The Z22 is a compact, environmentally hardened packet-optical platform optimized for deployments at the network edge.

Part of the Z-Series family, the modular, carrier-grade Z22 platform provides up to 400 Gb/s of switching capacity in a single two-slot shelf and supports the full suite of Z-Series Ethernet, wavelength, OTN, and SONET/SDH modules.

At just 2RU in height, the Z22 delivers flexibility and cost efficiency in a compact footprint. It complements the Z33 and Z77 for a complete solution from the edge to the metro core. With a holistic approach to the transport network, the Ciena Z-Series enables scalable, service-rich networks with operational simplicity and capital efficiency.

**Superior performance and scalability**

The Z22 extends high-performance aggregation and scalable transport, providing guaranteed delivery of low-latency Ethernet services with sub-50 ms protection switching. The Z22 shelf is temperature-hardened and ensures carrier-grade reliability and availability through support for full equipment and network protection as well as hitless software upgrades. Advanced Ethernet OAM features work in concert with the Z77, Z33, and Ciena’s Blue Planet Platform to satisfy the most demanding SLAs.

When equipped with two PSW-618 Ethernet switching and transport modules, the Z22 supports 36 GbE ports and twelve 10 GbE/OTU2. Alternatively, when equipped with two PSW-10G20 packet switching and transport modules, the Z22 supports forty 10 GbE ports.

The Z22 is also a compact 100G platform, supporting two 100GbE/OTU4 ports in just 2RU when equipped with either two DTM-100G transponder modules.

**Features and benefits**

- **Compact, cost-efficient operation**
  - Integrates multiple functions for cost efficiency, space and power reductions, and operational simplicity at the network edge, all in a modular, compact 2RU high-density platform

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

- **Optimized for high-performance, Ethernet-centric applications**
  - Delivers improved efficiencies over alternative edge applications

- **Guaranteed Ethernet performance and QoS**
  - Delivers guaranteed Ethernet performance and QoS for MEF E-Line, E-LAN and E-Tree services through line-rate, non-blocking L2 switching with Connection-Oriented Ethernet

- **Compatibility with existing equipment**
  - Supports multivendor interoperability with standards-based sub-50 ms Ethernet protection switching

- **Environmentally hardened chassis**
  - Extends service delivery into outside plant cabinets

- **Streamlined management and monitoring**
  - Streamlines end-to-end network management and monitoring through advanced Ethernet OAM and OTN
modules, two LME-10G10 muxponders, or two PSW-100G Ethernet switching modules. An optional DWDM module enables support for two integrated wavelengths that can overlay existing Ethernet or SONET/SDH services.

**Applications**
Optimized for applications at the Ethernet edge:
- High-performance backhaul from fiber-constrained cell sites
- Mission-critical, low-latency enterprise business Ethernet services
- In remote cabinets for high-capacity backhaul of broadband triple-play services

**Key features**
- Modular, compact (2RU) design
- Supports the full suite of Z-Series Ethernet, wavelength, OTN, and SONET/SDH modules
- Environmentally hardened shelf (-40°C to +65°C)
- High-density platform for reduced space and power consumption:
  - Configurable for up to 36 GbE ports, forty 10 GbE ports, or two 100 GbE/OTU4 ports and two DWDM channels
- Hitless software upgrades and full equipment protection
- 400 Gb/s of non-blocking service capacity
- Advanced Ethernet OAM features
Technical specifications

System overview
Separate Z22 systems are available with -48 VDC and 24 VDC power (optional 1RU AC/DC power solution available)
2 service module slots
2 common equipment module slots (CEM2 slot also supports an integrated DWDM module)
All modules are hot-swappable
Front access for all modules and connection interfaces
System capacity: up to 400 Gb/s of packet services per shelf
Physical interfaces: A wide-range of pluggable modules (with different reach) are supported to match the desired application
Alarm connectors: quick-connect terminal block
Maximum port densities:

<table>
<thead>
<tr>
<th>Interface Type</th>
<th>Ports/Chassis</th>
</tr>
</thead>
<tbody>
<tr>
<td>FE/GBE</td>
<td>36</td>
</tr>
<tr>
<td>10GBE</td>
<td>40</td>
</tr>
<tr>
<td>OC-3/12, STM-1/4</td>
<td>32</td>
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<tr>
<td>OC-48/STM-16</td>
<td>16</td>
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<tr>
<td>OC-192/STM-64</td>
<td>10</td>
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<tr>
<td>2.5G/OTU1</td>
<td>16</td>
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<tr>
<td>10G/OTU2</td>
<td>20</td>
</tr>
<tr>
<td>100G/OTU4</td>
<td>2</td>
</tr>
</tbody>
</table>

Redundancy and protection
Redundant fans
Redundant power connections
Optional 1:1 equipment protection for common cards and all service modules
Carrier Ethernet protection
IEEE 802.3 ad Link Aggregation
IEEE 802.1Qay and G.8031 Path Protection
G.8032v2 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

Management
2x10/100/1000Base-T DCN interfaces
System alarm outputs: CRITICAL, MAJOR, MINOR, FAILSAFE
2 provisionable environmental alarm outputs
4 provisionable environmental alarm inputs
SNMP v2, CLI, TL1
EMS-based integration creates end-to-end OAM regardless of topology or packet/OTN mixed links

Optical Transport (LAD-2P, LAD-2G Modules)
Two ITU Grid DWDM channels plus 1310 nm (LAD-2P) or 1550 nm (LAD-2G), east and west directions
100 GHz channel spacing on DWDM interfaces
Link budget: 8 to 16 dB (with 80 km DWDM XFPs)
Insertion loss
  LAD-2P: 5.6 dB (DWDM), 1.2 dB (1310 nm)
  LAD-2G: 4.0 dB (DWDM), 3.6 dB (1550 nm)

Physical
Shelf dimensions
  Depth: 12” (305 mm) from rack mount (14.85” or 377 mm total)
  Width: 19” (483 mm)
  Height: 3.5” (89 mm)
Weight: 15 lbs (6.8 kg) with 2 CEMi cards and fan tray

Power
Three options
Dual -48 VDC nominal (-40 VDC to -60 VDC)
Dual +24 VDC nominal (+18 VDC to +30 VDC)
1RU AC/DC solution supporting 120/240 VAC inputs
Maximum power consumption: 400 watts
Power connectors: dual-feed quick-connect terminal block

Environmental
-40° to +65° C operating temperature
  (industrial 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 V1.4.1
CB Scheme Certified IEC 60950-1 and EN 60950-1
FCC, Subpart B, Part 15, Class A
RoHS compliant

*While the Z22 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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