



System Specifications

Table A-1 lists specifications for the Cisco 6400 carrier-class broadband aggregator.

Table A-1 Cisco 6400 Specifications

Description	Specifications
Switch capacity	5 Gbps ¹ shared memory, nonblocking switch fabric 65,536 cells of ATM cell buffers
Software images	Default image PNNI and plug-and-play capacity
Dimensions (H x W x D)	21.75 in. x 17.5 in. x 12.0 in. (55.2 cm x 44.4 cm x 30.4 cm) standard 19-in. rack mount Chassis depth with optional cable cover is 13.75 in. (34.9 cm) NSP: 16.0 in. x 2.0 in. x 10.0 in. (40.6 cm x 5.0 cm x 25.4 cm) NRP: 16.0 in. x 1.2 in. x 10.0 in. (40.6 cm x 3.0 cm x 25.4 cm) OC-3/STM-1 (SM and MM) NLC : 7.0 in. x 1.2 in. x 10.0 in. (17.7 cm x 3.0 cm x 25.4 cm) DS3 NLC: 7.0 in. x 1.2 in. x 10.0 in. (17.7 cm x 3.0 cm x 25.4 cm) OC-12/STM-4 NLC: 16.0 in. x 1.2 in. x 10.0 in. (40.6 cm x 3.0 cm x 25.4 cm)
Weight	Chassis minimum configuration (1 NSP, 1 PEM): 80 lb (37 kg) Chassis fully configured (2 NSPs, 6 NRPs, 4 OC-3/STM-1 or 4 DS3 or 2 OC-12/STM-4 NLCs, and 2 PEMs): 130 lb (59 kg)
Input power requirement	1200W maximum (PEM-PWR-DC) (DC version) 1400W maximum (PEM-PWR-AC) (AC version)
Power dissipation	1200W maximum, 900W typical with maximum configuration
Heat dissipation	1200W (3768 Btu ² /hr) (DC version) 1400W (4760 Btu/hr) (AC version)
DC input voltage range	- 40.5 to - 72 VDC (rated - 48/- 60 VDC)
DC current rating (input)	Maximum power budget: 20A @ - 48 VDC
AC input voltage range	90 to 255 VAC (rated 100 to 240 VAC using AC PEM)
AC current rating (input)	15A @ 100 VAC, 7A @ 240 VAC, using AC PEM

Table A-1 Cisco 6400 Specifications (continued)

Description	Specifications
Airflow	140 cfm ³ through the system blower module 200 cfm through the system blower module when the exhaust temperature exceeds 40°C
Operating temperature range	25 to 104°F (–4 to 40°C) Short-term operating temperature is limited to 131°F (55°C) in compliance with Bellcore GR-63
Nonoperating temperature range	– 40 to 167°F (– 40 to 75°C)
Humidity	5 to 95%, noncondensing
Altitude	– 200 to 10,000 ft (– 61 to 3048 m)
Interface timing	Loop timing, network timing derived from any NLC interface, Stratum 4 accuracy when internally timed. NSP-S3B also allows network timing from CO BITS, Stratum 3 accuracy when internally timed.
Node switch processor (NSP)	64 MB DRAM, 8 MB Flash memory, 32 MB FlashDisk card (MEM-NSP-FD32M) Upgradeable to 128 MB DRAM (MEM-NSP-128M) Upgradeable with 350 MB Flash disk (MEM-NSP-FD350)
Node route processor 1 (NRP-1)	64 MB DRAM, 8 MB Flash memory (C6400-NRP-1) Upgradeable to 128 MB DRAM (MEM-NRP-128M) Upgradeable to 16 MB Flash memory (MEM-NRP-FS16M)
Node route processor 2 (NRP-2SV)	512 MB DRAM (C6400-NRP-2SV)
Full-height node line card (NLC) carrier module	Carrier module for two half-height NLCs with covers for empty slots installed (C6400-CARRIER)
OC-3/STM-1 SM NLC	NLC with two SONET STS-3c/SDH STM-1 single-mode intermediate reach fiber ports, SC connectors (NLC-2OC3-SM)
Fiber-optic power levels:	
OC-3 single-mode intermediate reach	
Output center wavelength	1261 to 1360 nm ⁴
Transmit	Minimum: – 14.0 dBm Maximum: – 8.0 dBm
Receive	Minimum: – 32.5 dBm Maximum: – 8.0 dBm
OC-3/STM-1 MM NLC	NLC with two SONET STS-3c/SDH STM-1 multimode fiber ports, SC connectors (NLC-2OC3-MM)
OC-3 multimode	
Output center wavelength	1270 to 1380 nm
Transmit	Minimum: – 20.0 dBm Maximum: – 14.0 dBm

Table A-1 Cisco 6400 Specifications (continued)

Description	Specifications
Receive	Minimum: – 30.0 dBm Maximum: – 14.0 dBm
DS3 NLC	NLC with two coaxial cable connections with BNC connectors (NLC-2DS3-BNC) Maximum station-to-station cabling distance is 450 ft (137 m)
OC-12/STM-4 NLC	NLC with one SONET STS-12c/SDH STM-4 single-mode intermediate reach fiber ports, SC connector (NLC-1OC12-SM)
Fiber-optic power levels:	
OC-12 single-mode intermediate reach	
Output center wavelength	1261 to 1360 nm
Transmit	Minimum: – 15.0 dBm Maximum: - 8.0 dBm
Receive	Minimum: – 28.0 dBm Maximum: – 8.0 dBm
Gigabit Ethernet Interface Options	1000BASE-SX GBIC, multimode, standardized for Cisco 6400 (WS-G5484) 1000BASE-LH GBIC, single mode, stardardized for Cisco 6400 (WS-G5486)
NSP interface ports	RJ-45 IEEE 802.3 Ethernet 10BASE-T RJ-45 auxiliary (AUX) port for modem access RJ-45 console (CON) port for terminal access
ATM connections	32,000 point-to-point, 2048 point-to-multipoint (maximum)
Network management	Port TX and RX LEDs, switch and common equipment status LEDs Port snooping and connection steering Multiple standard and enterprise MIBs Text-based command-line interface based on familiar router interface Standard Cisco IOS security capabilities: password and TACACS, Telnet, TFTP, BOOTP, LAN Emulation client, RFC 1577 <i>Classical IP over ATM client (for management access)</i>
Mean time between failures	17 years per RIN

Table A-1 Cisco 6400 Specifications (continued)

Description	Specifications
Maximum station-to-station cabling distance	10BASE-T Ethernet—Category 3-5 UTP: 328 ft (100 m) ATM single-mode—8/125-micron single-mode fiber: 9 miles (15 km) ATM multimode—62.5/125-micron multimode fiber: 1.2 miles (2 km)
Agency Approvals	<p>Safety: UL 1950, CSA-C22.2 No. 950-95, EN60950, ACA TS001, AS/NZS 3260, IEC 950, NOM 019 Laser Safety: 21CRF1040, Subchapter J, EN60825-1, EN60825-2</p> <p>Emission: 47CFR15 Class A (FCC), CISPR22 Class B, EN55022 Class A, AS/NZS 3548 Class B, ICES-003 Class B, VCCI Class B, BSMI (CNS 13438) Class B, IEC1000-3-2, IEC1000-3-3</p> <p>Immunity: EN61000-4-2/IEC-61000-4-2 EN61000-4-3/IEC-61000-4-3 EN61000-4-4/IEC-61000-4-4 EN61000-4-5/IEC-61000-4-5 EN61000-4-6/IEC-61000-4-6 EN61000-4-11/IEC-61000-4-11 EN61000-3-2/IEC-61000-3-2</p> <p>Bellcore: GR-63-CORE, GR-1089-CORE, SR-3580 NEBS Level 3</p> <p>ETSI: EN 300 386-2</p>

1. Gbps = gigabits per second
2. Btu = British thermal units
3. cfm = cubic feet per minute
4. nm = nanometers

**Note**

If the Cisco 6400 is used in an environment where lightning-induced transients are likely to couple to the signal lines, Cisco Systems recommends the use of shielded interconnection cables for the 100BASE-T ports. In addition, use of shielded interconnection cables for the 100BASE-T ports is required to meet Bellcore GR1089 CORE Section 4.5.9 and ETSI section 5.2.2.2 (intrabuilding lightning surge).