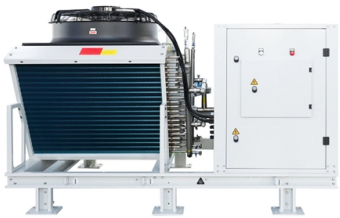
1 6T carrier-grade router for IDC data centers



Overview

Explore our router selector to swiftly identify and migrate to the Cisco enterprise router that best fits your needs.

Key Takeaways

Juniper PTX12000 and Celestica DS6000/DS6001 are leading 1.6T-ready carrier-grade routers and switches designed for high-performance IDC deployments.Juniper PTX12000 Routers

The Juniper PTX12000 series delivers 1.6 Tbps throughput in a single platform, supporting ultra-high port density and low-latency routing for AI and cloud workloads . Key features include:

• Scalable architecture: Supports scale-up, scale-out, and scale-across deployments.

• High-density 800GE ports with ZR/ZR+ optics for long-haul interconnects.

• Embedded security: Protects against internal and external threats.

• Automation and intent-based networking: Enables self-driving network capabilities and faster issue resolution.

• Energy efficiency: Optimized for ESG goals with reduced power and space requirements. The PTX12000 is suitable for large-scale AI clusters, hyperscale cloud, and high-throughput IDC environments, offering a compact footprint with 2U options for space-constrained deployments.
Celestica DS6000/DS6001 Switches

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Celestica offers 1.6TbE data center switches designed for high-performance and AI/ML workloads :

• DS6000: 3RU, 64-port x 1.6TbE, air-cooled, ideal for traditional data centers.

• DS6001: 2OU, 64-port x 1.6TbE, hybrid air/liquid cooling, optimized for 21-inch OCP ORv3 racks.

• Broadcom Tomahawk 6 chipset: Provides up to 102.4 Tbps switching capacity.

• Open-source NOS support: Compatible with SONiC distributions for flexible, production-ready deployments.

• AI routing features: Designed for high-performance interconnects in AI clusters.
These switches are future-proof for AI/ML workloads, offering doubled capacity compared to 800G solutions and energy-efficient operation.
1.6T Ethernet and OSFP Modules

Modern 1.6T routers rely on 1.6T Ethernet standards and OSFP optical modules :

• 1.6T Ethernet: Supports PAM4 signaling, multi-rate MAC/PCS controllers, and Reed-Solomon FEC for low latency and high reliability.

• OSFP modules: Standard 1.6T OSFP fits existing cages; OSFP-XD variants provide extended density and thermal handling for high-power applications.

• Interoperability: Tested PHY and controller IP ensure reliable deployment in multi-vendor environments.
Considerations for IDC Deployment

When selecting a 1.6T carrier-grade router for data centers:

• Throughput and port density: Ensure the platform meets current and projected traffic demands.

• Cooling and power: Hybrid or liquid cooling may be required for dense deployments.

• Open networking support: SONiC or other NOS options provide flexibility and automation.

• Future scalability: Look for modular platforms that can scale with AI, HPC, or cloud workloads.

• Latency and reliability: Critical for AI/ML clusters and high-performance computing.
Both Juniper PTX12000 and Celestica DS6000/DS6001 provide robust, 1.6T-ready solutions suitable for modern IDC environments, supporting high-density, low-latency, and energy-efficient operations.

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