Cisco UCS X580p PCIe Node



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Value statement

Un/Box the future with Cisco UCS® X-Series Modular System and Cisco Intersight®. Embrace an adaptable, AI-ready, and cloud-operated system to simplify IT and innovate at the speed of software.

Front view



Back view



Figure 1. Cisco UCS X580p PCIe Node

Product overview

The Cisco UCS X580p PCIe Node extends the modular capabilities of the Cisco UCS X-Series Modular System into a full RTX PRO Server, by delivering high-performance GPU support for a wide range of workloads including generative AI fine-tuning, inference, and legacy applications that require GPU acceleration, including the latest NVIDIA RTX PRO 4500 and 6000 Blackwell Server Edition GPUs. As the second generation of PCIe nodes, the X580p supports up to four PCIe GPUs and can be paired with the Cisco UCS X210c M8 Compute Node with Intel® Xeon® 6 processors, as well as the UCS X215c M8 compute node with EPYC™ processors offering Compute flexibility and choice, leveraging Cisco UCS X-Fabric Technology for GPU connectivity.

Designed for flexibility and scalability, the X580p integrates seamlessly into the Cisco UCS X9508 Chassis, which features a midplane-free architecture to enhance airflow and simplify future upgrades. Vertically oriented PCIe and compute nodes connect directly to horizontally oriented Cisco UCS X-Fabric modules, enabling GPU expansion without system disruption. Occupying two slots in the X-Series 9508 Chassis, the X580p offers significantly greater flexibility than the first-generation Cisco UCS X440p PCIe Node, allowing users to assign up to four air cooled GPUs with NVLink Bridge support without performance impact or throttling of power per compute node and share GPUs from a single X580p across up to two compute nodes. This allows customers to better align resources with application needs and optimize overall GPU utilization. With Cisco Intersight now extending its cloud-based, policy-driven management to include the X580p PCIe Node, IT teams gain unified control and visibility across both compute and GPU resources. This simplifies operations, accelerates deployment, and optimizes performance across hybrid environments, making the Cisco UCS X-Series Modular System a scalable, future-ready platform for any application.

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Main features

The Cisco UCS X580p PCIe Node is the latest PCIe resource node to integrate into the Cisco UCS X-Series Modular System. The Cisco UCS X9508 Chassis has eight node slots, up to four of which can be X580p PCIe nodes when paired with Cisco UCS Compute Nodes. The UCS X580p PCIe Node supports up to four PCIe Gen5 x16 full-height, full-length dual-slot PCIe cards and requires Cisco UCS 9516 X-Fabric Modules for PCIe connectivity. This provides up to 8 GPUs per chassis to accelerate your applications with the UCS X580p Nodes.

With support for up-to 4 NVIDIA GPUs—including the NVIDIA RTX Pro 4500 and 6000 Blackwell Server Edition GPUs, H200 NVL, and L40S, the UCS X580p offers unparalleled flexibility to meet the diverse needs of enterprises. Leveraging the sophistication of the MGX modular reference design, this platform is also future-ready, with next-generation NVIDIA GPUs expected to seamlessly integrate as they become available.

Cisco UCS X580p PCIe Node supports the following GPUs and features options:

- NVIDIA H200-NVL
  - High-performance LLM inference
  - Generative AI training and fine-tuning
- NVIDIA L40S
  - Generative AI foundation model fine-tuning
  - Deployment of intelligent chatbots and search tools
  - Language processing and conversational AI
  - Graphics, rendering, and NVIDIA Omniverse applications
  - Virtual Desktop Infrastructure (VDI)
- NVIDIA RTX Pro 6000 Blackwell Server Edition
  - Agentic and physical AI: powering autonomous systems, smart factories, and robotics for real-time decision-making
  - Advanced scientific computing and rendering: accelerating complex simulations, medical imaging, and engineering analysis across hybrid environments
  - High-fidelity 3D graphics and video: driving content creation, post-production, and immersive VR/AR experiences
  - Hybrid AI/ML workflows: enabling seamless training, inferencing, and AI-assisted graphics across on-premises and cloud
  - Edge-to-core AI applications: supporting real-time AI at the edge with centralized management and cloud integration

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- NVIDIA RTX PRO 4500 Blackwell Server Edition
  - **Department-scale AI and intelligent automation:** powering agentic workflows, industrial analytics, and real-time decision support in compact servers
  - **Mainstream scientific computing and simulation:** accelerating engineering analysis, digital twins, and data-heavy modeling with strong performance per watt
  - **Professional visualization and content pipelines:** enabling high-quality 3D visualization, design review, and video workflows for distributed teams
  - **Hybrid AI/ML workflows:** supporting efficient fine-tuning, inference, and AI-assisted graphics across on-prem and cloud environments
  - **Edge-to-core AI deployments:** delivering low-latency AI at remote sites with centralized policy, monitoring, and lifecycle management
- Cisco Intersight
  - Provides a SaaS based global platform for end-to-end server management, provisioning, maintenance, and monitoring
  - Accelerated operations with policy-based GPU provisioning
  - Unified monitoring and management of AI infrastructure
- UCS X9516 X-Fabric
  - Enables PCIe connectivity from Compute nodes to GPUs on the UCS X580p PCIe node offering disaggregation of compute HW resources
  - Programable PCIe Fabric for flexible GPU provisioning from Cisco Intersight
  - SmartNIC support to enable AI infrastructure scale out supporting GPU-to-GPU communication over AI Fabric

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Product specifications

Table 1. Product specifications

Item	Specifications
GPUs	• Up to 4x NVIDIA H200 NVL Tensor Core • Up to 4x NVIDIA L40S GPU • Up to 4x NVIDIA RTXPRO 6000 Blackwell • Up to 4x NVIDIA RTXPRO 4500 Blackwell
Management	Cisco Intersight software (SaaS)
Temperature: operating	50° to 81°F (10° to 27°C)
Temperature: nonoperating	-40° to 149°F (–40° to 65°C)
Humidity: operating	5% to 93% noncondensing
Humidity: nonoperating	5% to 93% noncondensing
Altitude: operating	0 to 10,000 ft (0 to 3000m); maximum ambient temperature decreases by 1°C per 300m
Altitude: nonoperating	40,000 ft (12,000m)

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System requirements

Table 2. System requirements

Item	Requirements
X-Series chassis	Cisco UCS X9508 Chassis
Fabric interconnects	Cisco UCS 4th, 5th, and 6th Generation Fabric Interconnects
X-Fabric modules	Cisco UCS X9516 X-Fabric modules for X9508 chassis
Cisco Intersight	Intersight Managed Mode (minimum Essentials license per server)

Ordering information

Table 3 provides ordering information for the Cisco UCS X580p PCIe Node.

Table 3. Ordering information

Part number	Description
UCSX-M8-MLB	Cisco UCS X-Series M8 modular server and UCS X9508 Chassis
UCSX-580P-U	Cisco UCS X-Series Gen5 PCIe node
UCSX-GPU-H200-NVL	NVIDIA H200 NVL: 600W, 141GB, 2-Slot NVL2 FHFL GPU
UCSX-GPU-L40S	NVIDIA L40S, PASSIVE, 350W, 48GB
UCSX-GPU-RTXP6000	NVIDIA RTX Pro 6000: 600W, 96GB, 2-Slot FHFL GPU
UCSX-GPU-RTXP4500	NVIDIA RTX Pro 4500: 185W, 32GB, 2-Slot FHFL GPU

For information about installing or upgrading your server, see the Hardware Installation Guide.

For ordering information, see the Cisco UCS X580p PCIe Node spec sheet.

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Warranty services

The Cisco UCS X580p PCIe Node has a three-year Next-Business-Day (NBD) hardware warranty and a 90-day software warranty.

Augmenting the Cisco Unified Computing System™ (Cisco UCS) warranty, Cisco Smart Net Total Care® and Cisco Solution Support services are part of Cisco's technical services portfolio. Cisco Smart Net Total Care combines Cisco's industry-leading and award-winning foundational technical services with an extra level of actionable business intelligence that is delivered to you through the smart capabilities in the Cisco Smart Net Total Care portal.

For more information, please refer to: https://www.cisco.com/c/en/us/support/services/smart-net-total-care/index.html.

Cisco Solution Support includes both Cisco® product support and solution-level support, resolving complex issues in multivendor environments on average 43 percent more quickly than with product support alone. Cisco Solution Support is a critical element in data-center administration, helping to rapidly resolve issues encountered while maintaining performance, reliability, and return on investment. This service centralizes support across your multivendor Cisco environment for both our products and solution partner products that you have deployed in your ecosystem. Whether there is an issue with a Cisco product or with a solution-partner product, just call us. Our experts are the primary point of contact and own the case from first call to resolution.

For more information, please refer to:
https://www.cisco.com/c/en/us/services/technical/solution-support.html.

Product sustainability

Information about Cisco's Environmental, Social, and Governance (ESG) initiatives and performance is provided in Cisco's CSR and sustainability reporting.

Table 4. Cisco environmental sustainability information

Sustainability topic		Reference
General	Information on product-material-content laws and regulations	Materials
	Information on electronic waste laws and regulations, including our products, batteries, and packaging	WEEE Compliance
	Information on product takeback and reuse program	Cisco Takeback and Reuse Program
	Sustainability Inquiries	Contact: csr_inquiries@cisco.com
Material	Product packaging weight and materials	Contact: environment@cisco.com

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Cisco and partner services

Cisco and our industry-leading partners deliver services that accelerate your transition to a Cisco UCS X-Series Modular System solution. Cisco Unified Computing Services can help you create an agile infrastructure, accelerate time to value, reduce costs and risks, and maintain availability during deployment and migration. After deployment, our services can help you improve performance, availability, and resiliency as your business needs evolve and help you further mitigate risk.

For more information, visit https://www.cisco.com/go/unifiedcomputingservices.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. Learn more.

Document history

Table 5. Document history

New or revised topic	Described in	Date
Initial version	Document	September 2025

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