

# XChange3100

6U VPX 10 Gigabit Ethernet Switch with Optional Layer 2 Switching and Layer 3 Routing Management Support

- ▶ Three non-blocking, full wire-speed, Ethernet switches
- ▶ Layer 2 switching and Layer 3 routing management with extensive IEEE protocol and IETF RFC support (optional)
- ▶ VICTORY Infrastructure Switch and Router support (optional)
- ▶ Up to two rugged optical 10 Gigabit Ethernet front panel ports
- ▶ Up to twenty-two XAUI 10 Gigabit Ethernet ports
- ▶ Up to two 10GBASE-T 10 Gigabit Ethernet ports
- ▶ Up to twelve 10/100/1000BASE-T Gigabit Ethernet ports
- ▶ Up to eighty-eight 1000BASE-X SerDes Gigabit Ethernet ports
- ▶ Supports the XPedite5205 Cisco IOS® Embedded Services Router
- ▶ Compatible with multiple VITA 65 OpenVPX™ switch slot profiles
- ▶ Ruggedized Enhanced Design Implementation (REDI) per VITA 48
- ▶ Conduction or air cooling
- ▶ IPv4 and IPv6 support
- ▶ Support for jumbo frames up to 12 kB
- ▶ IEEE 1588v2 support (optional)
- ▶ NTP, SSH, SNMP, and DHCP server support (optional)
- ▶ Integrated dual-core ARM A9 management processors
- ▶ IPMI support (optional)



## XChange3100

The XChange3100 is a conduction- or air-cooled, 6U OpenVPX™ 10 Gigabit Ethernet switch module. The XChange3100 supports various configurations of up to twenty-two 10 Gigabit Ethernet ports, twelve 10/100/1000BASE-T Ethernet ports, and eighty-eight 1000BASE-X Ethernet ports. The XChange3100 supports jumbo packets up to 12 kB, IPv6, Energy Efficient Ethernet (EEE), and a comprehensive set of IETF RFCs and IEEE protocols. The XChange3100 can also support compliance with the VICTORY specification as an Infrastructure Switch and Router.

When configured as a fully managed Layer 2 switch, support for features such as fast boot, flow control, MAC bridging (IEEE 802.1D), port mirroring, port authentication (IEEE 802.1x), VLANs (IEEE 802.1Q), Quality of Service (QoS), GVRP, MVRP, port and protocol classification (IEEE 802.1v), GARP, MRP, GMRP, MMRP, LACP, RMON, STP, RSTP, MSTP, RPVST+, AgentX, and IGMP are included. When configured as a Layer 3 router, support for Multicast and Unicast Routing features such as DVMRP, IGMP, PIM-DM, PIM-SM, PIM-SSM, MLD, RIP, BGP, OSPFv2/OSPFv3, and VRRP are added.

When paired with the XPedite5205 XMC router module, the XChange3100 includes Cisco IOS® IP routing and Cisco Mobile Ready Net capabilities. With this technology, the router provides highly secure data, voice, and video communications to stationary and mobile network nodes across both wired and wireless links. With the XPedite5205, Cisco IOS® security features are also supported, including hardware encryption, firewalls with integrated threat control, zone-based firewalls, Intrusion Prevention System (IPS), content filtering, identity management using Authentication, Authorization, and Accounting (AAA), and Public Key Infrastructure (PKI).

# X-ES

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**Ethernet**

- Up to twenty-two XAUI 10 Gigabit Ethernet interfaces
- Up to two rugged 10GBASE-SR optical front panel 10 Gigabit Ethernet interfaces
- Up to two 10GBASE-T 10 Gigabit Ethernet interfaces
- Up to twelve 10/100/1000BASE-T Ethernet interfaces
- Up to eighty-eight 1000BASE-X SerDes Gigabit Ethernet interfaces
- IPv4 and IPv6 support
- Support for jumbo frames up to 12 kB
- Advanced cable open/short detection
- Energy Efficient Ethernet™ support
- Three non-blocking, full wire-speed switches
- IEEE 1588v2 support (optional)
- Compatible with OpenVPX™ switch slot profiles SLT6-SWH-20U19F-10.4.1, SLT6-SWH-16U20F-10.4.2, SLT6-SWH-24F-10.4.3, and SLT6-SWH-16U16F-10.4.5

**Ethernet Management (Optional)**

- Layer 2 switching and Layer 3 routing
- Extensive IEEE protocol and IETF RFC support
- Configuration through CLI or SNMP
- 196 MB packet buffer
- VICTORY Infrastructure Switch support

**Example Configurations**

- Seventeen XAUI, two 10GBASE-T, six 1000BASE-T, and twenty 1000BASE-X Gigabit Ethernet interfaces
- Eighteen XAUI, two 10GBASE-T, six 1000BASE-T, sixteen 1000BASE-X Gigabit Ethernet interfaces
- Twenty-two XAUI, two 10GBASE-T, and six 1000BASE-T Gigabit Ethernet interfaces
- Seventeen XAUI, two 10GBASE-T, eight 1000BASE-T, and sixteen 1000BASE-X Gigabit Ethernet interfaces
- Sixteen XAUI, two 10GBASE-T, ten 1000BASE-T, and sixteen 1000BASE-X Gigabit Ethernet interfaces
- Sixteen XAUI, two 10GBASE-SR, two 10GBASE-T, six 1000BASE-T, sixteen 1000BASE-X Gigabit Ethernet interfaces

**Management Controllers**

- Integrated dual-core ARM A9 processors at up to 1.0 GHz
- Up to 1 GB DDR3 ECC SDRAM per processor
- Up to 8 GB NAND flash per processor
- Dual-redundant SPI boot flash per processor
- RS-232 serial configuration interface per processor
- NTP, SSH, SNMP, and DHCP server support (optional)

**Expansion Sites**

- Full support for XPedite5205 Cisco IOS® Embedded Services Router (ESR)
- Full support for XPort3200 IEEE 1588v2 Grand Master

**Physical Characteristics**

- 6U VPX form factor
- Dimensions: 233 mm x 160 mm
- 0.8 in. or 1.0 in. pitch
- VITA 48.2 Type 1 Two-Level Maintenance (2LM) REDI support (optional)

**Environmental Requirements**

Contact factory for appropriate board configuration based on environmental requirements.

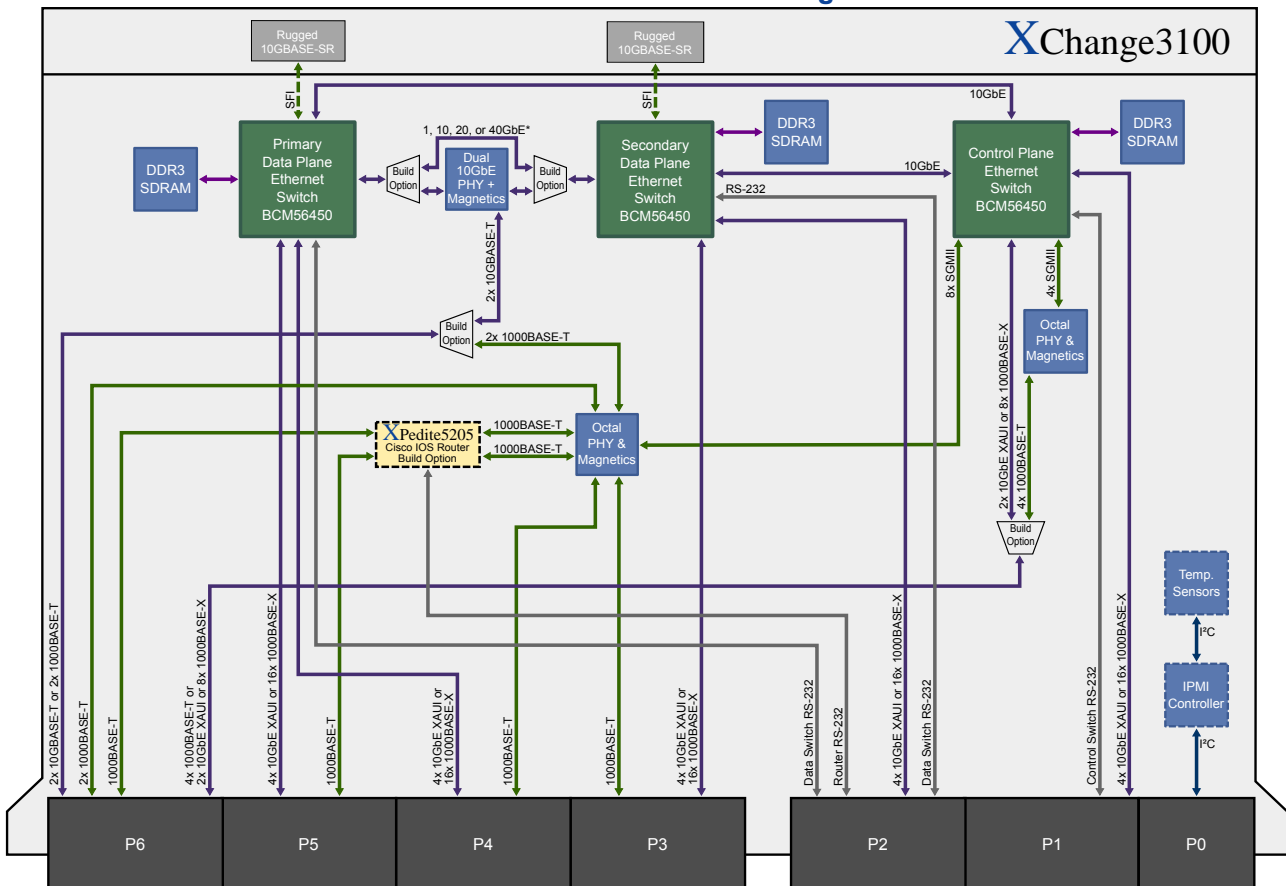
- Supported ruggedization levels (see chart below): 1, 3, 5
- Conformal coating available as an ordering option

**Power Requirements**

- Power will vary based on configuration and usage. Please consult factory.

Ruggedization Level	Level 1	Level 3	Level 5
Cooling Method	Standard Air-Cooled	Rugged Air-Cooled	Conduction-Cooled
Operating Temperature	0 to +55°C ambient (300 LFM)	-40 to +70°C (600 LFM)	-40 to +85°C (board rail surface)
Storage Temperature	-40 to +85°C ambient	-55 to +105°C ambient	-55 to +105°C ambient
Vibration	0.002 g <sup>2</sup> /Hz, 5 to 2000 Hz	0.04 g <sup>2</sup> /Hz (maximum), 5 to 2000 Hz	0.1 g <sup>2</sup> /Hz (maximum), 5 to 2000 Hz
Shock	20 g, 11 ms sawtooth	30 g, 11 ms sawtooth	40 g, 11 ms sawtooth
Humidity	0% to 95% non-condensing	0% to 95% non-condensing	0% to 95% non-condensing

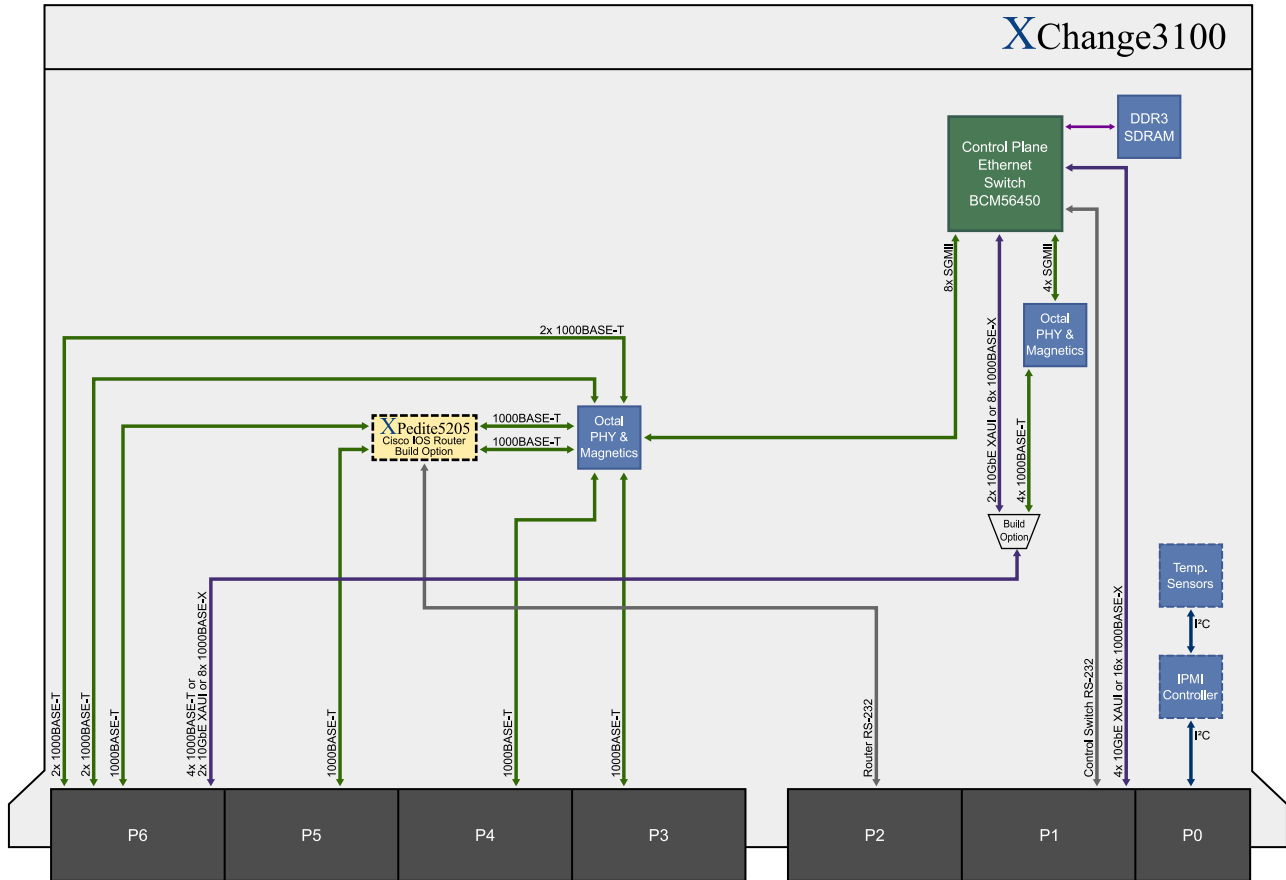
**Control and Full Data Plane Configuration**



\* The maximum aggregate bandwidth through the BCM56450 is 102.5 Gb/s. When this port is configured to 20GbE, a separate 10GbE port must be disabled. When configured as 40GbE, three other 10GbE ports must be disabled.

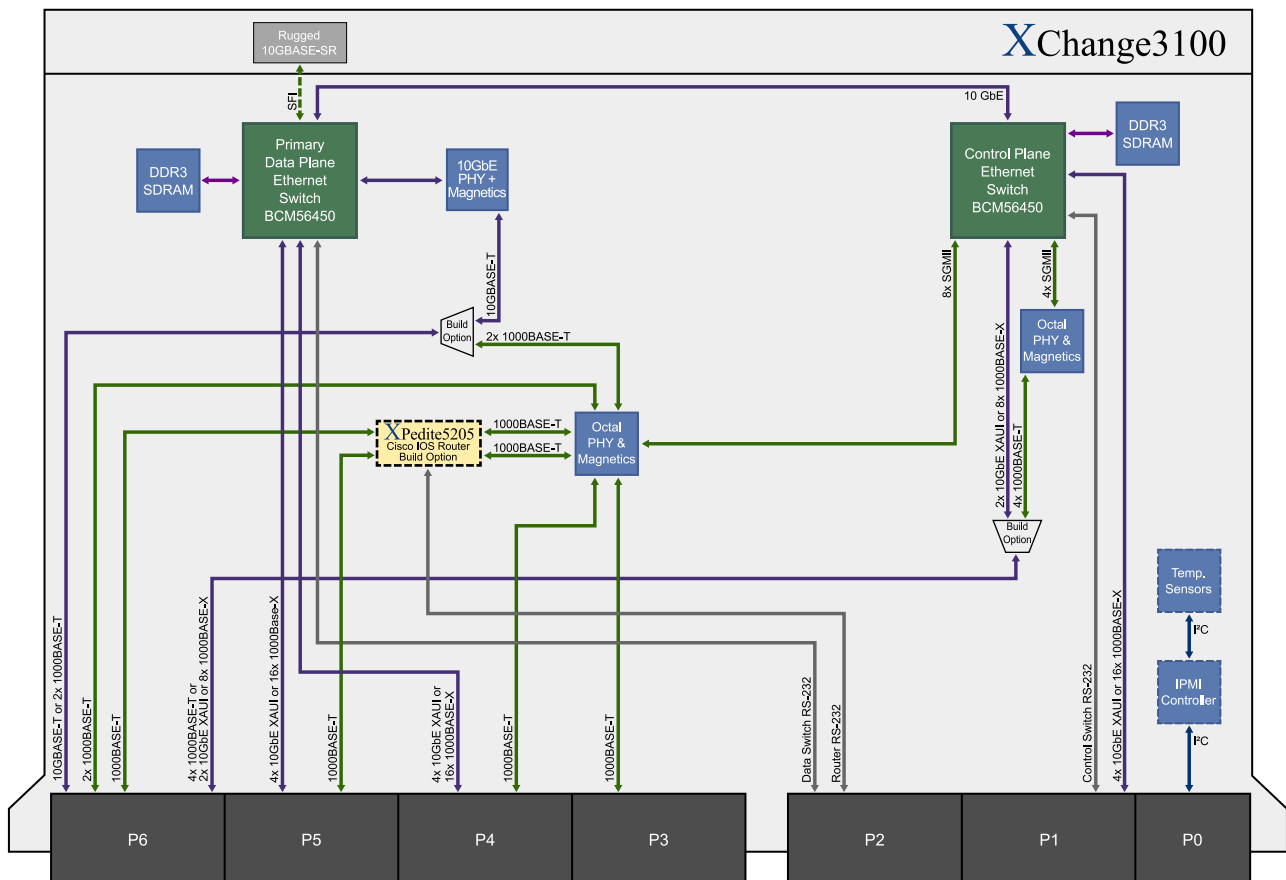


Control Plane Configuration Example



\* The maximum aggregate bandwidth through the BCM56450 is 102.5 Gb/s. When this port is configured to 20GbE, a separate 10GbE port must be disabled. When configured as 40GbE, three other 10GbE ports must be disabled.

Control and Reduced Data Plane Configuration Example



\* The maximum aggregate bandwidth through the BCM56450 is 102.5 Gb/s. When this port is configured to 20GbE, a separate 10GbE port must be disabled. When configured as 40GbE, three other 10GbE ports must be disabled.