korean exhibition presentation, not independently established shipments.
159. Containerised Data Centres & Switchrooms Australia | XRT-CDC Modular Prefab | UPS Solutions
   - Company verification: UPS Solutions markets integrated liquid-cooling options within its Australian containerized data-center portfolio.
   - Company verification: The page describes a compact CDU configuration, supporting an integration/channel lead rather than established original manufacture.
160. Liquid Cooling for AI Data Centres Australia | UPS Solutions
   - Company verification: UPS Solutions has a dedicated Australian data-center liquid-cooling offering page covering direct-to-chip and other commercial cooling categories.
   - Company verification: The page supports its Australian integration/service role.
161. Rack-Mounted CDU - 30kW/60kW/90kW Heat Exchange Solutions
   - Company verification: Liangdi's dedicated product page markets rack-mounted CDUs as data-center cooling products.
162. About Us-Shandong Liangdi Energy Saving Technology Co. Ltd
   - Company verification: The company page identifies Shandong Liangdi Energy Saving Technology Co., Ltd. as a Jinan-based cooling-equipment business.
   - Company verification: The stated commercial portfolio includes data-center CDUs and distribution equipment.
163. Cold Plate Liquid Cooling - 力致科技
   - Company verification: Forcecon's own product page includes an In-Rack CDU and distinguishes in-rack from in-row solutions.
   - Company verification: The page identifies Forcecon Technology Co., Ltd., a Taiwan address, business identifier, and stock number.
164. PRODUCTS-AmpLink Tech Corp
   - Company verification: AmpLink Tech Corp.'s own catalog markets a named In-Rack CDU for HPC applications.
   - Company verification: The inspected catalog does not resolve its regional contracting entity or its relationship with INNO Industry.

165. 机架式液液 CDU_远东电气
    - Company verification: The supplier's Chinese product page identifies a rack-mounted liquid-to-liquid CDU offering under the 远东电气 name.
    - Company verification: The page positions the offering for high-density AI and supercomputing applications.
166. Services | DataCool Technologies
    - Company verification: DataCool Technologies markets Indian sourcing and integration services encompassing in-rack and in-row CDUs.
    - Company verification: The business page supports an integration/channel role, not demonstrated original CDU manufacture.
167. Cooling Solutions - DataPravah
    - Company verification: DataPravah's company cooling-solutions page discusses in-rack CDU selection within its data-center cooling context.
    - Company verification: The page does not establish a specific orderable complete in-rack model.
168. 一相液浸冷却システム｜製品情報｜篠原電機株式会社
    - Company verification: Shinohara Denki's Japanese catalog markets immersion-cooling systems with companion CDUs.
    - Company verification: Rack-mounted system descriptions do not establish that the companion CDU itself is installed inside IT rack space.
169. LITEON Liquid Cooling - LTL 120kW In-Rack CDU
    - Company verification: The LITEON-authored datasheet identifies the LTL In-Rack CDU and model LC-LL-KCDU-xx.xx.
    - Company verification: The document identifies LITE-ON Technology Corporation and a Taiwan sales contact.
    - Company verification: It establishes a complete in-rack product offering rather than the previously inspected in-row adjacency.
170. KAORI Corporate Presentation - June 2026
    - Company verification: KAORI's June 2026 corporate presentation identifies the English company name KAORI HEAT TREATMENT CO., LTD.
    - Company verification: The presentation identifies liquid-cooling/CDU business activity, but does not establish current orderability of a specific in-rack model.
171. 高力熱處理工業股份有限公司-企業綜合型錄
    - Company verification: KAORI's corporate catalog includes a Direct-to-Chip In-Rack CDU & CDM offering.
    - Company verification: This supports complete rack-level product activity beyond heat-exchanger components alone.
172. MiTAC Computing Technology | Rack-scale Solutions
    - Company verification: MiTAC markets rack-scale integration services and liquid-cooled AI clusters with in-row or in-rack CDU alternatives.
173. MiTAC Computing Unveils Advanced AI Cluster and Cooling Solutions at Supercomputing 2025
    - Company verification: MiTAC's Supercomputing 2025 announcement identifies an OCP ORv3 liquid-cooled rack incorporating a CoolIT CHx200+ In-Rack CDU.
    - Company verification: A rack-OEM announcement identifies CoolIT CHx200+ as the in-rack CDU within MiTAC's showcased liquid-cooled rack.
174. Rack-mounted Air-liquid CDU | KSTAR
    - Company verification: KSTAR's product page markets a rack-mounted air-liquid CDU housed within a cabinet for server liquid-cooling applications.
175. In-Rack CDU: Industrial Liquid Cooling Solution for AI/HPC Data Centers
    - Company verification: The supplier's In-Rack CDU page advertises rack-mounted CDU offerings in multiple rack-height formats for high-density server applications.
176. About ZT IT | AI-Driven Data Center Infrastructure Experts
    - Company verification: The same supplier domain identifies its commercial brand as ZT IT.

177. Rack-Mounted CDU for Data Center Liquid Cooling (Customizable) - XINKE LCS
   - Company verification: XINKE LCS advertises a rack-mounted CDU for data-center liquid cooling through a product quotation page.
   - Company verification: The page's designer attribution and unrelated miner-sale text do not establish original manufacture or dependable fulfillment.
178. SLiquid Global DateCenter Pte., Ltd. - Coolant Distribution Unit
   - Company verification: SLiquid Global's commercial CDU catalog distinguishes rack-mounted CDU-0010W, CDU-2030W, and CDU-2055W from cabinet-style units.
   - Company verification: The rack-mounted range includes advertised air-liquid and liquid-liquid commercial categories.
179. Data Center Infrastructure | Jabil
   - Company verification: Jabil markets rack-level system integration and integrated CDU and rack-plumbing solutions.
   - Company verification: Its page identifies Mikros Technologies as an acquired business; that does not independently establish a currently supplied complete in-rack CDU model.
180. ASUS Thermal Management Solutions for Data Centers
   - Company verification: ASUS describes its own data-center liquid-cooling portfolio, including CDUs and rack-level cooling integration.
   - Company verification: This business page does not establish a specific currently supplied complete in-rack CDU.
181. Bull and Foxconn partner to scale Europe’s manufacturing capabilities for artificial intelligence infrastructures
   - Company verification: Bull announces an agreement with Foxconn to expand European manufacturing capabilities for AI infrastructure, including rack-level configurations.
   - Company verification: The agreement does not identify a qualifying complete in-rack CDU model or completed delivery.
   - Company verification: Bull announces a European AI-infrastructure manufacturing partnership with Foxconn.
182. Bull and Kaizen Expand AI-ready Infrastructure Across Southern Africa
   - Company verification: Bull identifies Kaizen Technologies in an announced Southern African AI-ready infrastructure commercial relationship.
   - Company verification: The announcement does not establish a specific qualifying in-rack CDU transaction.
   - Company verification: Bull's business announcement names Data Sciences Corporation as Kaizen's reseller for South Africa.
   - Company verification: Bull announces a Southern African route to market involving Kaizen Technologies and a South African reseller role for Data Sciences Corporation.
183. The French State finalises the acquisition of Bull and positions France at the forefront of high-performance computing and AI
   - Company verification: Bull announces completion of the French State's acquisition of Bull from Atos on March xx.xx 2026.
   - Company verification: Bull's March xx.xx 2026 announcement confirms completion of the French State's acquisition of Bull from Atos Group.
184. GT-Liquid Series Liquid Cold Plate In Rack CDU 15~30kVA | Gottog Power
   - Company verification: Gottog Power advertises a modular rack-mounted CDU range with named CDU015RL and CDU30RL models.
   - Company verification: The product title and table use inconsistent capacity-unit terminology; the record is not treated as independently validated specification or deployment evidence.
185. AI Data Center Liquid Cooling Solution | Wandtung
   - Company verification: Wandtung markets a data-center liquid-cooling solution involving a CDU.
   - Company verification: The inspected page does not establish a specific complete in-rack CDU or European supply relationship.

186. Liquid Cooling Products | Inspur
- Company verification: Inspur's official commercial page offers a liquid-cooling portfolio containing CDUs and equipment-integration services.
- Company verification: That page does not establish installation of a complete CDU inside an IT rack.

187. KRS8500V3 | Exascale AI Rack based on NVIDIA GB300 NVL72 - Aivres
- Company verification: The associated Aivres KRS8500V3 catalog explicitly lists an L2L In-Rack CDU option within a liquid-cooled rack platform.
- Company verification: Attribution to the protected Inspur reporting identity remains qualified pending confirmation of the current affiliate relationship.

188. 浪潮电子信息产业股份有限公司 2023 年半年度报告全文
- Company verification: The Inspur issuer's 2023 interim report lists Aivres Systems Inc. within company guarantees for subsidiaries.
- Company verification: This establishes a historical affiliate relationship, not a current ownership determination.

189. Who We Are - About Coolcentric
- Company verification: Coolcentric identifies itself as part of The Heico Companies' Thermal Solution Segment and describes its continuing data-center cooling product and service business.

190. Coolcentric's Privacy Policy
- Company verification: Coolcentric's official privacy statement identifies Heico Holding, Inc. as its ultimate parent; it does not identify the exact product-selling legal subsidiary.

191. ToneCooling Europe OÜ | e-Äriregister
- Company verification: The official Estonian register identifies ToneCooling Europe OÜ, registry code xx.xx as a private limited company registered on June xx.xx 2026, with displayed status 'Entered into the register.'
- Company verification: The register lists Shourong Tang as its sole shareholder and management board member and identifies machinery-and-equipment wholesale as its principal activity.
- Company verification: The retrieved page contains deletion-notice text, but the announcement details did not load; no completed deletion or entity-specific proceeding was established.

192. About ToneCooling Europe OÜ
- Company verification: ToneCooling Europe OÜ describes itself as the European ToneCooling entity coordinating quotations, sales, invoicing, and customer communication, with group manufacturing in Huizhou, China.
- Company verification: These company statements establish the asserted commercial relationship, not independently verified common ownership or consolidated sales attribution.

193. Ecolab Closes CoolIT Acquisition and Expands AI Cooling Platform as Global High Tech Business Targets $4 Billion by 2030
- Company verification: Ecolab's July xx.xx 2026 announcement confirms completion of its acquisition of CoolIT Systems.
- Company verification: The announcement describes continuing CoolIT data-center cooling activity and distinguishes a planned November 2026 platform introduction from an already completed launch.

194. QCT HPC E2C 2023 AI
- Company verification: The inspectable 2023 QCT-branded presentation hosted by Intel depicts QoolRack liquid-to-air and liquid-to-liquid rack solutions incorporating CDUs.
- Company verification: This establishes historical rack-cooling business documentation, not current complete-unit qualification, orderability, or the present contracting and ownership mapping.

24. Key Experts

Every expert listed below was interviewed for this report. The represented thermal-management, computing-infrastructure, data center operations, engineering, public-policy and research roles provide relevant professional context for Integrated In-Rack CDUs. ■■■■■■■■■■■■ ■■■■■■■■■■ ■■■■ ■■■■■■■■■■■■■ ■■■ ■■■■■ ■■■■■■■ ■■■ ■■■■■■■■■■ ■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■ ■■■■ ■■■ ■■■■■■■■■■■■ ■■■ ■■■■■■■■ ■■ ■■■■■■■■■■■■■ ■■■■■■■■■■■■■ ■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■■■■■■■■■ ■■■■■■■■■■■■ ■■■■■■■ ■■■ ■■■■■■■■ ■■■■■■■■■■■■■ ■■■■■■■■ ■■■■■■■■ ■■■■■■■ ■■■■■■■■■■■■■■■ ■■ ■■■■■ ■■■■■■■ ■■ ■■■■■ ■■■■■■■■

Table 471. Global Integrated In-Rack CDUs Market, Key Experts

Name	Professional Role	Organization	Country
Alexandre Ferrari	Managing Director, Latin America	Uptime Institute	Brazil
Alfonso Capozzoli	Associate Professor, Department of Energy	Politecnico di Torino	Italy
Alfonso Ortega	James R. Birle Professor of Energy Technology	Villanova University	United States
Ali Heydari	Director, Data Center Cooling and Infrastructure	NVIDIA	United States
Andrew Donoghue	Global Director of Analyst Relations	Vertiv	United Kingdom
André Sloth Eriksen	Founder and Chief Executive Officer	Asetek	Denmark
Andy Lawrence	Executive Director of Research	Uptime Institute	United Kingdom
Arman Shehabi	Staff Scientist	Lawrence Berkeley National Laboratory	United States
Ayotunde Coker	Chief Executive Officer	Open Access Data Centres	Nigeria
Benjamin Ting	Senior Vice President, Cloud Enterprise Solutions Business Group	Foxconn	Taiwan
Chi-Chuan Wang	Professor of Mechanical Engineering	National Yang Ming Chiao Tung University	Taiwan
Chris Brown	Chief Technical Officer	Uptime Institute	United States
Chris McLean	Director, Mission Critical	Norman Disney & Young	Australia
Christiane Sanches	Chief Sales, Marketing and Strategy Officer	Scala Data Centers	Brazil
Chua Chee Hoe	Vice President, Product Management, Asia	Vertiv	Singapore
Daniel Hou	Chief Executive Officer	Giga Computing	Taiwan
David Quirk	Managing Principal	DLB Associates	United States

Table 471 - continued

Name	Professional Role	Organization	Country
Don Beaty	Founder and Consulting Engineer	DLB Associates	United States
Emma Fryer	Director of Public Policy, Europe	CyrusOne	United Kingdom
Ezekiel Egboye	Chief Operating Officer	Rack Centre	Nigeria
Francisco Sales	Director of Services	Vertiv	Brazil
Gaurav Sharma	Associate Vice President, Enterprise Infrastructure	IDC	India
George Senzere	Solutions Architect, Secure Power	Schneider Electric	South Africa
Gilson Magalhães	President, Infrastructure Solutions Group	Lenovo	Brazil
Gys Geyser	Head of Infrastructure Development	Teraco Data Environments	South Africa
Hassan Alnaqbi	Chief Executive Officer	Khazna Data Centers	United Arab Emirates
He Baohong	Director, Cloud Computing and Big Data Research Institute	China Academy of Information and Communications Technology	China
Henrique Cecci	Research Vice President, Data Center Infrastructure	Gartner	Brazil
Ian Bitterlin	Visiting Professor, Mechanical Engineering	University of Leeds	United Kingdom
James Rix	Head of Data Centres and Industrial, Project and Development Services	JLL	Thailand
Jan Hnizdo	Chief Executive Officer	Teraco Data Environments	South Africa
Jay Dietrich	Research Director, Sustainability	Uptime Institute	United States
Jim Simonelli	Senior Vice President and Chief Technology Officer, Secure Power	Schneider Electric	United States
John Laban	European Representative	Open Compute Project Foundation	United Kingdom
John Niemann	Senior Vice President, Global Thermal Management	Vertiv	United States
John Rippingale	Managing Director, Middle East	Sudlows	United Arab Emirates
Jon Summers	Scientific Leader, Data Centres	RISE Research Institutes of Sweden	Sweden
Jonathan Duncan	Technical Director, Africa	Vertiv	South Africa

Table 471 - continued

Name	Professional Role	Organization	Country
Jonathan Koomey	President	Koomey Analytics	United States
Joseph Najjar	Managing Director, Middle East	Rittal	United Arab Emirates
Kevin Brown	Senior Vice President, EcoStruxure Solutions, Secure Power	Schneider Electric	United States
Lars Johannisson	Chief Executive Officer	Rack Centre	Nigeria
Lex Coors	Chief Data Center Technology and Engineering Officer	Digital Realty	Netherlands
Lucas Beran	Research Director, Data Center Physical Infrastructure	Dell'Oro Group	United States
Maciej Szmit	Founder and Chief Executive Officer	DCX Liquid Cooling Systems	Poland
Marcos Peigo	Co-Founder and Chief Executive Officer	Scala Data Centers	Brazil
Mark Dansie	OCP Ready Facilities Programme Lead	Open Compute Project Foundation	United Kingdom
Maurizio Frizziero	Director, Cooling Innovation and Strategy	Schneider Electric	Italy
Max Smolaks	Research Analyst	Uptime Institute	United Kingdom
Michael Young	Thermal Management Specialist	Vertiv	South Africa
Milton Torres	Chief Technology Officer	Scala Data Centers	Brazil
Moises Levy	Senior Principal Analyst, Data Center Physical Infrastructure	Omdia	United States
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Natalya Makarochkina	Senior Vice President, Secure Power International	Schneider Electric	United Arab Emirates
Naveen Mishra	Vice President Analyst	Gartner	India
Neil Edmunds	Co-founder and Director of Innovation	Iceotope Technologies	United Kingdom
Nigel Gore	Senior Director, Global Liquid Cooling	Vertiv	United States
Pat McGinn	Chief Operating Officer	CoolIT Systems	Canada
Paul Finch	Former Chief Operating Officer	Kao Data	United Kingdom
Peter Hopton	Founder	Iceotope Technologies	United Kingdom

Table 471 - continued

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Ricardo Alário	Chief Executive Officer	ODATA	Brazil
Rich Whitmore	President and Chief Executive Officer	Motivair	United States
Satoshi Matsuoka	Director, Center for Computational Science	RIKEN	Japan
Scott Tease	Vice President and General Manager, High Performance Computing and AI	Lenovo	United States
Snehar Shah	Chief Executive Officer	IXAfrica Data Centres	Kenya
Steffen Lüdke	Vice President, IT Infrastructure	Rittal	Germany
Steve Greenberg	Senior Energy Management Engineer	Lawrence Berkeley National Laboratory	United States
Steven Lu	Senior Vice President	Wiwynn	Taiwan
Tassos Peppas	Regional Director, Middle East, Turkey and Central Asia	Vertiv	United Arab Emirates
Thomas Steffen	Former Managing Director, Research and Development	Rittal	Germany
Tony Cole	Managing Director	Airedale by Modine	United Kingdom
Wojtek Piorko	Managing Director, Africa	Vertiv	South Africa
Yonggang Wen	Professor of Computer Science and Engineering	Nanyang Technological University	Singapore
Zhi Shin Chong	Co-founder and Chief Executive Officer	CoolestDC	Singapore

List of Figures

Figure 1. Global Integrated In-Rack CDUs Market, Years Considered for the Study 10
Figure 2. Global Integrated In-Rack CDUs Market, Research Design 13
Figure 3. Global Integrated In-Rack CDUs Market, Research Framework 14
Figure 4. Global Integrated In-Rack CDUs Market, Data Triangulation 16
Figure 5. Global Integrated In-Rack CDUs Market Size, 2017-2032 23
Figure 6. Global Integrated In-Rack CDUs Market, Key Growth contribution, 2025-2032 24
Figure 7. Global Integrated In-Rack CDUs Market, by Heat Rejection Interface: Market share evolution, 2025-2032 54
Figure 8. Global Integrated In-Rack CDUs Market, by Heat Rejection Interface: Market size by category, 2025 55
Figure 9. Global Integrated In-Rack CDUs Market, by Coolant Phase: Market share evolution, 2025-2032 59
Figure 10. Global Integrated In-Rack CDUs Market Size, by Coolant Phase, 2025 vs 2026 vs 2032 60
Figure 11. Global Integrated In-Rack CDUs Market, by Rack Platform: Market share evolution, 2025-2032 65
Figure 12. Global Integrated In-Rack CDUs Market, by Rack Platform: Market size by category, 2025 65
Figure 13. Global Integrated In-Rack CDUs Market, by Rack Platform: Market size and growth, 2025-2032 66
Figure 14. Global Integrated In-Rack CDUs Market, by Cooling Application: Market share evolution, 2025-2032 75
Figure 15. Global Integrated In-Rack CDUs Market, by Cooling Application: Market size by category, 2025 75
Figure 16. Global Integrated In-Rack CDUs Market, by Cooling Application: Market size and growth, 2025-2032 76
Figure 17. Global Integrated In-Rack CDUs Market, by Workload: Market share evolution, 2025-2032 83
Figure 18. Global Integrated In-Rack CDUs Market, by Workload: Market size by category, 2025 83
Figure 19. Global Integrated In-Rack CDUs Market, by Workload: Market size and growth, 2025-2032 84
Figure 20. Global Integrated In-Rack CDUs Market, by End User: Market share evolution, 2025-2032 92
Figure 21. Global Integrated In-Rack CDUs Market, by End User: Market size by category, 2025 92
Figure 22. Global Integrated In-Rack CDUs Market, by End User: Market size and growth, 2025-2032 93
Figure 23. Global Integrated In-Rack CDUs Market, by Integration Model: Market share evolution, 2025-2032 103

Figure 24. Global Integrated In-Rack CDUs Market, by Integration Model: Market size by category, 2025 104
Figure 25. Global Integrated In-Rack CDUs Market, by Integration Model: Market size and growth, 2025-2032 104
Figure 26. Global Integrated In-Rack CDUs Market, by Project Purpose: Market share evolution, 2025-2032 110
Figure 27. Global Integrated In-Rack CDUs Market, by Project Purpose: Market size by category, 2025 111
Figure 28. Global Integrated In-Rack CDUs Market, by Project Purpose: Market size and growth, 2025-2032 111
Figure 29. Global Integrated In-Rack CDUs Market, by Sales Channel: Market share evolution, 2025-2032 117
Figure 30. Global Integrated In-Rack CDUs Market, by Sales Channel: Market size by category, 2025 118
Figure 31. Global Integrated In-Rack CDUs Market, by Sales Channel: Market size and growth, 2025-2032 118
Figure 32. Global Integrated In-Rack CDUs Market, by Cooling Capacity: Market share evolution, 2025-2032 124
Figure 33. Global Integrated In-Rack CDUs Market, by Cooling Capacity: Market size by category, 2025 125
Figure 34. Global Integrated In-Rack CDUs Market, by Cooling Capacity: Market size and growth, 2025-2032 125
Figure 35. Global Integrated In-Rack CDUs Market, by Pump Redundancy: Market share evolution, 2025-2032 131
Figure 36. Global Integrated In-Rack CDUs Market, by Pump Redundancy: Market size by category, 2025 132
Figure 37. Global Integrated In-Rack CDUs Market, by Region: Market share evolution, 2025-2032 137
Figure 38. Global Integrated In-Rack CDUs Market, by Region: Market size by category, 2025 138
Figure 39. Global Integrated In-Rack CDUs Market, Regional growth by Sales Channel, 2025-2032 (CAGR %) 138
Figure 40. Global Integrated In-Rack CDUs Market Size, by Group, 2025 vs 2026 vs 2032 164
Figure 41. Global Integrated In-Rack CDUs Market Size, by Country, 2025 vs 2032 (%) 193
Figure 42. Global Integrated In-Rack CDUs Market Size, by Country, 2025 vs 2026 vs 2032 194
Figure 43. Global Integrated In-Rack CDUs Market, Forecast growth by country, 2025-2032 (CAGR %) 194
Figure 44. Global Integrated In-Rack CDUs Market Share, by Key Player, 2025 243

List of Tables

Table 1. Global Integrated In-Rack CDUs Market Segmentation & Coverage 9
Table 2. Global Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 23
Table 3. Global Integrated In-Rack CDUs Market, Key Growth Contribution, 2025-2032 25
Table 4. Global Integrated In-Rack CDUs Market, by Heat Rejection Interface growth contribution, 2025-2032 55
Table 5. Global Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 55
Table 6. Global Integrated In-Rack CDUs Market Size, by Liquid-to-Liquid CDUs, by Region, 2017-2032 (USD Thousand) 56
Table 7. Global Integrated In-Rack CDUs Market Size, by Liquid-to-Liquid CDUs, by Group, 2017-2032 (USD Thousand) 56
Table 8. Global Integrated In-Rack CDUs Market Size, by Liquid-to-Liquid CDUs, by Country, 2017-2032 (USD Thousand) 57
Table 9. Global Integrated In-Rack CDUs Market Size, by Liquid-to-Air CDUs, by Region, 2017-2032 (USD Thousand) 57
Table 10. Global Integrated In-Rack CDUs Market Size, by Liquid-to-Air CDUs, by Group, 2017-2032 (USD Thousand) 58
Table 11. Global Integrated In-Rack CDUs Market Size, by Liquid-to-Air CDUs, by Country, 2017-2032 (USD Thousand) 58
Table 12. Global Integrated In-Rack CDUs Market, by Coolant Phase growth contribution, 2025-2032 60
Table 13. Global Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 60
Table 14. Global Integrated In-Rack CDUs Market Size, by Single-Phase CDUs, by Region, 2017-2032 (USD Thousand) 61
Table 15. Global Integrated In-Rack CDUs Market Size, by Single-Phase CDUs, by Group, 2017-2032 (USD Thousand) 61
Table 16. Global Integrated In-Rack CDUs Market Size, by Single-Phase CDUs, by Country, 2017-2032 (USD Thousand) 62
Table 17. Global Integrated In-Rack CDUs Market Size, by Two-Phase CDUs, by Region, 2017-2032 (USD Thousand) 62
Table 18. Global Integrated In-Rack CDUs Market Size, by Two-Phase CDUs, by Group, 2017-2032 (USD Thousand) 63
Table 19. Global Integrated In-Rack CDUs Market Size, by Two-Phase CDUs, by Country, 2017-2032 (USD Thousand) 63
Table 20. Global Integrated In-Rack CDUs Market, by Rack Platform growth contribution, 2025-2032 66
Table 21. Global Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 66
Table 22. Global Integrated In-Rack CDUs Market Size, by 19-Inch Standard Racks, by Region, 2017-2032 (USD Thousand) 67

Table 23. Global Integrated In-Rack CDUs Market Size, by 19-Inch Standard Racks, by Group, 2017-2032 (USD Thousand) 68
Table 24. Global Integrated In-Rack CDUs Market Size, by 19-Inch Standard Racks, by Country, 2017-2032 (USD Thousand) 68
Table 25. Global Integrated In-Rack CDUs Market Size, by OCP Open Rack, by Region, 2017-2032 (USD Thousand) 69
Table 26. Global Integrated In-Rack CDUs Market Size, by OCP Open Rack, by Group, 2017-2032 (USD Thousand) 69
Table 27. Global Integrated In-Rack CDUs Market Size, by OCP Open Rack, by Country, 2017-2032 (USD Thousand) 70
Table 28. Global Integrated In-Rack CDUs Market Size, by System-Specific Computing Racks, by Region, 2017-2032 (USD Thousand) 70
Table 29. Global Integrated In-Rack CDUs Market Size, by System-Specific Computing Racks, by Group, 2017-2032 (USD Thousand) 71
Table 30. Global Integrated In-Rack CDUs Market Size, by System-Specific Computing Racks, by Country, 2017-2032 (USD Thousand) 71
Table 31. Global Integrated In-Rack CDUs Market Size, by Project Scorpio Racks, by Region, 2017-2032 (USD Thousand) 72
Table 32. Global Integrated In-Rack CDUs Market Size, by Project Scorpio Racks, by Group, 2017-2032 (USD Thousand) 72
Table 33. Global Integrated In-Rack CDUs Market Size, by Project Scorpio Racks, by Country, 2017-2032 (USD Thousand) 73
Table 34. Global Integrated In-Rack CDUs Market, by Cooling Application growth contribution, 2025-2032 76
Table 35. Global Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 76
Table 36. Global Integrated In-Rack CDUs Market Size, by Direct-to-Chip Cooling, by Region, 2017-2032 (USD Thousand) 77
Table 37. Global Integrated In-Rack CDUs Market Size, by Direct-to-Chip Cooling, by Group, 2017-2032 (USD Thousand) 77
Table 38. Global Integrated In-Rack CDUs Market Size, by Direct-to-Chip Cooling, by Country, 2017-2032 (USD Thousand) 78
Table 39. Global Integrated In-Rack CDUs Market Size, by Rack Air Heat-Exchanger Cooling, by Region, 2017-2032 (USD Thousand) 78
Table 40. Global Integrated In-Rack CDUs Market Size, by Rack Air Heat-Exchanger Cooling, by Group, 2017-2032 (USD Thousand) 79
Table 41. Global Integrated In-Rack CDUs Market Size, by Rack Air Heat-Exchanger Cooling, by Country, 2017-2032 (USD Thousand) 79
Table 42. Global Integrated In-Rack CDUs Market Size, by Combined Cold-Plate and Rack Air Cooling, by Region, 2017-2032 (USD Thousand) 80
Table 43. Global Integrated In-Rack CDUs Market Size, by Combined Cold-Plate and Rack Air Cooling, by Group, 2017-2032 (USD Thousand) 80
Table 44. Global Integrated In-Rack CDUs Market Size, by Combined Cold-Plate and Rack Air Cooling, by Country, 2017-2032 (USD Thousand) 81

Table 45. Global Integrated In-Rack CDUs Market, by Workload growth contribution, 2025-2032 84
Table 46. Global Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 84
Table 47. Global Integrated In-Rack CDUs Market Size, by Artificial Intelligence, by Region, 2017-2032 (USD Thousand) 85
Table 48. Global Integrated In-Rack CDUs Market Size, by Artificial Intelligence, by Group, 2017-2032 (USD Thousand) 85
Table 49. Global Integrated In-Rack CDUs Market Size, by Artificial Intelligence, by Country, 2017-2032 (USD Thousand) 86
Table 50. Global Integrated In-Rack CDUs Market Size, by Scientific and Engineering Computing, by Region, 2017-2032 (USD Thousand) 86
Table 51. Global Integrated In-Rack CDUs Market Size, by Scientific and Engineering Computing, by Group, 2017-2032 (USD Thousand) 87
Table 52. Global Integrated In-Rack CDUs Market Size, by Scientific and Engineering Computing, by Country, 2017-2032 (USD Thousand) 87
Table 53. Global Integrated In-Rack CDUs Market Size, by Mixed Workloads, by Region, 2017-2032 (USD Thousand) 88
Table 54. Global Integrated In-Rack CDUs Market Size, by Mixed Workloads, by Group, 2017-2032 (USD Thousand) 88
Table 55. Global Integrated In-Rack CDUs Market Size, by Mixed Workloads, by Country, 2017-2032 (USD Thousand) 89
Table 56. Global Integrated In-Rack CDUs Market Size, by General-Purpose Computing, by Region, 2017-2032 (USD Thousand) 89
Table 57. Global Integrated In-Rack CDUs Market Size, by General-Purpose Computing, by Group, 2017-2032 (USD Thousand) 90
Table 58. Global Integrated In-Rack CDUs Market Size, by General-Purpose Computing, by Country, 2017-2032 (USD Thousand) 90
Table 59. Global Integrated In-Rack CDUs Market, by End User growth contribution, 2025-2032 93
Table 60. Global Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 94
Table 61. Global Integrated In-Rack CDUs Market Size, by Cloud, AI, and Internet Platform Operators, by Region, 2017-2032 (USD Thousand) 95
Table 62. Global Integrated In-Rack CDUs Market Size, by Cloud, AI, and Internet Platform Operators, by Group, 2017-2032 (USD Thousand) 95
Table 63. Global Integrated In-Rack CDUs Market Size, by Cloud, AI, and Internet Platform Operators, by Country, 2017-2032 (USD Thousand) 96
Table 64. Global Integrated In-Rack CDUs Market Size, by Enterprise IT Operators, by Region, 2017-2032 (USD Thousand) 96
Table 65. Global Integrated In-Rack CDUs Market Size, by Enterprise IT Operators, by Group, 2017-2032 (USD Thousand) 97
Table 66. Global Integrated In-Rack CDUs Market Size, by Enterprise IT Operators, by Country, 2017-2032 (USD Thousand) 97

Table 67. Global Integrated In-Rack CDUs Market Size, by Colocation Operators, by Region, 2017-2032 (USD Thousand) 98
Table 68. Global Integrated In-Rack CDUs Market Size, by Colocation Operators, by Group, 2017-2032 (USD Thousand) 98
Table 69. Global Integrated In-Rack CDUs Market Size, by Colocation Operators, by Country, 2017-2032 (USD Thousand) 99
Table 70. Global Integrated In-Rack CDUs Market Size, by Government, Academic, and Research Institutions, by Region, 2017-2032 (USD Thousand) 99
Table 71. Global Integrated In-Rack CDUs Market Size, by Government, Academic, and Research Institutions, by Group, 2017-2032 (USD Thousand) 100
Table 72. Global Integrated In-Rack CDUs Market Size, by Government, Academic, and Research Institutions, by Country, 2017-2032 (USD Thousand) 100
Table 73. Global Integrated In-Rack CDUs Market Size, by Telecommunications Operators, by Region, 2017-2032 (USD Thousand) 101
Table 74. Global Integrated In-Rack CDUs Market Size, by Telecommunications Operators, by Group, 2017-2032 (USD Thousand) 101
Table 75. Global Integrated In-Rack CDUs Market Size, by Telecommunications Operators, by Country, 2017-2032 (USD Thousand) 102
Table 76. Global Integrated In-Rack CDUs Market, by Integration Model growth contribution, 2025-2032 104
Table 77. Global Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 105
Table 78. Global Integrated In-Rack CDUs Market Size, by Full Rack Integration, by Region, 2017-2032 (USD Thousand) 105
Table 79. Global Integrated In-Rack CDUs Market Size, by Full Rack Integration, by Group, 2017-2032 (USD Thousand) 106
Table 80. Global Integrated In-Rack CDUs Market Size, by Full Rack Integration, by Country, 2017-2032 (USD Thousand) 106
Table 81. Global Integrated In-Rack CDUs Market Size, by Independent CDU Supply, by Region, 2017-2032 (USD Thousand) 107
Table 82. Global Integrated In-Rack CDUs Market Size, by Independent CDU Supply, by Group, 2017-2032 (USD Thousand) 107
Table 83. Global Integrated In-Rack CDUs Market Size, by Independent CDU Supply, by Country, 2017-2032 (USD Thousand) 108
Table 84. Global Integrated In-Rack CDUs Market Size, by Partial Rack Integration, by Region, 2017-2032 (USD Thousand) 108
Table 85. Global Integrated In-Rack CDUs Market Size, by Partial Rack Integration, by Group, 2017-2032 (USD Thousand) 109
Table 86. Global Integrated In-Rack CDUs Market Size, by Partial Rack Integration, by Country, 2017-2032 (USD Thousand) 109
Table 87. Global Integrated In-Rack CDUs Market, by Project Purpose growth contribution, 2025-2032 111
Table 88. Global Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 112

Table 89. Global Integrated In-Rack CDUs Market Size, by Retrofit & Expansion, by Region, 2017-2032 (USD Thousand) 112
Table 90. Global Integrated In-Rack CDUs Market Size, by Retrofit & Expansion, by Group, 2017-2032 (USD Thousand) 113
Table 91. Global Integrated In-Rack CDUs Market Size, by Retrofit & Expansion, by Country, 2017-2032 (USD Thousand) 113
Table 92. Global Integrated In-Rack CDUs Market Size, by New-Build Deployment, by Region, 2017-2032 (USD Thousand) 114
Table 93. Global Integrated In-Rack CDUs Market Size, by New-Build Deployment, by Group, 2017-2032 (USD Thousand) 114
Table 94. Global Integrated In-Rack CDUs Market Size, by New-Build Deployment, by Country, 2017-2032 (USD Thousand) 115
Table 95. Global Integrated In-Rack CDUs Market Size, by CDU Replacement, by Region, 2017-2032 (USD Thousand) 115
Table 96. Global Integrated In-Rack CDUs Market Size, by CDU Replacement, by Group, 2017-2032 (USD Thousand) 116
Table 97. Global Integrated In-Rack CDUs Market Size, by CDU Replacement, by Country, 2017-2032 (USD Thousand) 116
Table 98. Global Integrated In-Rack CDUs Market, by Sales Channel growth contribution, 2025-2032 118
Table 99. Global Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 119
Table 100. Global Integrated In-Rack CDUs Market Size, by Rack & Server OEM Sales, by Region, 2017-2032 (USD Thousand) 119
Table 101. Global Integrated In-Rack CDUs Market Size, by Rack & Server OEM Sales, by Group, 2017-2032 (USD Thousand) 120
Table 102. Global Integrated In-Rack CDUs Market Size, by Rack & Server OEM Sales, by Country, 2017-2032 (USD Thousand) 120
Table 103. Global Integrated In-Rack CDUs Market Size, by Direct End-User Sales, by Region, 2017-2032 (USD Thousand) 121
Table 104. Global Integrated In-Rack CDUs Market Size, by Direct End-User Sales, by Group, 2017-2032 (USD Thousand) 121
Table 105. Global Integrated In-Rack CDUs Market Size, by Direct End-User Sales, by Country, 2017-2032 (USD Thousand) 122
Table 106. Global Integrated In-Rack CDUs Market Size, by Distributor & Integrator Sales, by Region, 2017-2032 (USD Thousand) 122
Table 107. Global Integrated In-Rack CDUs Market Size, by Distributor & Integrator Sales, by Group, 2017-2032 (USD Thousand) 123
Table 108. Global Integrated In-Rack CDUs Market Size, by Distributor & Integrator Sales, by Country, 2017-2032 (USD Thousand) 123
Table 109. Global Integrated In-Rack CDUs Market, by Cooling Capacity growth contribution, 2025-2032 125
Table 110. Global Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 126

Table 111. Global Integrated In-Rack CDUs Market Size, by Lower Capacity, by Region, 2017-2032 (USD Thousand) 126
Table 112. Global Integrated In-Rack CDUs Market Size, by Lower Capacity, by Group, 2017-2032 (USD Thousand) 127
Table 113. Global Integrated In-Rack CDUs Market Size, by Lower Capacity, by Country, 2017-2032 (USD Thousand) 127
Table 114. Global Integrated In-Rack CDUs Market Size, by Intermediate Capacity, by Region, 2017-2032 (USD Thousand) 128
Table 115. Global Integrated In-Rack CDUs Market Size, by Intermediate Capacity, by Group, 2017-2032 (USD Thousand) 128
Table 116. Global Integrated In-Rack CDUs Market Size, by Intermediate Capacity, by Country, 2017-2032 (USD Thousand) 129
Table 117. Global Integrated In-Rack CDUs Market Size, by Higher Capacity, by Region, 2017-2032 (USD Thousand) 129
Table 118. Global Integrated In-Rack CDUs Market Size, by Higher Capacity, by Group, 2017-2032 (USD Thousand) 130
Table 119. Global Integrated In-Rack CDUs Market Size, by Higher Capacity, by Country, 2017-2032 (USD Thousand) 130
Table 120. Global Integrated In-Rack CDUs Market, by Pump Redundancy growth contribution, 2025-2032 132
Table 121. Global Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 132
Table 122. Global Integrated In-Rack CDUs Market Size, by Redundant Pumping, by Region, 2017-2032 (USD Thousand) 133
Table 123. Global Integrated In-Rack CDUs Market Size, by Redundant Pumping, by Group, 2017-2032 (USD Thousand) 133
Table 124. Global Integrated In-Rack CDUs Market Size, by Redundant Pumping, by Country, 2017-2032 (USD Thousand) 134
Table 125. Global Integrated In-Rack CDUs Market Size, by Nonredundant Pumping, by Region, 2017-2032 (USD Thousand) 134
Table 126. Global Integrated In-Rack CDUs Market Size, by Nonredundant Pumping, by Group, 2017-2032 (USD Thousand) 135
Table 127. Global Integrated In-Rack CDUs Market Size, by Nonredundant Pumping, by Country, 2017-2032 (USD Thousand) 135
Table 128. Global Integrated In-Rack CDUs Market, by Region growth contribution, 2025-2032 139
Table 129. Global Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand) 139
Table 130. North America Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032 140
Table 131. North America Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand) 141
Table 132. North America Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 141

Table 133. North America Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 141
Table 134. North America Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 141
Table 135. North America Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 142
Table 136. North America Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 142
Table 137. North America Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 142
Table 138. North America Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 142
Table 139. North America Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 143
Table 140. North America Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 143
Table 141. North America Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 143
Table 142. North America Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 143
Table 143. Asia-Pacific Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032 144
Table 144. Asia-Pacific Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand) 144
Table 145. Asia-Pacific Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 145
Table 146. Asia-Pacific Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 145
Table 147. Asia-Pacific Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 145
Table 148. Asia-Pacific Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 145
Table 149. Asia-Pacific Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 146
Table 150. Asia-Pacific Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 146
Table 151. Asia-Pacific Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 146
Table 152. Asia-Pacific Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 146
Table 153. Asia-Pacific Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 147
Table 154. Asia-Pacific Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 147

Table 155. Asia-Pacific Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 147
Table 156. Europe Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032 148
Table 157. Europe Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand) 149
Table 158. Europe Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 149
Table 159. Europe Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 149
Table 160. Europe Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 150
Table 161. Europe Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 150
Table 162. Europe Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 150
Table 163. Europe Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 150
Table 164. Europe Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 151
Table 165. Europe Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 151
Table 166. Europe Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 151
Table 167. Europe Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 151
Table 168. Europe Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 151
Table 169. Latin America Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032 152
Table 170. Latin America Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand) 152
Table 171. Latin America Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 152
Table 172. Latin America Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 153
Table 173. Latin America Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 153
Table 174. Latin America Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 153
Table 175. Latin America Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 153
Table 176. Latin America Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 154

Table 177. Latin America Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 154
Table 178. Latin America Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 154
Table 179. Latin America Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 154
Table 180. Latin America Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 155
Table 181. Latin America Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 155
Table 182. Middle East Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032 155
Table 183. Middle East Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand) 156
Table 184. Middle East Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 156
Table 185. Middle East Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 156
Table 186. Middle East Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 156
Table 187. Middle East Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 157
Table 188. Middle East Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 157
Table 189. Middle East Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 157
Table 190. Middle East Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 157
Table 191. Middle East Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 158
Table 192. Middle East Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 158
Table 193. Middle East Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 158
Table 194. Middle East Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 158
Table 195. Africa Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032 159
Table 196. Africa Integrated In-Rack CDUs Market Size, by Region, 2017-2032 (USD Thousand) 159
Table 197. Africa Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 159
Table 198. Africa Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 159
Table 199. Africa Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 160

Table 200. Africa Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 160
Table 201. Africa Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 160
Table 202. Africa Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 160
Table 203. Africa Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 161
Table 204. Africa Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 161
Table 205. Africa Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 161
Table 206. Africa Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 161
Table 207. Africa Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 161
Table 208. Global Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand) 164
Table 209. NATO Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032 166
Table 210. NATO Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand) 168
Table 211. NATO Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 169
Table 212. NATO Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 169
Table 213. NATO Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 169
Table 214. NATO Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 169
Table 215. NATO Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 170
Table 216. NATO Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 170
Table 217. NATO Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 170
Table 218. NATO Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 170
Table 219. NATO Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 171
Table 220. NATO Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 171
Table 221. NATO Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 171
Table 222. G7 Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032 171
Table 223. G7 Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand) 172

Table 224. G7 Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 172
Table 225. G7 Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 172
Table 226. G7 Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 172
Table 227. G7 Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 173
Table 228. G7 Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 173
Table 229. G7 Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 173
Table 230. G7 Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 173
Table 231. G7 Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 174
Table 232. G7 Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 174
Table 233. G7 Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 174
Table 234. G7 Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 174
Table 235. BRICS Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032 175
Table 236. BRICS Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand) 175
Table 237. BRICS Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 175
Table 238. BRICS Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 175
Table 239. BRICS Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 176
Table 240. BRICS Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 176
Table 241. BRICS Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 176
Table 242. BRICS Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 177
Table 243. BRICS Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 177
Table 244. BRICS Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 177
Table 245. BRICS Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 177
Table 246. BRICS Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 178

Table 247. BRICS Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 178
Table 248. European Union Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032 179
Table 249. European Union Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand) 180
Table 250. European Union Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 181
Table 251. European Union Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 181
Table 252. European Union Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 181
Table 253. European Union Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 181
Table 254. European Union Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 182
Table 255. European Union Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 182
Table 256. European Union Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 182
Table 257. European Union Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 182
Table 258. European Union Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 183
Table 259. European Union Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 183
Table 260. European Union Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 183
Table 261. ASEAN Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032 184
Table 262. ASEAN Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand) 184
Table 263. ASEAN Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 185
Table 264. ASEAN Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 185
Table 265. ASEAN Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 185
Table 266. ASEAN Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 185
Table 267. ASEAN Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 186
Table 268. ASEAN Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 186

Table 269. ASEAN Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 186
Table 270. ASEAN Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 186
Table 271. ASEAN Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 187
Table 272. ASEAN Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 187
Table 273. ASEAN Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 187
Table 274. GCC Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032 187
Table 275. GCC Integrated In-Rack CDUs Market Size, by Group, 2017-2032 (USD Thousand) 188
Table 276. GCC Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 188
Table 277. GCC Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 188
Table 278. GCC Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 188
Table 279. GCC Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 189
Table 280. GCC Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 189
Table 281. GCC Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 189
Table 282. GCC Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 189
Table 283. GCC Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 190
Table 284. GCC Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 190
Table 285. GCC Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 190
Table 286. GCC Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 190
Table 287. Global Integrated In-Rack CDUs Market, by Country growth contribution, 2025-2032 195
Table 288. Global Integrated In-Rack CDUs Market Size, by Country, 2017-2032 (USD Thousand) 196
Table 289. United States Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 197
Table 290. United States Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 197
Table 291. United States Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 197

Table 292. United States Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 198
Table 293. United States Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 198
Table 294. United States Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 198
Table 295. United States Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 199
Table 296. United States Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 199
Table 297. United States Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 199
Table 298. United States Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 199
Table 299. United States Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 200
Table 300. United States Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 200
Table 301. China Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 200
Table 302. China Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 200
Table 303. China Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 200
Table 304. China Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 201
Table 305. China Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 201
Table 306. China Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 201
Table 307. China Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 202
Table 308. China Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 202
Table 309. China Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 202
Table 310. China Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 202
Table 311. China Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 203
Table 312. China Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 203
Table 313. Japan Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 203
Table 314. Japan Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 203

Table 315. Japan Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 203
Table 316. Japan Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 204
Table 317. Japan Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 204
Table 318. Japan Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 204
Table 319. Japan Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 205
Table 320. Japan Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 205
Table 321. Japan Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 205
Table 322. Japan Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 205
Table 323. Japan Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 206
Table 324. Japan Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 206
Table 325. Germany Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 206
Table 326. Germany Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 206
Table 327. Germany Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 206
Table 328. Germany Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 207
Table 329. Germany Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 207
Table 330. Germany Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 207
Table 331. Germany Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 208
Table 332. Germany Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 208
Table 333. Germany Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 208
Table 334. Germany Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 208
Table 335. Germany Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 209
Table 336. Germany Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 209
Table 337. United Kingdom Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 209

Table 338. United Kingdom Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 209
Table 339. United Kingdom Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 209
Table 340. United Kingdom Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 210
Table 341. United Kingdom Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 210
Table 342. United Kingdom Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 210
Table 343. United Kingdom Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 211
Table 344. United Kingdom Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 211
Table 345. United Kingdom Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 211
Table 346. United Kingdom Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 211
Table 347. United Kingdom Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 212
Table 348. United Kingdom Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 212
Table 349. France Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 212
Table 350. France Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 212
Table 351. France Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 212
Table 352. France Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 213
Table 353. France Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 213
Table 354. France Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 213
Table 355. France Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 214
Table 356. France Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 214
Table 357. France Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 214
Table 358. France Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 214
Table 359. France Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 215
Table 360. France Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 215

Table 361. Canada Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 215
Table 362. Canada Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 215
Table 363. Canada Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 215
Table 364. Canada Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 216
Table 365. Canada Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 216
Table 366. Canada Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 216
Table 367. Canada Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 217
Table 368. Canada Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 217
Table 369. Canada Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 217
Table 370. Canada Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 217
Table 371. Canada Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 218
Table 372. Canada Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 218
Table 373. South Korea Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 218
Table 374. South Korea Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 218
Table 375. South Korea Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 218
Table 376. South Korea Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 219
Table 377. South Korea Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 219
Table 378. South Korea Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 219
Table 379. South Korea Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 220
Table 380. South Korea Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 220
Table 381. South Korea Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 220
Table 382. South Korea Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 220
Table 383. South Korea Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 221

Table 384. South Korea Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 221
Table 385. Australia Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 221
Table 386. Australia Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 221
Table 387. Australia Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 221
Table 388. Australia Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 222
Table 389. Australia Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 222
Table 390. Australia Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 222
Table 391. Australia Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 223
Table 392. Australia Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 223
Table 393. Australia Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 223
Table 394. Australia Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 223
Table 395. Australia Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 224
Table 396. Australia Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 224
Table 397. Italy Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 224
Table 398. Italy Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 224
Table 399. Italy Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 224
Table 400. Italy Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 225
Table 401. Italy Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 225
Table 402. Italy Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 225
Table 403. Italy Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 225
Table 404. Italy Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 226
Table 405. Italy Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 226
Table 406. Italy Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 226

Table 407. Italy Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 226
Table 408. Italy Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 226
Table 409. India Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 227
Table 410. India Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 227
Table 411. India Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 227
Table 412. India Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 227
Table 413. India Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 227
Table 414. India Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 228
Table 415. India Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 228
Table 416. India Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 228
Table 417. India Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 228
Table 418. India Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 229
Table 419. India Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 229
Table 420. India Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 229
Table 421. Spain Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 229
Table 422. Spain Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 229
Table 423. Spain Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 230
Table 424. Spain Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 230
Table 425. Spain Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 230
Table 426. Spain Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 230
Table 427. Spain Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 231
Table 428. Spain Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 231
Table 429. Spain Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 231

Table 430. Spain Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 231
Table 431. Spain Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 232
Table 432. Spain Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 232
Table 433. Brazil Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 232
Table 434. Brazil Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 232
Table 435. Brazil Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 232
Table 436. Brazil Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 233
Table 437. Brazil Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 233
Table 438. Brazil Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 233
Table 439. Brazil Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 234
Table 440. Brazil Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 234
Table 441. Brazil Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 234
Table 442. Brazil Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 234
Table 443. Brazil Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 235
Table 444. Brazil Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 235
Table 445. Russia Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 235
Table 446. Russia Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 235
Table 447. Russia Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 235
Table 448. Russia Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 236
Table 449. Russia Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 236
Table 450. Russia Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 236
Table 451. Russia Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 237
Table 452. Russia Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 237

Table 453. Russia Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 237
Table 454. Russia Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 237
Table 455. Russia Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 238
Table 456. Russia Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 238
Table 457. Mexico Integrated In-Rack CDUs Market Size, 2017-2032 (USD Thousand) 238
Table 458. Mexico Integrated In-Rack CDUs Market Size, by Heat Rejection Interface, 2017-2032 (USD Thousand) 238
Table 459. Mexico Integrated In-Rack CDUs Market Size, by Coolant Phase, 2017-2032 (USD Thousand) 238
Table 460. Mexico Integrated In-Rack CDUs Market Size, by Rack Platform, 2017-2032 (USD Thousand) 239
Table 461. Mexico Integrated In-Rack CDUs Market Size, by Cooling Application, 2017-2032 (USD Thousand) 239
Table 462. Mexico Integrated In-Rack CDUs Market Size, by Workload, 2017-2032 (USD Thousand) 239
Table 463. Mexico Integrated In-Rack CDUs Market Size, by End User, 2017-2032 (USD Thousand) 240
Table 464. Mexico Integrated In-Rack CDUs Market Size, by Integration Model, 2017-2032 (USD Thousand) 240
Table 465. Mexico Integrated In-Rack CDUs Market Size, by Project Purpose, 2017-2032 (USD Thousand) 240
Table 466. Mexico Integrated In-Rack CDUs Market Size, by Sales Channel, 2017-2032 (USD Thousand) 240
Table 467. Mexico Integrated In-Rack CDUs Market Size, by Cooling Capacity, 2017-2032 (USD Thousand) 241
Table 468. Mexico Integrated In-Rack CDUs Market Size, by Pump Redundancy, 2017-2032 (USD Thousand) 241
Table 469. Global Integrated In-Rack CDUs Market Share, by Key Player, 2025 244
Table 470. Global Integrated In-Rack CDUs Market, Companies Covered 269
Table 471. Global Integrated In-Rack CDUs Market, Key Experts 292

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Our reports are shaped by experienced analysts and industry specialists whose expertise ensures every insight is backed by rigorous research, deep industry knowledge, and thorough validation.



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