

Waveserver 5



Waveserver® 5 compact interconnect platform, optimized for 100GbE and 400GbE applications, provides the industry's highest capacity and lowest cost per bit for any distance. Its server-like operational model, with open API programmability, simplifies back-office integration and facilitates volume deployments.

Waveserver 5 provides the best transport economics for high-capacity, high-growth applications. It combines the industry's most advanced coherent technology with a simple, server-like operational model to drive down cost per bit and reduce energy consumption. Its industry-leading density, scale, and capacity per wavelength allow Internet Content Providers (ICPs), Data Center Operators (DCOs), and Communications Service Providers (CSPs) to deliver a high-performance, quality experience to their end-user customers.

Waveserver 5 gives network operators an unprecedented choice in optics. It is the first compact, modular platform to support programmable 800G coherent for high-capacity, high-growth applications plus 400ZR pluggables for ultra-low power, low-cost single span interconnect. Supporting a mix of 100GbE/OTU4 and 400GbE services across any distance, Waveserver 5 leverages Ciena's WaveLogic™ 5 Extreme, the latest in coherent technology innovation, bringing to market the industry's first single-wavelength 800 Gb/s solution. Waveserver 5 provides industry-leading density, with up to 12.8 Tb of capacity in two rack-units. It is highly programmable, enabling rapid scalability with tunable coherent optics that help providers adapt to changing bandwidth requirements. Waveserver 5 offers tunable capacity, from 200 Gb/s to 800 Gb/s in 50 Gb/s increments, so providers can match system capacity to available network margin for any network application, including single-span DCI, metro ROADM networks, long-haul routes, and subsea links. By enabling higher line rates at any distance, Waveserver 5 improves spectral efficiency and increases overall fiber capacity up to 38.4 Tb in the C-band, and L-band traffic modules can be equipped to double capacity across L-band line systems. It can also operate across fixed-grid networks, as well as third-party line systems. By removing constraints on scalability, Waveserver 5 satisfies the capacity requirements of the most demanding data services and applications.

Features and Benefits

- Delivers more 100GbE and 400GbE across any distance, from metro to long-haul and subsea
- Offers greater choice in optics, with up to 800 Gb/s per wavelength for maximum capacity and 400ZR for low-power, single span interconnect
- Supports high-growth applications in an ultra-dense, compact platform
- Increases total fiber capacity with support for C- and L-band
- Offers ultra-low latency, AES-256-GCM wire-speed encryption for highly secure in-flight data protection
- Recognized simplicity and programmability – proven worldwide

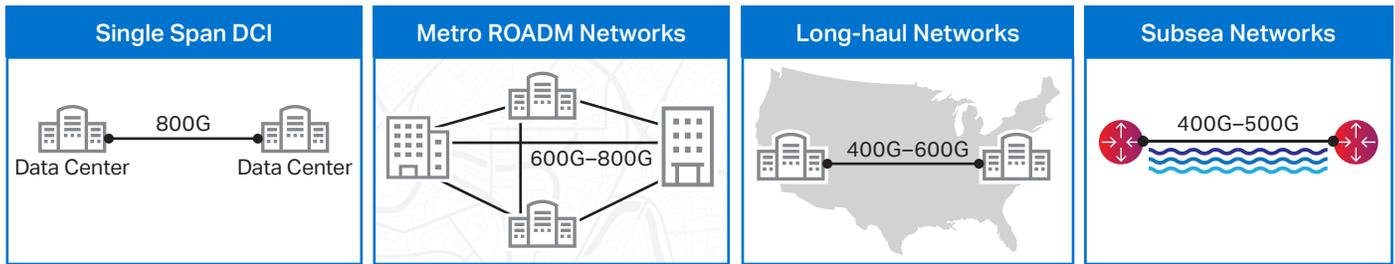


Figure 1. Waveserver 5 is suited for all applications requiring the highest spectral efficiency

Waveserver 5 provides pay-as-you-grow benefits through a modular, stackable architecture, allowing service modules to be added as bandwidth demands dictate. Waveserver 5 can be customized for different applications, with flexible traffic modules, including the double-width module supporting up to 1.6 Tb of line capacity and 1.6 Tb of client capacity, providing 2 x 800 Gb/s line ports, as well as 16 x QSFP28/4 x QSFP-DD client ports that support a flexible mix of 100GbE/OTU4 and 400GbE clients. AES-256-GCM wire-speed encryption is available to provide up to 6.4 Tb of encrypted capacity per chassis for secure, low-latency in-flight data protection. 400ZR pluggable coherent line ports are supported for low-power interconnect applications. The Waveserver 5 chassis is built for data center environments with 600mm depth, front-to-rear airflow, and redundant, in-service field replaceable power supply units and fan modules.

Delivering more than just raw capacity, the platform includes a server-like operational model to tackle scalability and automation challenges for high-growth applications. Waveserver 5 utilizes the same software stream as Waveserver Ai—providing YANG and OpenConfig models with open APIs, including NETCONF, gRPC, REST, and Websocket. It embraces

new ways of provisioning and monitoring the network with declarative configuration, streaming telemetry, and modern data models. Waveserver 5 further reduces operational complexity through ease of use—its entire lifecycle, from provisioning to maintenance, has been streamlined to make it rapidly deployable and simple to plan and use. Installation and turn-up of new Waveserver 5 units is simplified through Zero Touch Provisioning (ZTP). Interworking with Ciena’s 6500 enables the photonic line system to directly provision line port parameters on Waveserver 5, such as the transmit wavelength and transmit power, to enable faster wavelength configuration and service turn-up.

With Waveserver 5, network providers can efficiently transport 100GbE and 400GbE services, provide unique high-speed connectivity options up to 800 Gb/s, and reduce costs on high-capacity links. Its ease of use and open APIs let providers focus on growing their core business rather than wasting effort on complex operations and integration. With its compact, dense form-factor, and ultra-low power consumption, Waveserver 5 sets a new standard for purpose-built, small form-factor devices.

Technical Information

Waveserver 5 Modules

Dual modem (2 x 800 Gb/s) C-band or L-band double-width module:

- Provides sixteen QSFP28 ports supporting 100GbE/OTU4 and four QSFP-DD ports supporting 400GbE for up to 1.6 Tb of client capacity ; supports client OPS protection
- Provides two coherent ports for up to 1.6 Tb of line capacity

Dual modem (2 x 800 Gb/s) C-band double-width module with encryption:

- Provides sixteen QSFP28 ports supporting 100GbE/OTU4 and four QSFP-DD ports for up to 1.6 Tb of cleartext client capacity
- Provides two coherent ports for up to 1.6 Tb of encrypted line capacity
- Offers AES-256-GCM wire-speed encryption

Three port 400G QSFP-DD DCO double-width module:

- Provides three QSFP-DD coherent pluggable ports for up to 1.2 Tb of line capacity
- Provides twelve QSFP28 and three QSFP-DD client ports supporting up to 1.2 Tb of client capacity

Dual modem (2 x 800 Gb/s) C-band double-width module:

- Provides twelve QSFP28 ports supporting 100GbE/OTU4 and four QSFP-DD ports supporting 400GbE and 400ZR as a client for up to 1.6 Tb of client capacity
- Provides two coherent ports for up to 1.6 Tb of line capacity

Physical dimensions

- 88 mm (H) x 444 mm (W) x 594 mm (D)
- 3.47 in (H) x 17.48 in (W) x 23.39 in (D)

Weight

- Common equipment: 16.4 Kg; 36.2 lb
- Full-fill with double-width module: 26 Kg; 57.3 lb

Shelf capacity

- Eight slots, supporting a mix of up to eight single-width or four double-width modules
- Client capacity: Up to 64 x QSFP28 with 100GbE/OTU4 clients or up to 16 x QSFP-DD with 400GbE clients
- Line ports support the following rates: 200 Gb/s to 800 Gb/s
- Maximum capacity per fiber:
 - 38.4 Tb (C-band DCI)
 - 33.6 Tb (C-band Flexible grid ROADM-based networks)

Common equipment

- Redundant/field-replaceable power supply
- Field-replaceable fan unit
- Power options: AC or DC power
- AC PSU input power range:
 - 2KW: input 90Vac to 180Vac
 - 3KW: input 180Vac to 305Vac
 - 3KW: input 180Vdc to 300Vdc
- DC PSU:
 - 2.3KW: input -40Vdc to -72Vdc
- Power consumption (excluding client plugs): 2KW with four double-width modules

Management

- CLI, SNMP v2c, SNMPv3, SSH, HTTPS, TLS
- API: Websocket, RESTCONF, NETCONF, gRPC based on OpenConfig YANG models, Streaming Telemetry and Declarative Configuration
- Ciena's Manage, Control and Plan (MCP)
- Node Essentials web-based nodal UI
- Zero-Touch Provisioning (ZTP), 100GbE/400GbE Integrated Test Set, LLDP client topology discovery, remote management

Security

- TACACS+, RADIUS, RADSec
- AES-256-GCM wire-speed encryption, Pre-shared key authentication, fast key rotation
- Designed to FIPS 140-3 Level 2 specifications, undergoing FIPS and CC validation

Environmental characteristics

- Normal operating temperature: -5°C to +45°C; 23°F to 113°F
- Operating humidity: 93% maximum

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