



APPENDIX **A**

Port Pinouts, Environmental Specifications, and Power Consumption Information

This appendix provides cable and technical specifications for Catalyst 4500 series switches.

Supervisor Engine Ethernet Management Port

The Supervisor Engine I has a 10BASE-T Ethernet management port. The Supervisor Engine II, II-Plus, II-Plus TS, III, and IV have a 10/100BASE-T Ethernet management port. All supervisor engine Ethernet management ports have DTE RJ-45 receptacles and an LED labeled STATUS. [Table A-1](#) lists the Ethernet management port pinouts for the Catalyst 4500 series switches.

Table A-1 *Catalyst 4500 Series Supervisor Engine Management Port Pinouts*

| Pin | Signal | Direction | Definition |
|-----|--------|-----------|---------------|
| 1 | RXDP | Input | Receive data |
| 2 | RXDN | Input | Receive data |
| 3 | TXDP | Output | Transmit data |
| 4 | Unused | | |
| 5 | Unused | | |

Table A-1 Catalyst 4500 Series Supervisor Engine Management Port Pinouts (continued)

| Pin | Signal | Direction | Definition |
|-----|--------|-----------|---------------|
| 6 | TXDN | Output | Transmit data |
| 7 | Unused | | |
| 8 | Unused | | |

Unless directed to by a Cisco technical support representative, do not attempt to connect to the management port.

Supervisor Engine I Console Port

The console port on the Supervisor Engine I uses a DCE DB-25 (EIA/TIA-232) connector and supports DTR, DSR, CTS, and RTS handshake signals, and unbalanced circuits at signal speeds of up to 64 kbps. [Table A-2](#) lists the Supervisor Engine I console port pinouts.

Table A-2 Supervisor Engine I Console Port Pinouts

| Pin | Signal | Direction | Definition |
|-----|--------|-----------|---------------------|
| 1 | Ground | | |
| 2 | RXD | Input | Receive data |
| 3 | TXD | Output | Transmit data |
| 4 | CTS | Input | Clear to send |
| 5 | RTS | Output | Request to send |
| 7 | Ground | | |
| 8 | DTR | Output | Data terminal ready |
| 20 | DSR | Input | Data set ready |

Use a null modem cable to connect the switch to a remote DCE device, such as a modem or a DSU. Use a straight-through cable to connect the switch to a DTE device, such as a terminal or a PC.

Supervisor Engine Console Port

The console port on the Supervisor Engines uses an RJ-45 connector and supports DTR and DSR handshake signals. [Table A-3](#) lists the console port pinouts.

Table A-3 *Supervisor Engine II, III, II-Plus, II-Plus TS, IV and V Console Port Pinouts*

| Pin | Signal | Direction | Definition |
|-----|--------|-----------|---------------------|
| 1 | RTS | Output | Request to send |
| 2 | DTR | Output | Data terminal ready |
| 3 | TXD | Output | Transmit data |
| 4 | Ground | | |
| 5 | Ground | | |
| 6 | RXD | Input | Receive data |
| 7 | DSR | Input | Data set ready |
| 8 | CTS | Input | Clear to send |

Use the RJ-45-to-RJ-45 rollover cable and RJ-45-to-DB-9 female DTE adapter (with the label “Terminal”) to connect the console port to a PC that runs terminal emulation software. If you use a direct console connection, configure your terminal emulation program for 9600 baud, 8 data bits, no parity, and 1 stop bit.

Switching Module Specifications

[Table A-4](#) provides specifications for the Catalyst 4500 series switching modules.

Table A-4 *Switching Module Specifications*

| Item | Specification |
|---------------------------------|--|
| Physical Characteristics | |
| Dimensions (H x W x D) | 1.75 x 14.4 x 10.5 in. (44 x 366 x 267 mm) |
| Weight | 4.8 lb (2.2 kg) |

Switching Module Specifications

Table A-4 Switching Module Specifications (continued)

| Item | Specification |
|--------------------------|----------------------------|
| Environmental | |
| Operating temperature | 32 to 104°F (0 to 40°C) |
| Nonoperating temperature | -40 to 167°F (-40 to 75°C) |
| Humidity, noncondensing | 10 to 90% |

Refer to the most recent software release notes for the minimum and recommended software version for each module.

Table A-5 and Table A-6 provide power consumption and thermal output specifications for modules, supervisor engines, and Catalyst 4500 series chassis in AC and DC based systems.

Table A-5 AC and DC Power Information and Heat Dissipation Specifications

| Module Type/ Model Number | AC or DC Input Power (W) | DC Output Power (W) | Reset Mode (W) | Heat Dissi- pation (BTU/Hr) | Input Current at 90 VAC (A) | Input Current at 120 VAC (A) | Input Current at 180 VAC (A) | Input Current at 240 VAC (A) |
|---|--------------------------------------|------------------------------|----------------------|--------------------------------------|--------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Catalyst 4503 chassis (with fans) | 53 | 40 | — | 182 | 0.59 | 0.44 | 0.30 | 0.22 |
| Catalyst 4506 chassis (with fans) | 67 | 50 | — | 227 | 0.74 | 0.56 | 0.37 | 0.28 |
| Catalyst 4507R chassis (with fans) | 120 | 90 | — | 409 | 1.33 | 1.00 | 0.67 | 0.50 |
| Catalyst 4510R chassis (with fans) | 160 | 110 | — | 546 | 1.73 | 1.34 | 0.97 | 0.90 |
| Catalyst 4503-E chassis (with fans) | 80 | 60 | — | 273 | 0.89 | 0.67 | 0.44 | 0.33 |
| Catalyst 4506- E chassis (with fans) | 160 | 120 | — | 546 | 1.78 | 1.33 | 0.89 | 0.67 |
| Catalyst 4507R-E chassis (with fans) | 180 | 135 | — | 614 | 2.00 | 1.50 | 1.00 | 0.75 |

Table A-5 AC and DC Power Information and Heat Dissipation Specifications (continued)

| Module Type/ Model Number | AC or DC Input Power (W) | DC Output Power (W) | Reset Mode (W) | Heat Dissi- pation (BTU/Hr) | Input Current at 90 VAC (A) | Input Current at 120 VAC (A) | Input Current at 180 VAC (A) | Input Current at 240 VAC (A) |
|--|--------------------------------------|------------------------------|----------------------|--------------------------------------|--------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Catalyst 4510R-E chassis (with fans) | 267 | 200 | — | 909 | 2.96 | 2.22 | 1.48 | 1.11 |
| Supervisor Engine I (WS-X4012) | 93 | 70 | 70 | 318 | 1.04 | 0.78 | 0.52 | 0.39 |
| Supervisor Engine II (WS-X4013) | 147 | 110 | 110 | 500 | 1.63 | 1.22 | 0.81 | 0.61 |
| Supervisor Engine II-plus (WS-X4013+) | 147 | 110 | 110 | 500 | 1.63 | 1.22 | 0.81 | 0.61 |
| Supervisor Engine II-plus TS (WS-X4013+TS) | 181 + PoE | 136 | 136 | 618 | 2.01 | 1.51 | 1.01 | 0.76 |
| Supervisor Engine II-plus 10 GE (WS-X4013+10 GE) | 173 | 130 | 80 | 591 | 1.93 | 1.44 | 0.96 | 0.72 |
| Supervisor Engine III (WS-X4014) | 147 | 110 | 110 | 500 | 1.63 | 1.22 | 0.81 | 0.61 |
| Supervisor Engine IV (WS-X4515) | 193 | 145 | 110 | 659 | 2.15 | 1.61 | 1.07 | .81 |
| Supervisor Engine V (WS-X4516) | 200 | 150 | 53 | 682 | 2.22 | 1.67 | 1.11 | 0.84 |
| Supervisor Engine V 10 GE (WS-X4516-10GE) | 173 | 130 | 80 | 591 | 1.93 | 1.44 | 0.96 | 0.72 |
| WS-X4124-RJ45 | 23 | 17 | 10 | 77 | 0.25 | 0.73 | 0.48 | 0.36 |
| WS-X4124-FX-MT | 120 | 90 | 75 | 409 | 1.33 | 1.00 | 0.67 | 0.50 |
| WS-X4148-FX-MT | 160 | 120 | 10 | 546 | 1.78 | 1.33 | 0.89 | 0.67 |
| WS-X4148-RJ | 87 | 65 | 40 | 296 | 0.96 | 0.72 | 0.48 | 0.36 |

Switching Module Specifications

Table A-5 AC and DC Power Information and Heat Dissipation Specifications (continued)

| Module Type/ Model Number | AC or DC Input Power (W) | DC Output Power (W) | Reset Mode (W) | Heat Dissi- pation (BTU/Hr) | Input Current at 90 VAC (A) | Input Current at 120 VAC (A) | Input Current at 180 VAC (A) | Input Current at 240 VAC (A) |
|------------------------------|--------------------------------------|------------------------------|----------------------|--------------------------------------|--------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| WS-X4148-FE-BD-LC | 117 | 88 | 10 | 400 | 1.30 | 0.98 | 0.65 | 0.49 |
| WS-X4148-FE-LX-MT | 153 | 115 | 10 | 523 | 1.70 | 1.28 | 0.85 | 0.64 |
| WS-X4148-RJ21 | 87 | 65 | 40 | 296 | 0.96 | 0.72 | 0.48 | 0.36 |
| WS-X4148-RJ45V | 80 | 60 | 50 | 273 | 0.89 | 0.67 | 0.44 | 0.33 |
| WS-X4224-RJ45V | 23 | 17 | 10 | 77 | 0.89 | 0.67 | 0.44 | 0.33 |
| WS-X4248-RJ21V | 100 | 72 | 30 | 341 | 1.11 | 0.83 | 0.56 | 0.42 |
| WS-X4248-RJ45V | 80 | 60 | 25 | 273 | 0.89 | 0.67 | 0.44 | 0.33 |
| WS-4248-FE-SFP | 108 | 81 | 20 | 368 | 1.20 | 0.90 | 0.60 | 0.45 |
| WS-X4232-GB-RJ | 73 | 55 | 35 | 250 | 0.81 | 0.61 | 0.41 | 0.31 |
| WS-X4232-L3 | 160 | 120 | 60 | 546 | 1.78 | 1.33 | 0.89 | 0.67 |
| WS-X4232-RJ-XX | 67 | 50 | 35 | 227 | 0.74 | 0.56 | 0.37 | 0.28 |
| WS-U4504-FX-MT | 13 | 10 | 10 | 45 | 0.15 | 0.11 | 0.07 | 0.06 |
| WS-X4302-GB | 47 | 35 | 30 | 159 | 0.52 | 0.39 | 0.26 | 0.19 |
| WS-X4306-GB | 47 | 35 | 30 | 159 | 0.52 | 0.39 | 0.26 | 0.19 |
| WS-X4506-GB-T | 40 | 30 | 20 | 136 | 0.44 | 0.33 | 0.22 | 0.17 |
| WS-X4412-2GB-T | 147 | 110 | 70 | 500 | 1.63 | 1.22 | 0.81 | 0.61 |
| WS-X4418-GB | 107 | 80 | 50 | 364 | 1.19 | 0.89 | 0.59 | 0.44 |
| WS-X4424-GB-RJ45 | 120 | 90 | 50 | 409 | 1.33 | 1.00 | 0.67 | 0.50 |
| WS-X4448-GB-LX | 120 | 90 | 30 | 409 | 1.33 | 1.00 | 0.67 | 0.50 |
| WS-X4448-GB-RJ45 | 160 | 120 | 72 | 546 | 1.78 | 1.33 | 0.89 | 0.67 |
| WS-X4524-GB-RJ45V | 47 | 35 | 20 | 159 | 0.52 | 0.39 | 0.26 | 0.19 |
| WS-X4548-GB-RJ45 | 80 | 60 | 30 | 273 | 0.89 | 0.67 | 0.45 | 0.34 |
| WS-X4448-GB-SFP | 120 | 90 | 30 | 409 | 1.33 | 1.00 | 0.67 | 0.50 |
| WS-X4548-GB-RJ45V | 135 | 100 | 30 | 461 | 1.5 | 1.13 | .75 | 0.56 |

Table A-5 AC and DC Power Information and Heat Dissipation Specifications (continued)

| Module Type/ Model Number | AC or DC Input Power (W) | DC Output Power (W) | Reset Mode (W) | Heat Dissi- pation (BTU/Hr) | Input Current at 90 VAC (A) | Input Current at 120 VAC (A) | Input Current at 180 VAC (A) | Input Current at 240 VAC (A) |
|--------------------------------------|---|--|-------------------------------|--|--|---|---|---|
| WS-X4604-GWY | 160 | 120 | 60 | 546 | 1.78 | 1.33 | 0.89 | 0.67 |
| WS-X 4019 | 13 | 10 | 10 | 45 | 0.15 | 0.11 | 0.07 | 0.06 |
| E-series | | | | | | | | |
| WS-X45-SUP6-E | 347 | 200 | 200 | 1182 | 3.85 | 2.89 | 1.93 | 1.44 |
| WS-X45-SUP6L-E | 267 | 200 | 80 | 909 | 2.96 | 2.22 | 1.48 | 1.11 |
| WS-X45-SUP6-E (standby) | 247 | 185 | 135 | 841 | 2.74 | 2.06 | 1.37 | 1.03 |
| WS-X45-SUP6L-E (standby) | 200 | 165 | 80 | 750 | 2.44 | 1.83 | 1.22 | 0.92 |
| WS-X4606-X2-E | 173 | 130 | 80 | 227 | 0.74 | 0.56 | 0.37 | 0.28 |
| WS-X4624-SFP-E | 60 | 45 | 12 | 205 | 0.67 | 0.50 | 0.33 | 0.25 |
| WS-X4648-RJ45V-E | 123 | 92 | 10 | 418 | 1.36 | 1.02 | 0.68 | 0.51 |
| WS-X4648-RJ45V+E | 123 | 92 | 10 | 418 | 1.36 | 1.02 | 0.68 | 0.51 |

Table A-6 DC Power Requirements and Heat Dissipation Specifications

| Model Number/ Module Type | DC Input Power (W) | DC Output Power (W) | Heat Dissipation (BTU/Hr) | Input Current at -40 VDC (A) | Input Current at -48 VDC (A) | Input Current at -52 VDC (A) | Input Current at -58 VDC (A) |
|---------------------------------------|---------------------------------------|--|--|---|---|---|---|
| Catalyst 4503 chassis (with fans) | 53 | 40 | 182 | 1.33 | 1.11 | 1.03 | 0.92 |
| Catalyst 4506 chassis (with fans) | 67 | 50 | 227 | 1.67 | 1.39 | 1.28 | 1.15 |
| Catalyst 4507R chassis (with fans) | 120 | 90 | 409 | 3.00 | 2.50 | 2.31 | 2.07 |

Switching Module Specifications

Table A-6 DC Power Requirements and Heat Dissipation Specifications (continued)

| Model Number/ Module Type | DC Input Power (W) | DC Output Power (W) | Heat Dissipation (BTU/Hr) | Input Current at -40 VDC (A) | Input Current at -48 VDC (A) | Input Current at -52 VDC (A) | Input Current at -58 VDC (A) |
|---|-----------------------------|------------------------------|---------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Catalyst 4510R chassis (with fans) | 160 | 110 | 546 | 4.00 | 3.33 | 3.08 | 2.76 |
| Catalyst 4503-E chassis (with fans) | 80 | 60 | 273 | 1.90 | 1.67 | 1.54 | 1.38 |
| Catalyst 4506-E chassis (with fans) | 160 | 120 | 546 | 3.81 | 3.33 | 3.08 | 2.76 |
| Catalyst 4507R-E chassis (with fans) | 180 | 135 | 614 | 4.29 | 3.75 | 3.46 | 3.10 |
| Catalyst 4510R-E chassis (with fans) | 276 | 200 | 909 | 6.35 | 5.56 | 5.13 | 4.60 |
| Supervisor Engine I (WS-X4012) | 93 | 70 | 318 | 2.33 | 1.94 | 1.79 | 1.61 |
| Supervisor Engine II (WS-X4013) | 147 | 110 | 500 | 3.67 | 3.06 | 2.82 | 2.53 |
| Supervisor Engine II-plus (WS-X4013+) | 147 | 110 | 500 | 3.49 | 3.06 | 2.82 | 2.53 |
| Supervisor Engine II-plus TS (WS-X4013+TS) | 181 + PoE | 136 | 618 | 4.32 | 3.78 | 3.49 | 3.13 |
| Supervisor Engine II-plus 10 GE (WS-X4013+10 GE) | 173 | 130 | 591 | 4.13 | 3.61 | 3.33 | 2.99 |
| Supervisor Engine III (WS-X4014) | 147 | 110 | 500 | 3.67 | 3.06 | 2.82 | 2.53 |
| Supervisor Engine IV (WS-X4515) | 193 | 145 | 659 | 4.83 | 4.03 | 3.72 | 3.33 |
| Supervisor Engine V (WS-X4516) | 200 | 150 | 682 | 5.00 | 4.17 | 3.85 | 3.45 |
| Supervisor Engine V 10 GE (WS-X4516-10GE) | 173 | 130 | 591 | 4.13 | 3.61 | 3.33 | 2.99 |

Table A-6 DC Power Requirements and Heat Dissipation Specifications (continued)

| Model Number/ Module Type | DC Input Power (W) | DC Output Power (W) | Heat Dissipation (BTU/Hr) | Input Current at -40 VDC (A) | Input Current at -48 VDC (A) | Input Current at -52 VDC (A) | Input Current at -58 VDC (A) |
|------------------------------|-----------------------------|------------------------------|---------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| WS-X4124-RJ45 | 23 | 17 | 10 | 0.54 | 0.47 | 0.44 | 0.39 |
| WS-X4124-FX-MT | 120 | 90 | 409 | 3.00 | 2.50 | 2.31 | 2.07 |
| WS-X4148-FX-MT | 160 | 120 | 546 | 4.00 | 3.33 | 3.08 | 2.76 |
| WS-X4148-RJ | 87 | 65 | 296 | 2.17 | 1.81 | 1.67 | 1.49 |
| WS-X4148-FE-BD-LC | 117 | 88 | 10 | 2.79 | 2.44 | 2.26 | 2.02 |
| WS-X4148-FE-LX-MT | 153 | 115 | 523 | 3.65 | 3.19 | 2.95 | 2.64 |
| WS-X4148-RJ21 | 87 | 65 | 296 | 2.17 | 1.81 | 1.67 | 1.49 |
| WS-X4148-RJ45V | 80 | 60 | 273 | 2.00 | 1.67 | 1.54 | 1.38 |
| WS-X4224-RJ45V | 23 | 17 | 77 | 0.54 | 0.47 | 0.44 | 0.39 |
| WS-X4248-RJ21V | 100 | 72 | 341 | 2.5 | 2.08 | 1.92 | 1.72 |
| WS-X4248-RJ45V | 100 | 72 | 341 | 2.5 | 2.08 | 1.92 | 1.72 |
| WS-4248-FE-SFP | 108 | 81 | 368 | 2.57 | 2.25 | 2.08 | 1.86 |
| WS-X4232-GB-RJ | 73 | 55 | 250 | 1.83 | 1.53 | 1.41 | 1.26 |
| WS-X4232-L3 | 160 | 120 | 546 | 4.00 | 3.33 | 3.08 | 2.76 |
| WS-X4232-RJ-XX | 67 | 50 | 227 | 1.67 | 1.39 | 1.28 | 1.15 |
| WS-X4302-GB | 47 | 35 | 159 | 1.17 | 0.97 | 0.90 | 0.81 |
| WS-X4306-GB | 47 | 35 | 159 | 1.18 | 0.98 | 0.90 | 0.80 |
| WS-X4506-GB-T | 40 | 30 | 20 | 0.95 | 0.83 | 0.77 | 0.69 |
| WS-X4412-2GB-T | 147 | 110 | 500 | 3.67 | 3.06 | 2.82 | 2.53 |
| WS-X4418-GB | 107 | 80 | 364 | 2.67 | 2.22 | 2.05 | 1.84 |
| WS-X4424-GB-RJ45 | 120 | 90 | 409 | 3.00 | 2.50 | 2.31 | 2.07 |
| WS-X4448-GB-LX | 120 | 90 | 409 | 3.00 | 2.50 | 2.31 | 2.07 |
| WS-X4448-GB-RJ45 | 160 | 120 | 546 | 4.00 | 3.33 | 3.08 | 2.76 |
| WS-X4524-GB-RJ45V | 47 | 35 | 159 | 1.11 | 0.97 | 0.90 | 0.80 |
| WS-X4548-GB-RJ45 | 80 | 60 | 273 | 2.00 | 1.67 | 1.34 | 1.38 |

Switching Module Specifications

Table A-6 DC Power Requirements and Heat Dissipation Specifications (continued)

| Model Number/ Module Type | DC Input Power (W) | DC Output Power (W) | Heat Dissipation (BTU/Hr) | Input Current at -40 VDC (A) | Input Current at -48 VDC (A) | Input Current at -52 VDC (A) | Input Current at -58 VDC (A) |
|------------------------------|-----------------------------|------------------------------|---------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| WS-X4548-GB-SPF | 120 | 90 | 409 | 3.00 | 2.50 | 2.31 | 2.07 |
| WS-X4548-GB-RJ45V | 135 | 100 | 461 | 3.38 | 2.81 | 2.6 | 2.33 |
| WS-X4604-GWY | 160 | 120 | 546 | 4.00 | 3.33 | 3.08 | 2.76 |
| WS-X4019 | 13 | 10 | 45 | 0.33 | 0.28 | 0.26 | 0.23 |
| WS-U4504-FX-MT | 13 | 10 | 45 | 0.33 | 0.28 | 0.26 | 0.23 |
| E-Series | | | | | | | |
| WS-X45-SUP6-E | 347 | 200 | 1182 | 8.25 | 7.22 | 6.67 | 5.98 |
| WS-X45-SUP6L-E | 267 | 200 | 909 | 6.35 | 5.56 | 5.13 | 4.60 |
| WS-X45-SUP6-E (standby) | 247 | 185 | 841 | 5.87 | 5.14 | 4.74 | 4.25 |
| WS-X45-SUP6L-E (standby) | 200 | 165 | 750 | 5.24 | 4.58 | 4.23 | 3.79 |
| WS-X4606-X2-E | 66.67 | 130 | 227 | 1.59 | 1.39 | 1.28 | 1.15 |
| WS-X4624-SFP-E | 60.00 | 45 | 205 | 1.43 | 1.25 | 1.15 | 1.03 |
| WS-X4648-RJ45V-E | 122.67 | 92 | 418 | 2.92 | 2.56 | 2.31 | 2.07 |
| WS-X4648-RJ45V+E | 122.67 | 92 | 418 | 2.92 | 2.56 | 2.36 | 2.11 |

Serial Number Locations

The serial number locations for supervisor engines are shown in [Figure A-1](#). The serial number locations for Gigabit Ethernet switching modules are shown in [Figure A-2](#). The serial number locations for PoE switching modules are shown in [Figure A-3](#). The serial number locations for Ethernet/FastEthernet switching modules are shown in [Figure A-4](#).

Figure A-1 Supervisor Engine Serial Number Locations

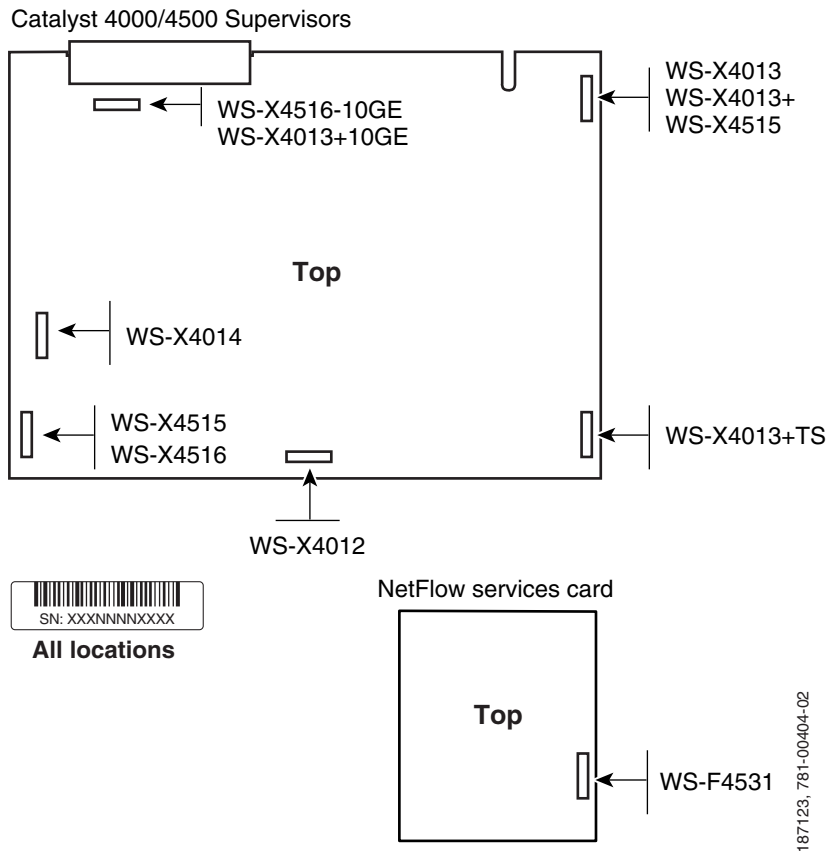


Figure A-2 Gigabit Ethernet Module Serial Number Locations

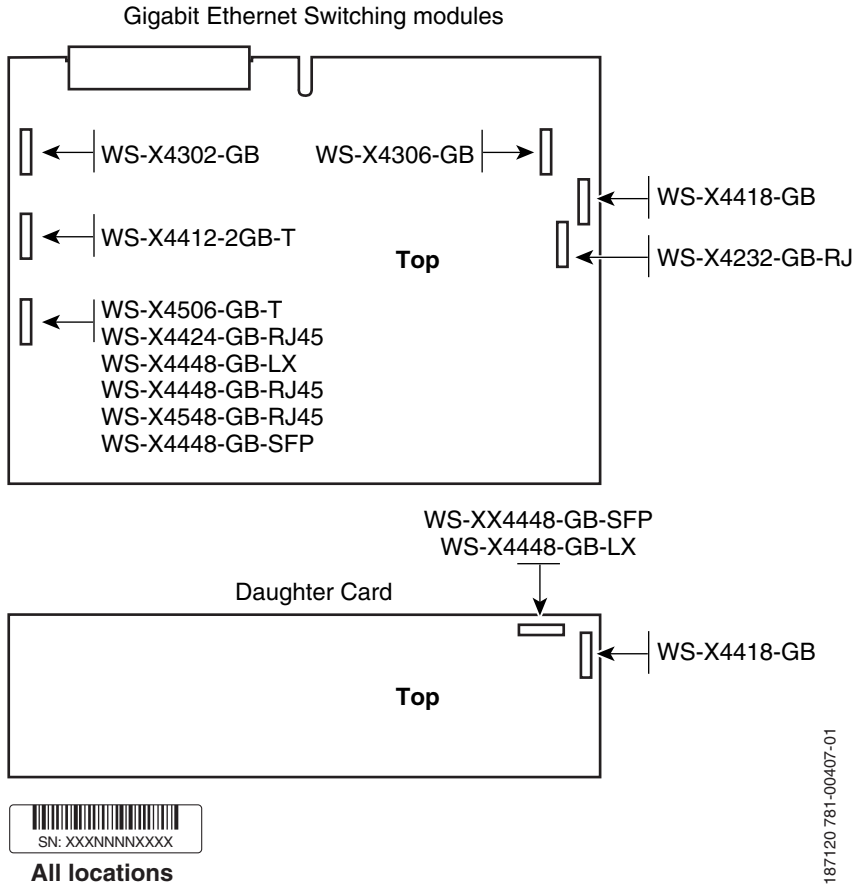


Figure A-3 Power over Ethernet Module Serial Number Locations

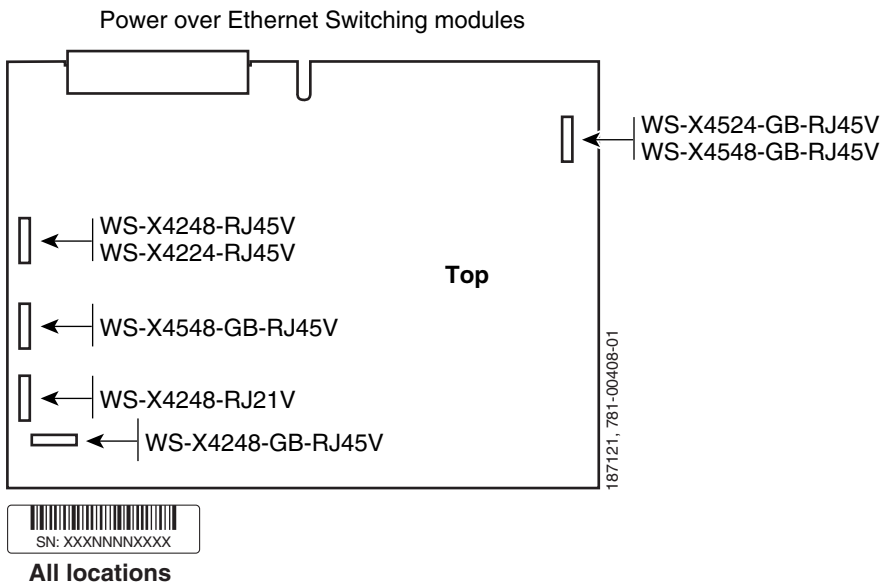
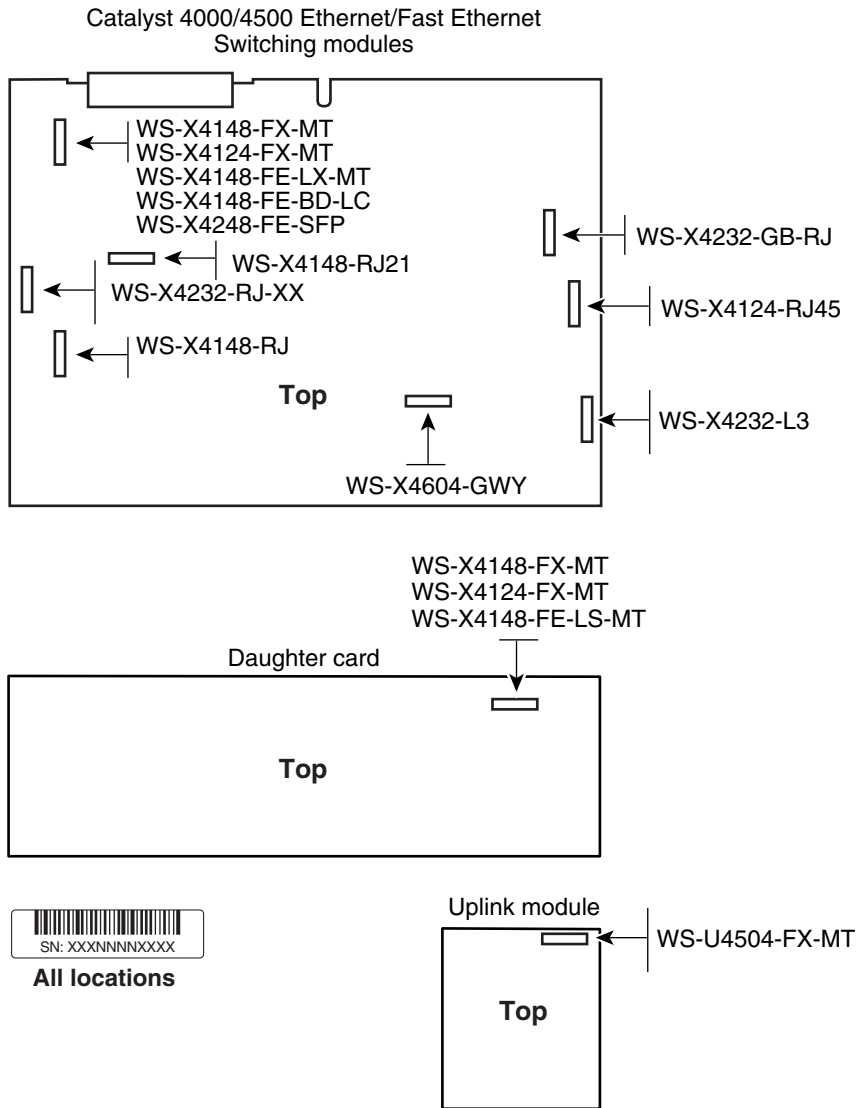


Figure A-4 Ethernet/FastEthernet Module Serial Number Locations



187122, 781-00405-02