The Z33 is Ciena’s environmentally hardened packet-optical platform optimized for edge and aggregation deployments.

Part of the Z-Series family, the mid-sized Z33 system balances flexibility with low cost to efficiently scale network capacity at the edge. The modular six-slot shelf supports the full range of Z-Series Ethernet, wavelength, OTN, and SONET/SDH modules to enable switching, aggregation, grooming, and transport for any mix of services. Service modules also support pluggable SFPs/XFPs for media and reach flexibility.

At just 5RU in height, the Z33 complements the Z22 and Z77 platforms for a complete solution from the edge to the metro core. With a holistic approach to the transport network, the Z-Series enables scalable, service rich networks with operational simplicity and capital efficiency.

**Flexibility and scalability**

With support for a wide variety of powerful Ethernet aggregation switching, SDH/SONET, as well as DWDM muxponding and transponding modules, the Z33 delivers a full range of packet, TDM, and wavelength services. All service modules support pluggable SFP/SFP+/XFP/CFPs for pay-as-you-grow economics.

Optional ROADM modules further enable the Z33 to support full optical level (OOO) add/drop multiplexing with scalability up to ninety-six 10G and/or 100G channels per fiber.

Rounding out support for wholesale, wavelength services and the need to muxpond and transpond certain services, the Z33 supports a complete range of transport requirements, with integrated Optical Transport Network (OTN) encapsulation.

Driven by IPTV, VOD, 2/3/4G wireless backhaul, Carrier Ethernet 2.0, and rapidly scaling Internet services, the Ciena Z33 grooms services into discrete high-capacity services and benefits**

**Scalable, cost-effective operation**

- Flexible platform architecture supports scalability for investment protection, common sparing and inventory, operational consistency, and pay-as-you-grow capacity and functionality

**SDN**

- Supported by Ciena’s Blue Planet Software-Defined Network (SDN) Platform to simplify multilayer network design, operations, SLA assurance, and service orchestration

**Flexible, multilayer transport**

- Supports a range of applications, with seamless transport and networking integration, enabling multilayer network efficiencies with single-layer simplicity

**Energy efficient**

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

**Environmentally hardened chassis**

- Extends service delivery into outside plant cabinets

**Compact footprint**

- Houses six multiservice slots, plus two common control modules, in a compact 5RU chassis
10G/100G wavelengths. As services scale, the Z33 provides the option to transport multiple 10G/100G wavelengths per fiber using DWDM.

**Applications**

Understanding and embracing the multilayer aspect of evolving networks, the Ciena Z33 introduces multiple functions in one fully integrated system:

- MEF Carrier Ethernet 2.0 (CE2.0) certified services with 1, 10, and 100 GbE aggregation, switching and Connection-Oriented Ethernet (COE) transport
- SONET/SDH multiplexing and cross-connect functionality with scalability up to OC-192/STM-64
- OTN digital wrapper functionality
- 10G/100G DWDM transport

In addition, the Z33 is supported by Ciena’s Blue Planet, an SDN platform that provides network virtualization and service-enabling capabilities.

**Compact, scalable design**

The Ciena Z33 provides six multi-service slots, plus two common control modules to support multilayer add/drop multiplexing and transport in a compact, 19-in. (483 mm) wide chassis.

The Z33’s high-density design provides support for up to 200 Gb/s of packet throughput per slot in just 5RU of rack space.

**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
  - Pair switch cards to increase switch capacity
  - Add SFP/SFP+/XFP/CFPs as needed

- Option to add DWDM and up to eight degrees of WSS for scale-efficient ROADM functionality
  - Up to 8-, 40-, or 96-channel terminal DWDM for OEO flexibility
  - Up to 96 channels of DWDM with ROADM for OOO efficiencies as traffic scales

- Advanced technology modules that support a range of applications
  - Scalable Ethernet capacity with advanced COE for resilient, carrier-grade packet transport
  - Seamless TDM-to-packet transition for flexible and efficient phased migration of networks from TDM to packet
  - SDH/SONET upgrade alternative, providing grooming and 10G transport of sub-rate services
  - Multilayer wholesale transport flexibility with OTN support for improved performance and management with transparency
  - Fiber relief options ranging from aggregation and transport at 10G/100G or the combination of multiple 10G/100G channels per fiber with DWDM
  - OTN on all trunk connections for enhanced performance and management on all services

- Up to 200 Gb/s per-slot capacity
- Flexibility to redeploy Z33 cards in larger-capacity Z77 for further expansion of capacity and functionality
- Multilayer network efficiencies with single-layer simplicity through multilayer transport and networking integration
- Greater utilization of network resources and lower operational costs via Blue Planet
- Integrated approach for reduced power consumption and truck rolls, saving energy and lowering environmental impact
Technical specifications

System overview

Modules
Service module slots: 6
Common control module slots: 2
Hot-swap capabilities on all modules
Front access for all modules and connection interfaces

Chassis capacity
Packet: up to 800 Gb/s of packet services
  400 Gb/s full-mesh (slots 1-4)
  400 Gb/s (paired slots 5,6)
SDH/SONET: up to 60 Gb/s of services
  Optical: 8, 40, or 96 channels
  @ 10/100 Gb/s, C-band terminal mux and ROADMs

Physical interfaces
Pluggable optical modules, fixed and tunable
Maximum port densities:

<table>
<thead>
<tr>
<th>Interface Type</th>
<th>Ports/Chassis</th>
</tr>
</thead>
<tbody>
<tr>
<td>FE/Gbe</td>
<td>108</td>
</tr>
<tr>
<td>10GbE</td>
<td>120</td>
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<tr>
<td>100GbE</td>
<td>6</td>
</tr>
<tr>
<td>OC-3/STM-1/4</td>
<td>96</td>
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<tr>
<td>OC-48/STM-16</td>
<td>48</td>
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<tr>
<td>OC-192/STM-64</td>
<td>60</td>
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<tr>
<td>2.5G/OTU1</td>
<td>48</td>
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<tr>
<td>10G/OTU2</td>
<td>60</td>
</tr>
<tr>
<td>100G/OTU4</td>
<td>6</td>
</tr>
</tbody>
</table>

Redundancy and protection
Redundant fans
Redundant power connections
1:1 equipment protection for all common cards and service modules
Carrier Ethernet protection
  IEEE 802.3ad Link Aggregation
  IEEE 802.1Qay and G.8031 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: dual-feed quick-connect terminal block
Alarm connectors: quick-connect terminal block

Management
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
  Depth: 12" (305 mm) from rack mount
  (14.85" or 377 mm total)
  Width: 19" (483 mm)
  Height: 8.75" (222 mm)
Weight: 27 lbs (12.25 kg); includes 2 CEMs and fan tray

Power
Dual -48 VDC nominal (-40 VDC to -60 VDC)
Optional 1RU AC/DC solution supporting 120/240 VAC inputs
Maximum power consumption: 1000 watts

Environmental
-40° to +65° 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 V1.3.3
CB Scheme Certified 60950
FCC, Subpart B, Part 15, Class A
RoHS compliant

*While the Z33 chassis is environmentally hardened, not all supported interface modules meet these specifications.

Environmentally hardened interface modules include the following:
  • LAD-8i terminal multiplexer
  • FLX-216i OTN muxponder
  • PME-216i Ethernet switching and transport module

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