

**DATA SHEET**

# Z77

## Packet-Optical Platform

The Z77 is a packet-optical platform optimized for high-capacity aggregation and metro/regional core network deployments.

Part of the Z-Series family, the Z77 is a fully integrated scalable packet-optical platform that supports up to 200 Gb/s of capacity per slot and 2.8 Tb/s per chassis. The modular, carrier-grade Z77 architecture supports the full suite of Z-Series Ethernet, wavelength, OTN, and SONET/SDH modules, plus an optional switch-fabric.

At just 13RU in height, the Z77 combines massive capacity with modular functionality. It complements the Z22 and Z33 for a complete solution from the edge to the regional core.

### Flexible, multilayer transport

The Z77 integrates a wide range of packet and optical capabilities to meet transport requirements across aggregation, transit, and hub locations.

Ciena's Z-Series were among the first products to achieve Carrier Ethernet 2.0 (CE2.0) certification from the Metro Ethernet Forum (MEF), ensuring the platforms enable cost-effective Ethernet service delivery with carrier-grade capabilities such as QoS, scalability, reliability, and service management. Beyond CE2.0, the Z-Series also implements Connection-Oriented Ethernet (COE) to provide more resilient and predictable Ethernet transport for E-Line, E-LAN, E-Tree, and E-Access services at interface rates up to 100GbE.

A multilayer transport solution, the Z-Series provides simultaneous support for native transponding and muxponding of G.709 OTN and SONET/SDH, in addition to SONET/SDH multiplexing and cross-connect functionality. Rounding out support for wholesale wavelength services, the Z77 also supports a complete range of DWDM options.



### Features and benefits

#### Scalable, cost-effective operation

- Supports scalability for investment protection, common sparing and inventory, operational consistency, and pay-as-you-grow capacity and functionality

#### SDN

- Simplifies multilayer network design, operations, SLA assurance, and service orchestration via support from Ciena's Blue Planet SDN Platform

#### Flexible, multilayer transport

- Supports a range of applications and services

#### Energy efficiency

- Reduces power consumption and truck rolls, saving energy and the environment

The Z77 provides the option to transport 8, 40, or 96 DWDM channels per fiber (10G and/or 100G) to scale traffic aggregates. Optional WSS-based optical switching further expands functionality and scale, with two-, four- and eight-degree ROADMs supporting highly automated network configuration.

## Applications

The Z77 introduces packet-optical transport functions in one fully integrated system capable of supporting a diverse mix of applications:

- > MEF CE2.0 service aggregation and transport to reduce the need for expensive and complex router platforms
- > SONET/SDH multiplexing and cross-connect functionality to cap and transition from legacy MSPPs
- > OTN multiplexing, transponding, and framing to efficiently converge multiple service types over a single wavelength
- > 10G and/or 100G wavelength multiplexing and switching to scale service transport capacity

## Massively scalable, modular architecture

The 13RU Z77 chassis provides remarkable scale in a compact footprint. All 14 service slots are available to support either optical or electrical modules, reducing slot restrictions and engineering rules.

When equipped with the optional XC-2800 switching fabric, the Z77 architecture supports 200 Gb/s of non-blocking packet switch capacity per slot and up to 2.8 Tb/s per chassis. The XC-2800 ensures superior packet services performance by delivering any-to-any connectivity between a new generation of interface modules with full line-rate switching across all ports concurrently. The scalability provided by the XC-2800 enables a simple and cost-effective migration to high-density 1/10GbE as well as 100GbE and ODU4 services.

## Key features

- Scalability for investment protection, common sparing and inventory, operational consistency, and pay-as-you-grow capacity and functionality
  - Get started at a low cost
  - Add cards as needed
  - Add SFP/SFP+/XFP/CFPs as needed
- Option to add switch fabric and compatible cards as needed, supporting switching across all card slots
  - 200 Gb/s per slot capacity
  - Up to 2.8 Tb/s packet capacity, with any-to-any packet cross-connect (switching) for point-to-multipoint services, grooming, and transport efficiency
- Option to add up to 8 degrees of WSS optical switching, supporting fully dynamic optical grooming with automatic optical tuning and adjustment
  - Up to 8-, 40-, or 96-channel terminal DWDM for OEO flexibility
  - 2-, 4-, and 8-degree, 96-channel ROADMs for simplified operations and maximum operational efficiency
- Multilayer transport integration
  - OTN on all trunk connections for enhanced performance and management on all services
  - Integration across Ethernet, SDH/SONET, OTN, and DWDM for multilayer network visibility
  - Integrated approach reduces power consumption and truck rolls, saves energy and expense, and lessens environmental impact

## Technical information

### System overview

#### Chassis (front)

- Service module slots: 14
- Common control module slots: 2
- All modules are hot-swappable

#### Chassis (rear)

- XC-2800 switch fabric modules: four per chassis

#### Chassis capacity

- Up to 2.8 Tb/s of packet services
- Up to 2.8 Tb/s of OTN services
- Up to 140 Gb/s of SDH/SONET
- Optical
- 2-, 4-, and 8-degree 96-channel ROADMs
- Integrated pre-amp and booster amplifiers and OSC
- 8-, 40-, or 96-channel terminal mux
- Tunable or fixed-wavelength transceivers

#### Physical interfaces

- A wide-range of pluggable optical modules to optimize reach for the desired application

#### Maximum port densities:

| Interface Type   | Ports/Chassis |
|------------------|---------------|
| FE/GbE           | 252           |
| 10GbE            | 280           |
| 100GbE           | 14            |
| OC-3/12, STM-1/4 | 224           |
| OC-48/STM-16     | 112           |
| OC-192/STM-64    | 140           |
| 2.5G/OTU1        | 112           |
| 10G/OTU2         | 140           |
| 100G/OTU4        | 14            |

#### Redundancy and protection

- Redundant fans
- Redundant power connections
- Equipment protection
  - 1:1 for all common cards and service modules
  - 1:3 for multi-technology switch fabric modules

#### Carrier Ethernet protection

- IEEE 802.3 ad Link Aggregation
- IEEE 802.1Qay Path Protection
- G.8032v2 Ethernet Ring Protection

#### SDH/SONET protection

- 1+1 APS/MSP
- UPSR/SNCP

#### Synchronization

- Stratum 3-compliant timing subsystem
- Redundant DS1 and 2MHz timing inputs
- Derived DS1 timing outputs
- Line-timed SDH/SONET and Sync-E Ethernet support

#### Power connectors: quad-feed quick-connect terminal block

#### Alarm connectors: quick-connect terminal block

### Management

- LED panel for local monitoring and provisioning
- 4x10/100/1000Base-T DCN interfaces
- System alarm outputs: CRITICAL MAJOR, MINOR, AUDIBLE, FAILSAFE
- System alarm inputs: ACO
- Provisionable environmental alarm outputs: 2
- Provisionable environmental alarm inputs: 5
- SNMP v2, CLI, TL1

### Physical

#### Shelf dimensions

- Width: 21" (534 mm)
- Depth: 21" (534 mm)
- Height: 22.75" (578 mm)
- Compatible with 21" and 23" racks
- Weight: 98 lbs (44.5 kg); includes fan tray

### Power

- Dual -48 VDC nominal (-40 VDC to -60 VDC)
- Maximum power consumption – 4,000 watts

### Environmental

- 0° to 50° C operating temperature
- 5% to 85% operating relative humidity (non-condensing)
- 13,000 ft (4,000 m) altitude

### Compliance / Safety

- NEBS 3 Certified (GR-63 CORE, GR-1089)
- UL/CSA Listed
- UE/CE-Marked: EN 60950, EN 55022, EN 61000, ETSI EN 300 386 V.1.3.3
- CB Scheme Certified 60950
- FCC, Part 15, Subpart B, Class A
- RoHS compliant

Connect with Ciena now 