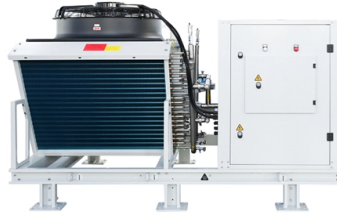


# 1 6T carrier-grade router for IDC data centers



## 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

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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