



## APPENDIX **D**

# Chassis and Module Power and Heat Values

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This appendix provides the power and heat numbers for the Catalyst 6500 series chassis and modules. The following power requirements and heat dissipation tables are provided:

- Chassis and fan trays—[Table D-1](#)
- IP phones—[Table D-2](#)
- Supervisor engines—[Table D-3](#)
- Policy Feature Cards (PFCs)—[Table D-4](#)
- Distributed Forwarding Cards (DFCs)—[Table D-5](#)
- Switch fabric modules—[Table D-6](#)
- 10-Gigabit Ethernet modules—[Table D-7](#)
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- Service modules—[Table D-14](#)
- Miscellaneous modules—[Table D-15](#)

Unless otherwise noted, the information in the following tables is measured under fully loaded conditions (transceivers installed). Typical numbers are approximately 20 percent below the numbers listed in these tables.



**Note**

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Module power is the output from the power supply (internal to the system). The AC-input power is the input from the outlet to the power supply. The percentage difference between the two values is the efficiency of the power supply.

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Table D-1 Power Requirements and Heat Dissipation—Chassis and Fan Trays

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>Catalyst 6503 chassis</b>						
FAN-MOD-3 fan tray	0.80	34.00	43.00	145.00	46.00	156.00
FAN-MOD-3HS fan tray	2.98	125.16	156.45	534.28	168.23	574.49
<b>Catalyst 6503-E chassis</b>						
WS-C6503-E-FAN fan tray <sup>1</sup>	1.37	57.54	71.93	245.62	77.34	264.11
	3.10	130.20	162.75	555.79	175.00	597.63
<b>Catalyst 6504-E chassis</b>						
FAN-MOD-4HS fan tray <sup>1</sup>	1.43	60.06	75.08	256.38	80.73	275.68
	2.17	91.14	113.93	389.05	122.50	418.34
<b>Catalyst 6506 chassis</b>						
WS-C6K-6SLOT-FAN fan tray	0.71	30.00	37.48	128.00	40.00	136.88
WS-C6K-6SLOT-FAN2 fan tray	2.00	84.00	105.00	359.00	113.00	386.00
<b>Catalyst 6506-E chassis</b>						
WS-C6506-E-FAN fan tray <sup>1</sup>	2.35	98.70	123.40	421.33	132.66	453.04
	3.35	140.70	175.88	600.61	189.11	645.82
<b>Catalyst 6509 chassis</b>						
WS-C6K-9SLOT-FAN fan tray	1.10	46.00	58.00	196.00	62.00	212.00
WS-C6K-9SLOT-FAN2 fan tray	3.04	127.68	159.60	545.03	171.70	586.06
<b>Catalyst 6509-E chassis</b>						
WS-C6509-E-FAN fan tray <sup>1</sup>	3.58	150.36	187.95	641.85	202.10	690.16
	5.00	210.00	262.50	896.44	282.26	963.91
<b>Catalyst 6509-NEB chassis</b>						
WS-C6K-NEB-FAN fan tray	7.00	294.00	368.00	1255.00	395.00	1349.00

**Table D-1 Power Requirements and Heat Dissipation—Chassis and Fan Trays (continued)**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>Catalyst 6509-NEB-A chassis</b>						
FAN-MOD-09 <sup>2</sup> fan tray	5.75	242.00	302.00	1031.00	325.00	1108.00
<b>Catalyst 6509-V-E chassis<sup>3</sup></b>						
WS-C6509-V-E-FAN fan tray	5.75	242.00	302.00	1031.00	325.00	1108.00
<b>Catalyst 6513 chassis</b>						
WS-C6K-13SLOT-FAN fan tray	1.58	73.00	146.00	499.00	157.00	536.00
WS-C6K-13SLOT-FAN2 fan tray	7.10	298.20	372.75	1272.94	400.81	1368.75

- Two sets of values are given for these fan trays. The Catalyst 6500-E series fan trays are designed to provide two levels of cooling. The lower set of values shown are for chassis where modules that do not require the additional cooling capacity are installed. The higher set of values shown are for chassis where either the WS-X6708-10G-3C or -3CXL, or the WS-X6716-10G-3C or -3CXL Ethernet modules are installed. Both of these Ethernet modules require the fan tray's additional cooling capacity.
- Values given are per fan tray. The Catalyst 6509-NEB-A switch chassis ships with one fan tray installed by default. A second fan tray can be installed in the chassis. The power and heat numbers for a chassis equipped with two fan trays are double the values listed.
- Values given are per fan tray. The Catalyst 6509-V-E switch chassis ships with one fan tray installed by default. A second fan tray can be installed in the chassis. The power and heat numbers for a chassis equipped with two fan trays are double the values listed.

**Table D-2 Power Requirements and Heat Dissipation—IP Phones**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
Cisco IP Phone 7960	0.15	6.3	7.88	26.89	8.47	28.92
Cisco IP Phone 7940	0.15	6.3	7.88	26.89	8.47	28.92
Cisco IP Phone 7910	0.13	5.46	6.83	23.31	7.34	25.06

The module power values are based on 42 VDC. Power is distributed to each slot in the chassis from the power supply's 42 VDC output. Each module has DC-to-DC power supplies that convert the 42 VDC into +2.5 VDC, +3.3 VDC, and +5 VDC to power the module. The 42 VDC is independent of the power supply's input voltage, either 110 VAC or 220 VAC.

Table D-3 lists the power and the heat numbers for the supervisor engines.

**Table D-3 Power Requirements and Heat Dissipation—Supervisor Engines**

Model Number/ Module Type	Module Current (A) @ 42 VDC	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-X6K-SUP1A-2GE</b> Supervisor Engine 1A	1.70	71.40	89.25	304.79	95.97	327.73
<b>WS-X6K-SUP1A-PFC</b> Supervisor Engine 1A with PFC daughter card	2.50	105	131.25	448.22	141.13	481.96
<b>WS-X6K-SUP1A-MSFC</b> Supervisor Engine 1A with PFC and MSFC daughter cards	3.30	138.60	173.25	519.65	186.29	559.18
<b>WS-X6K-SUP1A-MSFC2</b> Supervisor Engine 1A with PFC and MSFC2 daughter cards	2.90	121.80	152.25	519.93	163.71	559.07
<b>WS-X6K-S2-PFC2</b> Supervisor Engine 2 with PFC2 daughter card	3.06	128.52	160.65	548.62	172.74	589.91
<b>WS-X6K-S2-MSFC2</b> Supervisor Engine 2 with PFC2 and MSFC2 daughter cards	3.46	145.32	181.65	620.33	195.32	667.03
<b>WS-X6K-S2U-MSFC2</b> Supervisor Engine 2 with PFC2 and MSFC2 daughter cards—Has 512 MB of DRAM	3.46	145.32	181.65	620.33	195.32	667.03

**Table D-3 Power Requirements and Heat Dissipation—Supervisor Engines (continued)**

Model Number/ Module Type	Module Current (A) @ 42 VDC	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-SUP32-10GE-3B</b> Supervisor Engine 32 with PFC3B and MSFC2A daughter cards	4.19	175.98	219.98	751.21	236.53	807.76
<b>WS-SUP32-GE-3B</b> Supervisor Engine 32 with PFC3B and MSFC2A daughter cards	3.69	154.98	193.73	661.57	208.31	711.37
<b>WS-S32-GE-PISA</b> Supervisor Engine 32 with PFC3B and Programmable IP Services Accelerator (PISA) daughter cards.	2.96	124.32	155.40	530.69	167.10	570.64
<b>WS-S32-10GE-PISA</b> Supervisor Engine 32 with PFC3B and Programmable IP Services Accelerator (PISA) daughter cards	2.97	124.74	155.93	532.48	167.66	572.56
<b>WS-SUP720</b> Supervisor Engine 720 with PFC3A daughter card and integrated MSFC3 and switch fabric	7.50	315.0	393.75	1344.66	423.39	1445.87
<b>WS-SUP720-3B</b> Supervisor Engine 720 with PFC3B daughter card and integrated MSFC3 and switch fabric	6.72	282.24	350.80	1204.81	379.35	1295.5
<b>WS-SUP720-3BXL</b> Supervisor Engine 720 with PFC3BXL daughter card and integrated MSFC3 and switch fabric	7.82	328.44	410.55	1402.03	441.45	1507.56
<b>VS-S720-10G-3C</b> Supervisor Engine 720-10GE with PFC3C daughter card and integrated MSFC3 and switch fabric	8.05	338.10	422.63	1443.26	454.44	1551.90
<b>VS-S720-10G-3CXL</b> Supervisor Engine 720-10GE with PFC3CXL daughter card and integrated MSFC3 and switch fabric	8.65	363.30	454.13	1550.84	488.31	1667.57

Table D-4 lists the power and the heat numbers for the Policy Feature Cards (PFCs).

**Table D-4 Power Requirements and Heat Dissipation—Policy Feature Cards (PFCs)**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-F6K-PFC3A</b> Policy Feature Card 3A	2.25	94.50	118.13	403.40	127.02	433.76
<b>WS-F6K-PFC3B</b> Policy Feature Card 3B	1.47	61.74	77.18	263.55	82.98	283.39
<b>WS-F6K-PFC3BXL</b> Policy Feature Card 3BXL	2.57	107.94	134.93	460.77	145.08	495.45
<b>VS-F6K-PFC3C</b> Policy Feature Card 3C	1.90	79.80	99.75	340.65	107.26	366.29
<b>VS-F6K-PFC3CXL</b> Policy Feature Card 3CXL	2.50	105.00	131.25	448.22	141.13	481.96

Table D-5 lists the power and the heat numbers for the Distributed Forwarding Cards (DFCs).

**Table D-5 Power Requirements and Heat Dissipation—Distributed Forwarding Cards (DFCs)**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-F6K-DFC</b> Distributed Forwarding Card	2.10	88.20	110.25	376.50	118.55	404.84
<b>WS-F6K-DFC3A</b> Distributed Forwarding Card 3A	2.57	107.94	134.93	460.77	145.08	495.45
<b>WS-F6K-DFC3B</b> Distributed Forwarding Card 3B	1.67	70.14	87.68	299.41	94.27	321.95
<b>WS-F6K-DFC3BXL</b> Distributed Forwarding Card 3BXL	2.38	99.96	124.95	426.70	134.35	458.82
<b>WS-F6700-CFC</b> Centralized Forwarding Card	0.75	31.5	39.38	134.47	42.34	144.59

**Table D-5 Power Requirements and Heat Dissipation—Distributed Forwarding Cards (DFCs) (continued)**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-F6700-DFC3A</b> Distributed Forwarding Card 3A	3.0	126	157.5	537.86	169.35	578.35
<b>WS-F6700-DFC3B</b> Distributed Forwarding Card 3B	2.7	113.40	141.75	484.08	152.42	520.51
<b>WS-F6700-DFC3BXL</b> Distributed Forwarding Card 3BXL	3.3	138.60	173.25	591.65	186.29	636.18
<b>WS-F6700-DFC3C</b> Distributed Forwarding Card 3C for use on CEF720 modules. Supported only with Supervisor Engine 720 and Supervisor Engine 720-10GE	1.65	69.30	86.63	295.82	93.15	318.09
<b>WS-F6700-DFC3CXL</b> Distributed Forwarding Card 3CXL for use on CEF720 modules. Supported only with Supervisor Engine 720 and Supervisor Engine 720-10GE.	2.35	98.70	123.38	421.33	132.66	453.04

Table D-6 lists the power and the heat numbers for the switch fabric modules.

**Table D-6 Power Requirements and Heat Dissipation—Switch Fabric Modules**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-C6500-SFM</b> Switch Fabric Module	2.79	117.18	146.5	500.2	157.5	537.86
<b>WS-X6500-SFM2</b> Switch Fabric Module 2	3.09	129.78	162.23	554	174.4	595.7

Table D-7 lists the power and the heat numbers for the 10-Gigabit Ethernet modules.

**Note**

For the WS-X6502-10GE and WS-X6704-10GE Ethernet modules, the values shown are for the baseboard only. When the baseboard has a CFC or DFC3 daughter card installed, you must add the daughter card power to the baseboard power to get the total slot power. For the WS-X6708-10G-3C, WS-X6708-10G-3CXL, WS-X6716-10G-3C, and the WS-X6716-10G-3CXL Ethernet modules, the values shown include the factory installed WS-F6700-DFC3C or WS-F6700-DFC3CXL daughter cards.

**Table D-7 Power Requirements and Heat Dissipation— 10-Gigabit Ethernet Modules**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-X6502-10GE</b> 2-port 10-Gigabit Ethernet module	3.30	138.60	173.25	591.65	186.29	636.18
<b>WS-X6704-10GE</b> 4-Port 10-Gigabit Ethernet module	6.28	263.76	329.70	1125.93	354.52	1210.67
<b>WS-X6708-10G-3C</b> 8-Port 10-Gigabit Ethernet module with WS-F6700-DFC3C daughter card.	10.58	444.36	555.45	1896.86	600.49	2050.66
<b>WS-X6708-10G-3CXL</b> 8-Port 10-Gigabit Ethernet module with WS-F6700-DFC3CXL daughter card.	11.28	473.76	592.20	2022.36	640.22	2186.34
<b>WS-X6716-10G-3C</b> 16-Port 10-Gigabit Ethernet module with WS-F6700-DFC3C daughter card.	10.90	457.80	572.25	1954.23	615.32	2101.33
<b>WS-X6708-10G-3CXL</b> 16-Port 10-Gigabit Ethernet module with WS-F6700-DFC3CXL daughter card.	11.60	487.20	609.00	2079.74	654.84	2236.27

Table D-8 lists the power and the heat numbers for the Gigabit Ethernet modules.

**Table D-8 Power Requirements and Heat Dissipation—Gigabit Ethernet Modules**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-X6316-GE-TX</b> 16-port 1000BASE-T Gigabit Ethernet module	5.15	216.3	270.38	923.33	290.73	992.83
<b>WS-X6408A-GBIC</b> 8-port 1000BASE-X Gigabit Ethernet module	2.00	84.00	105.00	358.58	112.90	385.56
<b>WS-X6416-GBIC</b> 16-port 1000BASE-X Gigabit Ethernet module	2.81	118.02	147.53	503.8	158.63	541.72
<b>WS-X6416-GE-MT</b> 8-port 1000BASE-SX Gigabit Ethernet module	2.50	105.00	131.25	448.22	141.13	481.96
<b>WS-X6516-GBIC</b> 16-port 1000BASE-X Gigabit Ethernet module	3.40	142.80	178.50	609.58	191.94	655.46
<b>WS-X6516A-GBIC</b> 16-port 1000BASE-X Gigabit Ethernet module	3.62	152.04	190.05	649.02	204.35	697.87
<b>WS-X6724-SFP</b> 24-Port 1000BASE-X Ethernet module	2.23	99.66	117.08	399.81	125.89	429.90
<b>WS-X6748-SFP</b> 48-Port 1000BASE-X Ethernet module	5.32	223.44	279.30	953.81	300.32	1025.60
<b>WS-X6816-GBIC</b> 16-Port1000BASE-X Gigabit Ethernet module	3.84	161.28	201.60	688.46	216.77	740.28

Table D-9 lists the power and the heat numbers for the 10/100/1000 Ethernet switching modules.

**Table D-9 Power Requirements and Heat Dissipation— 10/100/1000 Ethernet Switching Modules**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-X6148-GE-TX</b> 48-port 10/100/1000 Ethernet module	2.47	104.0	130.0	443.0	139.0	476.0
<b>WS-X6148V-GE-TX</b> 48-port 10/100/1000 Ethernet module with WS-F6K-VPWR-GE PoE daughter card	2.89	121.38	151.72	518.14	163.15	557.14
<b>WS-X6148-GE-45AF</b> 48-port 10/100/1000 Ethernet module with WS-F6K-GE48-AF PoE daughter card	2.65	111.30	139.13	475.11	149.60	510.87
<b>WS-X6148A-GE-TX</b> 48-port 10/100/1000 Ethernet module	2.5	105.0	131.25	448.22	141.13	481.96
<b>WS-X6148A-GE-45AF</b> 48-port 10/100/1000 Ethernet module with WS-F6K-GE48-AF PoE daughter card	2.68	112.56	140.70	480.49	151.29	516.66
<b>WS-X6516-GE-TX</b> 16-port 10/100/1000 Ethernet module	3.45	144.90	181.13	618.54	194.76	665.10
<b>WS-X6548-GE-TX</b> 48-port 10/100/1000 Ethernet module	2.98	125.16	156.45	534.28	168.23	574.49
<b>WS-X6548V-GE-TX</b> 10/100/1000 Ethernet module with WS-F6K-VPWR-GE PoE daughter card	3.40	142.80	178.50	609.58	191.94	655.46
<b>WS-X6548-GE-45AF</b> 48-port 10/100/1000 Ethernet module with WS-F6K-GE48-AF PoE daughter card	3.16	132.72	165.90	566.55	178.39	609.19
<b>WS-X6748-GE-TX</b> 10/100/1000 Ethernet module	7.00	294.00	367.50	1255.01	395.16	1349.48

Table D-10 lists the power and the heat numbers for the Fast Ethernet switching modules.

**Table D-10 Power Requirements and Heat Dissipation—Fast Ethernet Switching Modules**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-X6148-FE-SFP</b> 48-port 100BASE-X module	2.3	96.60	120.75	412.36	129.84	443.40
<b>WS-X6224-100FX-MT</b> 24-port 100BASE-FX Ethernet module, MMF	1.90	79.8	99.75	340.65	107.26	366.3
<b>WS-X6324-100FX-MM</b> 24-port 100BASE-FX Ethernet module, MMF	1.52	63.84	79.8	272.52	85.81	293.03
<b>WS-X6324-100FX-SM</b> 24-port 100BASE-FX Ethernet module, SMF	1.52	63.84	79.8	272.52	85.81	293.03
<b>WS-X6524-100FX-MM</b> 24-port 100BASE-FX Ethernet module	1.90	79.8	99.75	340.65	107.3	366.3

Table D-11 lists the power and the heat numbers for the 10/100 Ethernet switching modules.

**Table D-11 Power Requirements and Heat Dissipation—10/100 Ethernet Switching Modules**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-X6148-RJ-21</b> 48-port 10/100 Ethernet module	2.39	100.38	125.48	428.5	134.92	460.75
<b>WS-X6148-RJ21V</b> 48-port 10/100 Ethernet module with WS-F6K-VPWR PoE daughter card	2.39	100.38	125.48	428.50	134.02	460.75
<b>WS-X6148-21AF</b> 48-port 10/100 Ethernet module with WS-F6K-FE48-AF PoE daughter card	2.57	107.94	134.93	460.77	145.08	495.45
<b>WS-X6148-RJ-45</b> 48-port 10/100 Ethernet module	2.39	100.38	125.48	428.50	134.92	460.75
<b>WS-X6148-RJ45V</b> 48-port 10/100 Ethernet module with WS-F6K-VPWR PoE daughter card	2.39	100.38	125.48	428.50	134.92	460.75

Table D-11 Power Requirements and Heat Dissipation—10/100 Ethernet Switching Modules (continued)

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-X6148-45AF</b> 48-port 10/100 Ethernet module with WS-F6K-FE48-AF PoE daughter card	2.57	107.94	134.93	460.77	145.08	495.45
<b>WS-X6148A-RJ-45</b> 48-port 10/100 Ethernet module	1.00	42.0	52.5	179.29	56.45	192.78
<b>WS-X6148A-45AF</b> 48-port 10/100 Ethernet module	2.57	107.94	134.93	460.77	145.08	495.45
<b>WS-X6148X2-RJ-45</b> 96-port 10/100 Ethernet module	2.65	111.30	139.13	475.11	149.60	510.87
<b>WS-X6148X2-45AF</b> 96-port 10/100 Ethernet module with WS-F6K-FE48X2-AF PoE daughter card	3.07	128.94	161.18	550.41	173.31	591.84
<b>WS-X6196-RJ-21</b> 96-port 10/100 Ethernet module	2.74	115.08	143.85	491.25	154.68	528.22
<b>WS-X6196-21AF</b> 96-port 10/100 Ethernet module with WS-F6K-FE48X2-AF PoE daughter card	3.16	132.72	165.90	566.55	178.39	609.19
<b>WS-X6248A-TEL</b> 48-port 10/100 Ethernet module (telco)	2.69	113	141.23	482.28	151.85	518.58
<b>WS-X6348-RJ21V</b> 48-port 10/100 Ethernet module with WS-F6K-VPWR PoE daughter card	2.39	100.38	125.48	428.5	134.92	460.75
<b>WS-X6348-RJ-45</b> 48-port 10/100 Ethernet module	2.39	100.38	125.48	428.5	134.92	460.75
<b>WS-X6348-RJ-45V</b> 48-port 10/100 Ethernet module with WS-F6K-VPWR PoE daughter card	2.39	100.38	125.48	428.5	134.92	460.75
<b>WS-X6548-RJ-21</b> 48-port 10/100 Ethernet module	2.90	121.80	152.25	519.93	163.71	559.07
<b>WS-X6548-RJ-45</b> 48-port 10/100 Ethernet module	2.90	121.80	152.25	519.93	163.71	559.07

Table D-12 lists the power and the heat numbers for the 10BASE Ethernet switching modules.

**Table D-12 Power Requirements and Heat Dissipation—10BASE Ethernet Switching Modules**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-X6024-10FL-MT</b> 24-port 10BASE-FL Ethernet module	1.52	63.84	79.8	272.52	85.81	293.0

Table D-13 lists the power and the heat numbers for the FlexWAN and the enhanced FlexWAN modules.

**Table D-13 Power Requirements and Heat Dissipation—FlexWAN and Enhanced FlexWAN Modules**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-X6182-2PA</b> FlexWAN module	2.38	99.96	125	426.7	134.35	458.82
<b>WS-X6582-2PA</b> Enhance FlexWAN module	2.50	105.00	131.25	448.22	141.13	481.96

Table D-14 lists the power and the heat numbers for the available service modules.

**Table D-14 Power Requirements and Heat Dissipation—Service Modules**

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>ACE10-6500-K9</b> Applications Control Engine (ACE) module	5.23	219.66	274.58	937.67	295.24	1008.25
<b>WS-SVC-ADM-1-K9</b> Traffic Anomaly Detector Module	4.00	168.00	210.00	717.15	225.81	771.13
<b>WS-SVC-AGM-1-K9</b> Anomaly Guard Module	4.00	168.00	210.00	717.15	225.81	771.13
<b>WS-SVC-AON-1-K9</b> Application-Oriented Networking (AON) module	4.00	168.00	210.00	717.15	225.81	771.31
<b>WS-SVC-CMM</b> Communications Media Module	6.00	252.0	315.0	1075.73	338.71	1156.69

Table D-14 Power Requirements and Heat Dissipation—Service Modules (continued)

Model Number/ Module Type	Module Current (A)	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-SVC-CSG-1</b> Content Services Gateway module	3.00	126.0	157.5	537.86	169.35	578.35
<b>WS-SVC-FWM-1-K9</b> Firewall Services Module	4.09	171.78	214.73	733.29	230.89	788.48
<b>WS-SVC-IDS2-K9</b> Intrusion Detection System Module 2	2.50	105.00	131.25	448.22	141.13	481.96
<b>WS-SVC-IPSEC-1</b> IPSec VPN Services module	1.89	79.38	99.23	338.85	106.69	364.36
<b>WS-SVC-MWAM-1</b> Multiprocessor WAN Application Module	3.57	149.94	187.43	640.06	201.53	688.23
<b>WS-SVC-NAM-1</b> Network Analysis Module 1	2.89	121.38	151.73	518.14	163.15	557.14
<b>WS-SVC-NAM-2</b> Network Analysis Module 2	3.47	145.74	182.18	622.13	195.89	668.95
<b>WS-SVC-PSD-1</b> Persistent Storage Device module	4.00	168.0	210.0	717.15	225.81	771.13
<b>WS-SVC-WEBVPN-K9</b> WebVPN Services module	2.94	123.48	154.35	527.11	165.97	566.78
<b>WS-SVC-WISM-1-K9</b> Wireless Services Module (WiSM)	6.07	254.94	318.68	1088.25	342.66	1170.19
<b>WS-SVC-WLAN-1-K9</b> Wireless LAN Services module	3.10	130.20	162.75	555.79	175.0	597.63
<b>WS-X6066-SLB-S-K9</b> Content Switching module with SSL	2.15	90.30	112.88	385.47	121.37	414.48

Table D-15 lists the power and the heat numbers for miscellaneous modules.

**Table D-15 Power Requirements and Heat Dissipation—Miscellaneous Modules**

Model Number/ Module Type	Module Current (A) @ 42 VDC	Module Power (Watts)	AC		DC	
			AC-Input Power (Watts)	Heat Diss. (BTU/HR)	DC-Input Power (Watts)	Heat Diss. (BTU/HR)
<b>WS-X6066-SLB-APC</b> Content Switching Module	3.0	126.0	157.5	537.9	169.35	578.35
<b>WS-X6101-OC12-SMF</b> <b>WS-X6101-OC12-MMF</b> 1-port ATM module	2.10	88.2	110.3	376.5	118.5	404.8
<b>WS-X6302-MSM</b> Multilayer Switch Module	5.20	218.4	273	932.3	293.55	1002.47
<b>WS-X6380-NAM</b> Network Analysis Module	1.31	55.02	68.78	234.87	73.95	252.54
<b>WS-X6608-T1/E1</b> 8-Port T1/E1 PSTN interface module	1.98	83.16	103.95	355	111.77	381.71
<b>WS-X6624-FXS</b> 24-Port FXS analog interface module	1.54	64.68	80.85	267.10	86.94	296.88

