

# 6500-D14/S14

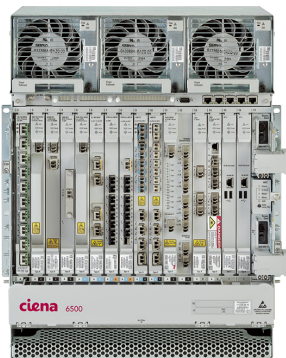
## 6500 Packet-Optical Platform



Architected for high-capacity applications, Ciena's 6500-D14/S14 configurations converge comprehensive Ethernet, TDM, and WDM capabilities with unconstrained hybrid packet/OTN switching and an intelligent control plane to maximize the bandwidth efficiency and flexibility of the overall network.

Ciena's 6500-D14/S14 is a 13RU chassis that can be tailored for a range of high-density applications, with the ability to support a wide variety of services including the full mix of Ethernet, OTN, SDH/SONET, Fibre Channel, video, and transparent DWDM services. To offer flexible, cost-efficient deployment options, the 6500-D14 is tailored for photonic/transponder applications combined with muxponder card-based packet/OTN switching, while the 6500-S14 can also be optimized for packet/OTN centralized switching deployments, with the ability to tune for packet and/or OTN in any ratio.

6500-D14 WDM Configuration



6500-S14 Packet/OTN Switched Configuration

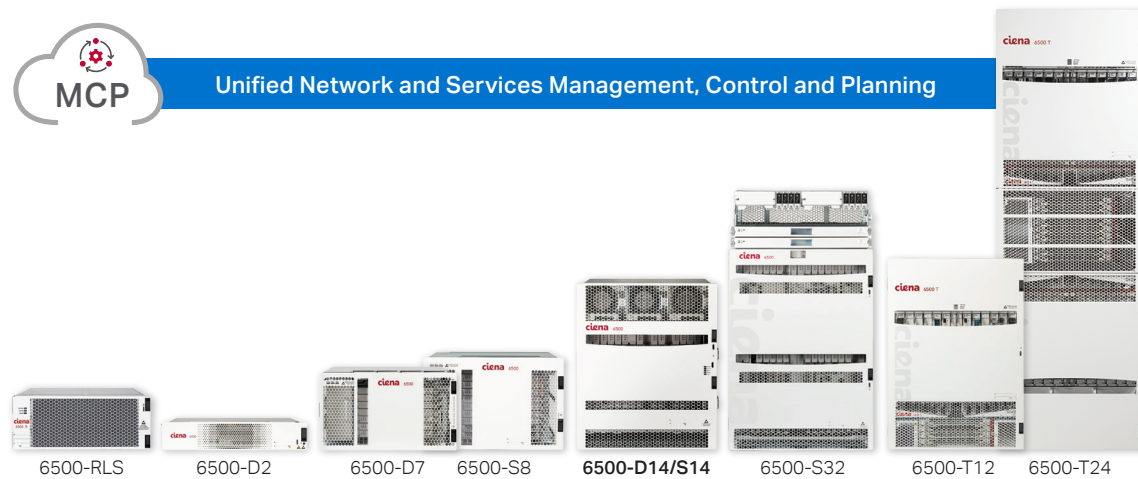


Figure 1: Service diversity and flexibility with the 6500-D14/S14

The 6500-D14/S14 is equipped with 14 service card-carrying slots that can be customized to support 2.5G to 100G switched or up to 800G DWDM applications. It supports the complete suite of photonic architectures, including directionless, colorless, contentionless, and flexible grid Reconfigurable Add-Drop Multiplexers

### Features and Benefits

- Utilizes 1.2 Tb/s of unrestricted hybrid packet/OTN switching for the most efficient use of network resources
- Supports the full suite of photonic architectures for service transport over 2.5G to 800G wavelengths
- Enables simplified operations and reduced sparing costs through seamless networking flexibility with the 6500 family
- Supports both muxponder- and central fabric-based packet/OTN switching solutions, enabling cost-optimized configurations
- Offers industry-leading WaveLogic™ coherent technology and intelligent control plane capabilities for scale and service differentiation
- Provides a range of differentiated service offerings through various line and equipment protection options



Single converged platform addressing networking requirements from the edge to the core

Figure 2. 6500 Family

(ROADMs) for the power to send any service anywhere in the network, dynamically. A full range of Wavelength Selective Switch (WSS) cards and filters provide optimized performance and cost for varying degree branching sites. Various line and equipment protection options are available, including common equipment redundancy, enabling a range of differentiated service offerings for increased network availability.

### 6500-S14 Packet-Optical

The 6500-S14 Packet-Optical offers 1.2 Tb/s of integrated packet/OTN centralized switching, with the ability to adjust the amount of packet and/or OTN capacity as required—ideal for any-to-any network connectivity flexibility. For applications with predictable point-to-point connectivity, the shelf also supports muxponder-based packet and OTN switching, enabling cost-optimized solutions for these specific service connectivity requirements. These capabilities combine with sub-wavelength grooming to ensure the most efficient bandwidth utilization and scaling of the network.

Ciena's intelligent control plane allows the network to automate and distribute many functions formerly performed through a combination of centralized management systems and manual processes. Operators can leverage both photonic and OTN control planes for several advantages, including:

- Accurate inventory of equipment and bandwidth resources
- Faster service provisioning and turn-up
- Tunable SLAs via flexible protection and restoration options
- Network optimization and maintenance

The 6500-S14 can be also deployed in a Packet Transport System (PTS) configuration to address the growing need to maintain profitable delivery of TDM services while future-proofing investments toward an all-packet network modernization. The 6500 PTS enables network providers to consolidate Digital Access Cross-connect System (DACs), Multi-Service Provisioning Platforms (MSPPs), and packet switching and transport functions, all in the same platform.

Additionally, Ciena's Manage, Control and Plan (MCP) provides end-to-end network and service lifecycle management across Ciena's packet-optical infrastructure. Through software-defined control, MCP provides a unified interface—GUI or open REST APIs—with which operators can rapidly plan, provision, turn up, and troubleshoot multi-layer services.

The 6500-D14/S14 is part of the 6500 family of packet-optical platforms, which offers various chassis form factors to provide flexible, cost-optimized configurations to best match site-specific requirements. The 6500-D14/S14 configurations adapt to a wide variety of requirements, enabling delivery of flexible services across the network over 2.5 to 800G wavelengths, and offering packet/OTN switching with industry-leading coherent and control plane capabilities for the most efficient use of network bandwidth.

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The Ciena Community



## Technical Information

Shelf variants	6500-D14 Converged Optical	6500-S14 Packet-Optical
Physical dimensions	22.7 in (H) x 17.4 in (W) x 11.0 in (D) (577 mm x 443 mm x 280 mm)	22.7 in (H) x 17.4 in (W) x 11.0 in (D) (577 mm x 443 mm x 280 mm)
Power options	Redundant DC, Max 60A	Redundant DC, Max 60A Redundant DC, Max 2x50A
Central Fabric Switching capacity	N/A	1.2Tb Packet/OTN switching 800G Packet switching for PTS configuration
Number of service card slots	14	14
Photonic modules	Full suite of passive filters, 50GHz, 75GHz, 100GHz, flexible grid ROADMs, EDFAs, Smart Raman, and Colorless, Directionless, Contentionless, Coherent Select Architecture	
Transponders/Muxponders	Coherent 800G muxponder (4x100GbE + 1x400GbE, 8x100GbE) 400G ADM-on-a-blade: 2x100G/200G coherent line(s) muxponder (36 client ports) Coherent 400G muxponder (4x100G) with integrated OPS (Optical Protection Switch) Coherent 400G flexible service transponder (34 client ports) with integrated OPS Coherent 100GE/OTU4 transponder Coherent 100G muxponder (10x10G) Coherent tunability from 100G to 400G in 50G increments Coherent 200G client card: 2x100GE or 5x40GE/10GE Coherent 100G client cards: 10x10GE, 10x10G multi-rate, 2x40G+2x10G, 100GbE/OTU4 client FIPS-certified AES-256 wire-speed coherent 100G/200G encryption solution 10G: 4x10G multi-rate OTR with FIPS-certified AES-256 wire-speed encryption Ethernet: 152G eMOTR, 68G eMOTR Edge, 30G L2MOTR OTN modules: 8-port OTN Flex MOTR (10G), 1+8 port OTN Flex MOTR* (20G) SONET/SDH 10G ADM-on-a-blade: SuperMux	
Packet/OTN switched modules	N/A	10x10G Packet/OTN 1x100G + 2x40G Packet/OTN 100G DWDM Packet/OTN 16x2.7G OTN 48xGbE
Packet Transport System (PTS) modules	N/A	800G PTS Fabric Card: 1x QSFP28/QSFP+, 2x SFP+ Distributed I/O Module (DIM): 84xDS1/E1 DIM Distributed I/O Module (DIM): 24xDS3/E3/EC1 DIM PDH card 2x DIM: 168xDS1/E1 ports or 48xDS3/E3/EC1 CEM Ethernet/Optical MRO 2xSFP+/14xSFP: - 16x OC-3/12/STM-1/4 or - 8x OC-48/STM-16 or - 2x OC192/STM-64 or - 16x 100FX/GbE (10/100/1000BaseT) or - 2x 10GbE ports
Operating Temperature	+41° F to +104° F (+5° C to +40° C) +23° F to +131° F (-5° C to +55° C) short term	
Relative Humidity	5% to 85% (non-condensing)	
Earthquake/seismic+	Zone 4	