Specifications

Cable and technical specifications for Catalyst 4500 series switches are provided in the following sections:

Note Specifications for individual switching modules and supervisor engines, including power consumption and thermal output information, are in the *Catalyst 4500 Series Module Installation Guide*, available online at: http://www.cisco.com/en/US/docs/switches/lan/catalyst4500/hardware/configuration/notes/OL_25315.html

Note When populating empty chassis slots, start filling the upper slots first and work down to the bottom slots.

Catalyst 4503 Switch Specifications

Table A-1 lists the Catalyst 4503 switch specifications.

Table A-1 Catalyst 4503 Switch Specifications

Item	Specification
Environmental	
Temperature, ambient operating	32 to 104°F (0 to 40°C)
Temperature, ambient nonoperating and storage	–40 to 167°F (–40 to 75°C)
Humidity (RH), ambient (noncondensing), operating	10 to 90%
Humidity (RH), ambient (noncondensing), nonoperating and storage	5 to 95%
Altitude, operating and nonoperating	–200 to 6500 ft (–60 to 2000 m)
Switching Components	
Backplane	24 Gbps full duplex backplane 4 Gbps Uplinks
Port density	116 ports when using a Catalyst 4500 Series Supervisor Engine II-Plus TS, 96 ports with other supervisor engines
Inline power	integrated support, 820 W per switching module
Physical Characteristics	
Dimensions (H x W x D)	• 12.25 x 17.31 x 12.50 in. (31.12 x 43.97 x 31.70 cm) • 7 RU
Weight	Minimum weight: 31.25 lb (14.1 kg) Maximum weight: 75 lb (34 kg). Chassis and backplane: 29 lb (13.1 kg) Fan tray: 2.25 lb (1.0 kg) Power Supply: Weight varies according to the module. Refer to the Catalyst 4500 Series Power Supplies, page A-9 for the module you are using.

Table A-1 Catalyst 4503 Switch Specifications (continued)

Item	Specification
Airflow	
Switch	Right to left
Power supply	Front to back
Power	
PoE supplied	–48 VDC
Power to Modules and fans	12 VDC
Power to backplane components	3.3 VDC
Redundancy	
Supervisor engine	no
Power supply	1 + 1

Catalyst 4506 Switch Specifications

Table A-2 lists the Catalyst 4506 switch specifications.

Table A-2 Catalyst 4506 Switch Specifications

Item	Specification
Environmental	
Temperature, ambient operating ambient nonoperating and storage	 32 to 104°F (0 to 40°C) –40 to 167°F (–40 to 75°C)
Humidity (RH), ambient (noncondensing): operating nonoperating and storage	 10 to 90% 5 to 95%
Altitude: operating nonoperating	 –500 to 6500 ft (–150 to 2000 m) –1000 to 30,000 ft (–300 to 9150 m)

Table A-2 Catalyst 4506 Switch Specifications (continued)

Item	Specification
Switching Components	
Backplane	60 Gbps full duplex 4 Gbps Uplinks
Port density	240 (max)
Inline power	integrated support, 820 W per line card
Physical Characteristics	
Dimensions (H x W x D)	• 17.38 x 17.31 x 12.50 in. (44.13 x 43.97 x 31.70 cm) • 10 RU
Weight	Minimum weight: 40.5 lb (18.4 kg) Maximum weight: 100 lb (45.4 kg) Chassis and backplane = 36.5 lb (16.5 kg) Fan tray: 4.0 lb (1.8 kg) Power Supply: Weight varies according to the module. Refer to the Catalyst 4500 Series Power Supplies, page A-9 for the module you are using.
Airflow	
Switch	Right to left
Power supply	Front to back
Power	
PoE supplied	–48 VDC
Power to Modules and fans	12 VDC
Power to backplane components	3.3 VDC
Redundancy	
Supervisor engine	no
Power supply	1 + 1

Catalyst 4507R Switch Specifications

Table A-3 lists the Catalyst 4507R switch specifications.

Table A-3 Catalyst 4507R Switch Specifications

Item	Specification
Environmental	
Temperature, ambient operating ambient nonoperating and storage	 32 to 104°F (0 to 40°C) –40 to 167°F (–40 to 75°C)
Humidity (RH), ambient (noncondensing): operating nonoperating and storage	 10 to 90% 5 to 95%
Altitude: operating nonoperating	 –500 to 6500 ft (–150 to 2000 m) –1000 to 30,000 ft (–300 to 9150 m)
Switching Components	
Backplane	60 Gbps full duplex 4 Gbps Uplinks with Sup II+, Sup III, and Sup IV 8 Gbps Uplinks with Supervisor Engine V
Port density	240 (max)
Inline power	integrated support, 820 W per line card
Physical Characteristics	
Dimensions (H x W x D)	• 19.19 x 17.31 x 12.50 in. (48.74 x 43.97 x 31.70 cm) • 11 RU
Weight	Minimum weight: 44.25 lb (20.1 kg) Maximum weight: 100 lb (45.4 kg) Chassis and backplane: 40.0 lb (18.1 kg) Fan tray: 4.2 lb (1.9 kg) Power Supply: Weight varies according to the module. Refer to the Catalyst 4500 Series Power Supplies, page A-9 for the module you are using.
Airflow	

Table A-3 Catalyst 4507R Switch Specifications (continued)

Item	Specification
Switch	Right to left
Power supply	Front to back
Power	
PoE supplied	–48 VDC
Power to Modules and fans	12 VDC
Power to backplane components	3.3 VDC
Redundancy	
Supervisor engine	yes
Power supply	1 + 1

Note The blank line card (C4K-SLOT-CVR-E) must be installed when either of the following two situations occur:

- If your Catalyst 4507R or Catalyst 4510R switch chassis has a Supervisor Engine 6-E (WS-X45-SUP6-E) or a Supervisor Engine 6L-E (WS-X45-SUP6L-E) installed in slot 1 and slot 2 is empty, you must install the blank line card (C4K-SLOT-CVR-E) in slot 2 rather than a blank faceplate (C4K-SLOT-CVR) . A blank faceplate covering the slot 2 opening does not direct sufficient airflow to adequately cool the Supervisor Engine 6-E or the Supervisor Engine 6L-E.
- If your Catalyst 4507R or Catalyst 4510R switch chassis has a Supervisor Engine 6-E (WS-X45-SUP6-E) or a Supervisor Engine 6L-E (WS-X45-SUP6L-E) installed in slot 2 and slot 1 is empty, you must install the blank line card (C4K-SLOT-CVR-E) in slot 1 rather than a blank faceplate (C4K-SLOT-CVR) . A blank faceplate covering the slot 1 opening does not direct sufficient airflow to adequately cool the Supervisor Engine 6-E or the Supervisor Engine 6L-E.

Catalyst 4510R Switch Specifications

Table A-4 lists the Catalyst 4510R switch specifications.

Table A-4 Catalyst 4510R Switch Specifications

Item	Specification
Environmental	
Temperature, ambient operating ambient nonoperating and storage	 32 to 104°F (0 to 40°C) –40 to 167°F (–40 to 75°C)
Humidity (RH), ambient (noncondensing): operating nonoperating and storage	 10 to 90% 5 to 95%
Altitude: operating nonoperating	 –500 to 6500 ft (–150 to 2000 m) –1000 to 30,000 ft (–300 to 9150 m)
Switching Components	
Backplane	88 Gbps full duplex with Supervisor Engine V, 96 Gbps with Supervisor Engine V-10GE 8 Gbps Uplinks with Supervisor Engine V 20 Gbps Uplinks with Supervisor Engine V-10GE
Port density	340 maximum using a Supervisor Engine V and a WS-X4302-GB in the Flex-Slot 386 maximum using a Supervisor Engine V-10GE
Inline power	integrated support, 820 W per line card
Physical Characteristics	
Dimensions (H x W x D)	• 24.35 x 17.31 x 12.50 in. (61.84 x 43.97 x 31.70 cm) • 14 RU

Table A-4 Catalyst 4510R Switch Specifications (continued)

Item	Specification
Weight	Minimum weight: 51.5 lb (23.4 kg) Maximum weight: 108 lb (49.8 kg) Chassis and backplane: 45.5 lb (20.6 kg) Fan tray: 6.0 lb (2.7 kg) Power Supply: Weight varies according to the module. Refer to the Catalyst 4500 Series Power Supplies, page A-9 for the module you are using.
Airflow	
Switch	Right to left
Power supply	Front to back
Power	
PoE supplied	–48 VDC
Power to Modules and Fans	12 VDC
Power to backplane components	3.3 VDC
Redundancy	
Supervisor engine	yes
Power supply	1 + 1

Note The blank line card (C4K-SLOT-CVR-E) must be installed when either of the following two situations occur:

- If your Catalyst 4507R or Catalyst 4510R switch chassis has a Supervisor Engine 6-E (WS-X45-SUP6-E) or a Supervisor Engine 6L-E (WS-X45-SUP6L-E) installed in slot 1 and slot 2 is empty, you must install the blank line card (C4K-SLOT-CVR-E) in slot 2 rather than a blank faceplate (C4K-SLOT-CVR) . A blank faceplate covering the slot 2 opening does not direct sufficient airflow to adequately cool the Supervisor Engine 6-E or the Supervisor Engine 6L-E.
- If your Catalyst 4507R or Catalyst 4510R switch chassis has a Supervisor Engine 6-E (WS-X45-SUP6-E) or a Supervisor Engine 6L-E (WS-X45-SUP6L-E) installed in slot 2 and slot 1 is empty, you must install

the blank line card (C4K-SLOT-CVR-E) in slot 1 rather than a blank faceplate (C4K-SLOT-CVR) . A blank faceplate covering the slot 1 opening does not direct sufficient airflow to adequately cool the Supervisor Engine 6-E or the Supervisor Engine 6L-E.

Catalyst 4500 Series Power Supplies

Tables A-5 through A-12 list the specifications for the Catalyst 4500 series power supplies.

Note All Catalyst 4500 series switch AC-input power supplies require single-phase source AC. The source AC can be out of phase between multiple power supplies or multiple AC-power plugs on the same power supply because all AC power supply inputs are isolated. Each chassis power supply should have its own dedicated branch circuit: 15 A or 20 A for North America and circuits sized to local and national codes for International locations.

For more information about power management and planning, refer to the "Environmental Monitoring and Power Management" chapter in the *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide* version appropriate for your software.

Table A-5 1000 W AC-Input Power Supply Specifications

Item	Specification
Minimum software requirement	Cisco IOS Release 12.1(12c)EW Catalyst Operating System software version 7.4 (1)
Power over Ethernet	Not supported[1]
AC-input type	Autoranging input with power factor corrector
AC-input voltage	100 to 240 VAC (±10% for full range)
AC-input current	12 A @ 100 VAC, 5 A @ 240 VAC
Maximum KVA rating	1.32 KVA
AC-input frequency	50/60 Hz (nominal) (±3 Hz for full range)
Power supply output capacity	1000 W plus 40 W (fan)
Power supply output	12 V @ 83.4 A, 3.3V @12.2 A, 1667 W maximum
Output holdup time	20 ms minimum
Max heat dissipation	943 BTUs/hr
Weight	11.5 lb (5.22 kg)

1. A Catalyst 4503 with a Catalyst 4500 series Supervisor Engine II-Plus TS and a 1000W power supply will be able to provide 158.4 W of Power over Ethernet to ports on the supervisor engine. Switching modules in other slots will not be able to provide PoE.

Table A-6 1300 W AC-Input Power Supply Specifications

Item	Specification
Minimum software requirement	Cisco IOS Release 12.1(12c)EW Catalyst Operating System software version 7.4 (1)
Power over Ethernet	Supported, up to 800 W (211 Cisco phones in combined mode)
AC-input type	Autoranging input with power factor corrector
AC-input voltage	100 to 240 VAC (±10% for full range)
AC-input current	16 A @ 100 VAC, 7 A @ 240 VAC
AC-input frequency	50/60 Hz (nominal) (±3 Hz for full range)

Table A-6 1300 W AC-Input Power Supply Specifications (continued)

Item	Specification
Maximum KVA rating	1.76 KVA
Power supply output	1300 W maximum 1000 W+ 40 W redundant mode (Data) 1667 W maximum in combined mode (Data) 800 W maximum each in redundant mode (PoE) 1333 W maximum in combined mode (PoE)
Power supply output (AC supply)	12 V @ 84.7 A, 3.3 V @ 12.5 A (Data), –50 V @ 16.7 A (PoE)
Max heat dissipation	1568 BTUs/hr
Output holdup time	20 ms minimum
Weight	12 lb (5.44 kg)

Table A-7 1400 W AC-Input Power Supply Specifications

Item	Specification
Minimum software requirement	Cisco IOS Release 12.2(18)EW Catalyst Operating System software version 8.3 (1)GLX
Power over Ethernet	Not supported[1]
AC-input type	Autoranging input with power factor corrector
AC-input voltage	100 to 240 VAC (±10% for full range)
AC-input current	16 A @ 100 VAC, 7 A @ 240 VAC
AC-input frequency	50/60 Hz (nominal) (±3 Hz for full range)
Maximum KVA rating	1.76 KVA

Table A-7 1400 W AC-Input Power Supply Specifications (continued)

Item	Specification
Power supply output	2473 W maximum 1360 W+ 40 W redundant mode (Data)
Power supply output (AC supply)	12 V @ 113.4 A, 3.3 V @ 12.2 A (Data)
Max heat dissipation	1048 BTUs/hr
Output holdup time	20 ms minimum
Weight	13.5 lb (6.12 kg)

1. A Catalyst 4503 with a Catalyst 4500 series Supervisor Engine II-Plus TS and a 1400W AC power supply provides 158.4 W of PoE to ports on the supervisor engine. Switching modules in other slots will not be able to provide PoE.

Caution Do not mix the 1400 W DC power supply with any other power supply, even for a hot swap or other short-term emergency. Doing so can seriously damage your switch.

The 1400W DC Input power supply may be used with the Catalyst 4500 Series AC Power Shelf. Documentation for the Catalyst 4500 Series AC Power Shelf is at:
http://www.cisco.com/en/US/docs/switches/lan/catalyst4500/hardware/configuration/notes/78_15068.html

Table A-8 1400 W DC-Input Power Supply Specifications

Item	Specification
Minimum software requirement	Cisco IOS Release 12.1(19)EW Catalyst Operating System software version 7.5 (1)
Power over Ethernet	Supported, up to 7500 W minus power consumed for data (240 Cisco phones in combined mode)
DC-input voltage	Data only: –48 to –60 VDC Inline devices: –48 to –56 VDC

Table A-8 1400 W DC-Input Power Supply Specifications (continued)

Item	Specification
DC-input current	Data only: 31 A @ –60 VDC Data and inline devices: 180 A maximum @ –48 VDC input **Note** The input power is configurable in the CLI. The Cisco IOS command is **power dc input**. The Catalyst Operating Sysytem command is **set power DC input**. Configure the switch software to match the requirements of your switch. To learn how to calculate the DC input current for your system, refer to the "Calculating DC Input Current" section on page 2-18.
Input power Current draw At –40.5 V (min voltage) Current draw at –72 V (max voltage) Max heat dissipation at 1866 W	1866 W (Data only) 46 A 25.9 A 5760 BTUs
	179 A max @ 48 VDC
Maximum KVA rating	1.87 (data) 9.15 (data and voice)
Power supply output (DC supply)	Data: 12 V @120 A, 3.3 V @ 10 A Inline devices: 140 A total maximum (35 A maximum each per 5 channels) @–48 to 60 VDC input
	1367 W+ 40 W redundant mode (Data) 2267 W maximum in combined mode (Data)
	7500 W maximum each in redundant mode (PoE) 7280 W maximum in combined mode (PoE)
DC input terminal block	Accepts FCI p/n YAV25L2TC14FX90 or equivalent, barrel-type lug terminals with 90-degree angle, two- hole tongue, which accommodates 1/0 AWG size copper wire. The connector tongue width is 0.82 in, the stud hole spacing is 5/8 in, and the hole size is 1/4 in.
Output holdup time	4 ms
Max heat dissipation	1591 BTUs/hr (data) 2905 BTUs/hr (data and voice)
Weight	16.5 lb (7.48 kg)

Table A-8 1400 W DC-Input Power Supply Specifications (continued)

Item	Specification
Catalyst 4503-Specific Power Usage (data only)	
Maximum draw	475 W
Maximum input	633 W
Current draw at –40.5 V (min voltage) Current draw at –72 V (max voltage)	15.6 A 8.8 A
Max heat dissipation at 633 W	2160 BTUs
Catalyst 4506-Specific Power Usage (data only)	
Maximum draw (data only)	850 W
Maximum input	1133 W
Current draw at –40.5 V (min voltage) Current draw at –72 V (max voltage)	28 A 15.8 A
Max heat dissipation at 1133 W	3515 BTUs
Catalyst 4507R-Specific Power Usage (data only)	
Maximum draw (data only)	1080 W
Max input is 1080 W / 0.75 =	1440 W
Current draw at –40.5 V (min voltage)	35.6 A
Current draw at –72 V (max voltage)	20 A
Max heat dissipation 1440 W	4910 BTUs

Table A-9 1400 W DC Triple-Input Power Supply Specifications

Item	Specification
Minimum software requirement	Cisco IOS Release 12.2(25)EW
Power over Ethernet	Not supported
DC-input voltage	Domestic and international: –48 to –60 VDC
DC-input current	42.5 A maximum @ –48 VDC input Input 1: 12.5 A at –48 to –60 VDC Input 2: 15 A at –48 to –60 VDC Input 3: 15 A at –48 to –60 VDC
Input power Current draw At –40.5 V (min voltage) Current draw at –72 V (max voltage) Max heat dissipation at 1400 W	1772 W @ 1400 W output power 42.5 A 25 A 1269 BTUs
Maximum KVA rating	1.77 at 1400 W load
Power supply output (DC supply)	12 V@ 8 A minimum, 115.3 A maximum 3.3 V @ 1.2 A minimum, 12.5 A maximum 1360 W+ 40 W redundant mode 2450 W maximum in combined mode
DC input terminal block	Model: Cooper Bussmann Magnum. Accepts terminals with flat angle, one hole tongue, which accommodates 10 to 12 AWG size copper wire. The connector the barrier spacing is 0.378 in (9.6 mm), and the screw size is 8-32.
Output holdup time	8 ms
Max heat dissipation	1269 BTUs/hr
Weight	16.5 lb (7.48 kg)

Table A-9 1400 W DC Triple-Input Power Supply Specifications (continued)

Item	Specification
Catalyst 4503-Specific Power Usage (data only)	Two modules minimum required @ –40.5 VDC input One 15A module minimum required @ –44 VDC input
Maximum draw	475 W
Maximum input	609 W total / # of modules = W per module
Current draw at –40.5 V (min voltage) Current draw at –72 V (max voltage)	15 A total / # of modules = A per module 8.5 A total / # of modules = A per module
Max heat dissipation at 609 W	2078 BTUs
Catalyst 4506-Specific Power Usage (data only)	Two modules minimum required @ –44 VDC input Three modules minimum required @ –40.5 VDC input
Maximum draw (data only)	850 W
Maximum input	1076 W total / # of modules = W per module
Current draw at –40.5 V (min voltage) Current draw at –72 V (max voltage)	26.6 A total / # of modules = A per module 15 A total / # of modules = A per module
Max heat dissipation at 1076 W	3671 BTUs
Catalyst 4507R-Specific Power Usage (data only)	Three modules minimum required
Maximum draw (data only)	1080 W
Max input is 1080 W	1367 W total / # of modules = W per module
Current draw at –40.5 V (min voltage)	33.75 A total / # of modules = A per module
Current draw at –72 V (max voltage)	19 A total / # of modules = A per module
Max heat dissipation 1367 W	4665 BTUs

Table A-10 Input Modes

Input Mode	Input Number	Input Configuration	Maximum Total Output Power
1	1	1 x 12.5 A	386 W @ –40.5 VDC 412 W @ –44.0 VDC
2	2 OR 3	1 x 15 A	466 W @ –40.5 VDC 495 W @ –44.0 VDC
3	1, 2 OR 3	1 x 12.5 A and 1 x 15 A	845 W @ –40.5 VDC 908 W @ –44.0 VDC
4	2, 3	2 x 15 A	914 W @ –40.5 VDC 990 W @ –44.0 VDC
5	1, 2, 3	1 x 12.5 A and 2 x 15 A	1294 W @ –40.5 VDC 1400 W @ –44.0 VDC

Table A-11 Allowable Power with Two 1400 W DC Triple-Input Power Supplies in Combined Mode

PS1/PS2	1	2 or 3	1 and (2 or 3)	2 and 3	1 and 2 and 3
1	824 W	907 W	1320 W	1400 W	1700 W
2 or 3	907 W	990 W	1400 W	1450 W	1750 W
1 and (2 or 3)	1320 W	1400 W	1700 W	1750 W	1900 W
2 and 3	1400 W	1450 W	1750 W	1820 W	2130 W
1 and 2 and 3	1700 W	1750 W	1900 W	2130 W	2450 W

Table A-12 2800 W AC-Input Power Supply Specifications

Item	Specification
Minimum software requirement	Cisco IOS Release 12.1(13)EW Catalyst Operating System software version 7.5 (1)
Power over Ethernet	Supported, up to 1400 W (240 Cisco phones in combined mode)
AC-input type	Autoranging input with power factor corrector
AC-input voltage	200 to 240 VAC (±10% for full range)
AC-input current	16 A maximum at 200 VAC
AC-input frequency	50/60 Hz (nominal) (±3% for full range)
Maximum KVA rating	3.52 KVA
Power supply output	2800 W maximum 12 V @113.3 A, 3.3 V @12.1 A (Data) –50 V @28 A (PoE) 1360 W+ 40 W redundant mode (Data) 2473 W maximum in combined mode (Data) 1400 W maximum each in redundant mode (PoE) 2333 W maximum in combined mode (PoE)
Max heat dissipation	2387 BTUs/hr.
Output holdup time	20 ms minimum
Weight	13.5 lb (6.12 kg)

Table A-13 4200 W AC-Input Power Supply Specifications

Item	Specification
Minimum software requirement	Cisco IOS Release 12.2(25)EWA
Power over Ethernet	Supported, up to 4200 W
AC-input type	Autoranging input with power factor corrector
AC-input voltage	100 to 240 VAC (±10% for full range)
AC-input current	12 A maximum at 200 VAC
AC-input frequency	50/60 Hz (nominal) (±3% for full range)
Maximum KVA rating	5.25 KVA
Power supply output	4200 W maximum @ 230 VAC 12 V @ 115.3 A, 3.3 V @12.5 A (Data) –50 V @ 77.1 A (PoE) with two inputs 2100 W maximum @ 230 VAC 12 V @115.3 A, 3.3 V @12.5 A (Data) –50 V @ 38.5 A (PoE) with one input 2100 W maximum @ 120 VAC 12 V @115.3 A, 3.3 V @12.5 A (Data) –50 V @ 38.0 A (PoE) with two inputs 1050 W maximum @ 120 VAC 12 V @ 55.9 A, 3.3 V @12.5 A (Data) –50 V @ 14.6 A (PoE) with one input
Max heat dissipation	3583 BTUs/hr.
Output holdup time	20 ms minimum
Weight	21 lb (9.53 kg)

Note The 4200 W AC power supply should not be used in mixed-voltage configurations. All the inputs in a chassis must be at the same voltage (110 VAC or 220 VAC).

Table A-14 shows the wattage output possible with the 4200W power supply in redundant mode. In redundant mode, both power supplies must have identical inputs and all inputs must be at the same voltage. If the input voltages are mismatched, choose the value matching the weaker of the two power supplies.

Table A-14 Redundant Mode Output

	12V	3.3V	-50V	Total
110	660	40	700	1050
110+110 or 220	1360	40	1850	2100
220+220	1360	40	3700	4200

Table A-15 shows the maximum output wattage with the 4200 W power supply in combined mode.

Table A-15 Combined Mode Output

	W @ 12 V	W @3.3 V	W @ -50 V	Maximum (W)
Both sides at 110	1200	40	1320	1870
110+110, other side 110	1800	40	2000	2730
Both sides at 110+110	2200	40	3100	3800
Both sides at 220	2200	40	3100	3800
220+220, other side 220	2200	40	4700	5500
Both sides at 220+220	2200	40	6200	7600