



APPENDIX **A**

Ethernet Module Daughter Cards

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This appendix describes the daughter cards that are available for installation on certain Catalyst 6500 series Ethernet modules. The daughter cards are divided into two groups: Power over Ethernet (PoE) daughter cards and Distributed Forwarding Card (DFC) daughter cards.

PoE Daughter Cards

The PoE daughter cards can be installed either at the factory or in the field on select 10/100 and 10/100/1000 Ethernet switching modules to upgrade the Ethernet switching modules to provide inline power support, which allows the system to power inline devices, such as IP phones, video phones, and wireless access points, over standard copper cabling. There are six PoE daughter cards available for installation on Catalyst 6500 series modules. [Table A-1](#) lists the PoE daughter cards and provides a brief description of their usage.

Table A-1 PoE Daughter Card Support

PoE Daughter Card	Description	Supported on Ethernet Module	Maximum Power per Port (Watts)
WS-F6K-VPWR=	<p>Cisco prestandard PoE daughter card for 10/100 and 10/100/1000 Ethernet modules. Provides 48 VDC over Category 5, Category 5e, or Category 6 UTP cable up to 328 feet (100 meters).</p> <p>Note The WS-F6K-VPWR and WS-F6K-VPWR-GE PoE daughter cards are not interchangeable between Ethernet modules.</p>	<ul style="list-style-type: none">• WS-X6148-RJ-21• WS-X6148-RJ-21V¹• WS-X6148-RJ-45• WS-X6148-RJ-45V¹• WS-X6348-RJ-21V¹• WS-X6348-RJ-45• WS-X6348-RJ-45V¹	6.3

Table A-1 PoE Daughter Card Support (continued)

PoE Daughter Card	Description	Supported on Ethernet Module	Maximum Power per Port (Watts)
WS-F6K-VPWR-GE=	Prestandard PoE daughter card for 10/100 and 10/100/1000 Ethernet modules. Provides 48 VDC over Category 5, Category 5e, or Category 6 UTP cable up to 328 feet (100 meters). Note The WS-F6K-VPWR and WS-F6K-VPWR-GE PoE daughter cards are not interchangeable between Ethernet modules.	<ul style="list-style-type: none"> • WS-X6148-GE-TX • WS-X6148V-GE-TX¹ • WS-X6548-GE-TX • WS-X6548V-GE-TX¹ 	6.3
WS-F6K-GE48-AF=	IEEE 802.3af-compliant PoE daughter card for 10/100 and 10/100/1000 Ethernet modules. Provides 48 VDC over Category 5, Category 5e, or Category 6 UTP cable up to 328 feet (100 meters).	<ul style="list-style-type: none"> • WS-X6148-GE-TX • WS-X6148-GE-45AF¹ • WS-X6148A-GE-TX • WS-X6148A-GE-45AF¹ • WS-X6548-GE-TX • WS-X6548-GE-45AF¹ 	15.4
WS-F6K-FE48X2-AF=	IEEE 802.3af-compliant PoE daughter card for 96-port 10/100 modules. Provides 48 VDC over Category 5, Category 5e, or Category 6 UTP cable up to 328 feet (100 meters).	<ul style="list-style-type: none"> • WS-X6148X2-RJ-45 • WS-X6148X2-45AF¹ • WS-X6196-RJ-21 • WS-X6196-21AF¹ 	15.4
WS-F6K-48-AF=	IEEE 802.3af-compliant PoE daughter card for 10/100 and 10/100/1000 Ethernet modules. Provides 48 VDC over Category 5, Category 5e, or Category 6 UTP cable up to 328 feet (100 meters).	<ul style="list-style-type: none"> • WS-X6148A-RJ-45 • WS-X6148-GE-TX • WS-X6148-GE-45AF¹ • WS-X6148A-GE-TX • WS-X6148A-GE-45AF¹ • WS-X6548-GE-TX • WS-X6548-GE-45AF¹ 	15.4
WS-F6K-48-AT	IEEE 802.af-compliant for the WS-X6148E-GE-45AT Ethernet module only. Provides 48 VDC over Category 5, Category 5e, or Category 6 UTP cable up to 328 feet (100 meters).	<ul style="list-style-type: none"> • WS-X4148E-GE-45AT¹ 	15.4

1. The base Ethernet module is shipped with the PoE daughter card factory installed.

Centralized and Distributed Forwarding Daughter Cards

The centralized forwarding card (CFC) and the distributed forwarding cards (DFC) can be installed on select Ethernet switching modules in the field to upgrade the modules to support local switching. There is one CFC and six DFC daughter cards available for installation on Catalyst 6500 series modules.

[Table A-2](#) lists the available CFC and DFC daughter cards, provides a brief description of the daughter card, and lists the modules that the daughter card is supported on.

Table A-2 CFC and DFC Daughter Card Descriptions

CFC and DFC Daughter Card	Description	Modules supported on	Memory	Power Required
WS-F6K-DFC	Distributed Forwarding Card (DFC) for use on CEF256-based modules (WS-X65xx and WS-X6816-GBIC Ethernet modules). This daughter card is supported only by the Supervisor Engine 2.	<ul style="list-style-type: none"> WS-X6516-GBIC WS-X6816-GBIC WS-X6516-GE-TX 	128 MB	2.10 A at 42 VDC
WS-F6K-DFC3A	Distributed Forwarding Card (DFC) for use on CEF256-based modules (WS-X65xx and WS-X6816-GBIC Ethernet modules). This daughter card is supported only by the Supervisor Engine 720.	<ul style="list-style-type: none"> WS-X6516-GBIC WS-X6816-GBIC 	512 MB (Memory is located on base module)	2.57 A at 42 VDC
WS-F6K-DFC3B	Distributed Forwarding Card 3B (DFC3B) for use on dCEF256 and CEF256 modules. This daughter card is supported only by the Supervisor Engine 720.	<ul style="list-style-type: none"> WS-X6516-GBIC WS-X6816-GBIC 	256 MB (Memory is located on base module)	1.67 A at 42 VDC
WS-F6K-DFC3BXL	Distributed Forwarding Card 3BXL (DFC3BXL) for use on dCEF256 and CEF256 modules. This daughter card is supported only by the Supervisor Engine 720.	<ul style="list-style-type: none"> WS-X6516-GBIC WS-X6816-GBIC 	1 GB (Memory is located on base module)	2.38 A at 42 VDC
WS-F6700-CFC	Centralized Forwarding Card (CFC) for use on WS-X67xx Ethernet modules. This daughter card is supported only by the Supervisor Engine 720. There are no memory options for this daughter card.	<ul style="list-style-type: none"> WS-X6704-10GE WS-X6724-SFP WS-X6748-SFP WS-X6748-GE-TX 	256 MB (Memory is located on base module)	0.75 A at 42 VDC

Table A-2 CFC and DFC Daughter Card Descriptions (continued)

CFC and DFC Daughter Card	Description	Modules supported on	Memory	Power Required
WS-F6700-DFC3A	The Distributed Forwarding Card (DFC) is for use on CEF720 modules. This daughter card is supported only by the Supervisor Engine 720.	<ul style="list-style-type: none"> WS-X6704-10GE WS-X6724-SFP WS-X6748-SFP WS-X6748-GE-TX 	256 MB (Memory is located on base module)	3.0 A at 42 VDC
WS-F6700-DFC3B	The Distributed Forwarding Card 3B (DFC3B) is for use on CEF720 modules. This daughter card is supported only by the Supervisor Engine 720.	<ul style="list-style-type: none"> WS-X6704-10GE WS-X6724-SFP WS-X6748-SFP WS-X6748-GE-TX 	256 MB (Memory is located on base module)	2.70 A at 42 VDC
WS-F6700-DFC3BXL	The Distributed Forwarding Card 3BXL (DFC3BXL) is for use on CEF720 modules. This daughter card is supported only by the Supervisor Engine 720.	<ul style="list-style-type: none"> WS-X6704-10GE WS-X6724-SFP WS-X6748-SFP WS-X6748-GE-TX 	1 GB ¹	3.30 A at 42 VDC
WS-F6700-DFC3C	The Distributed Forwarding Card 3C (DFC3C) is shipped as standard on the WS-X6708-10G-3C and the WS-X6716-10G-3C Ethernet modules. It is an option for all other CEF720 line cards beginning with Cisco IOS Release 12.2(33)SXH. This daughter card is supported only by the Supervisor Engine 720.	<ul style="list-style-type: none"> WS-X6704-10GE WS-X6708-10G-3C WS-X6716-10G-3C WS-X6716-10T-3C WS-X6724-SFP WS-X6748-SFP WS-X6748-GE-TX 	<ul style="list-style-type: none"> 512 MB² 1 GB 1 GB 1 GB 512 MB² 512 MB² 512 MB² 	1.65 A at 42 VDC
WS-F6700-DFC3CXL	The Distributed Forwarding Card 3CXL (DFC3CXL) is shipped standard on the WS-X6708-10G-3CXL and the WS-X6716-10G-3CXL Ethernet modules. It is an option for all other CEF720 line cards beginning with Cisco IOS Release 12.2(33)SXH. This daughter card is supported only by the Supervisor Engine 720.	<ul style="list-style-type: none"> WS-X6704-10GE WS-X6708-10G-3CXL WS-X6716-10G-3CXL WS-X6716-10T-3CXL WS-X6724-SFP WS-X6748-SFP WS-X6748-GE-TX 	<ul style="list-style-type: none"> 1 GB 	2.35 A at 42 VDC
WS-F6K-DFC4-A	The DFC4-A daughter card is shipped as standard on the WS-X6824-SFP-2T, WS-X6848-SFP-2T, and the WS-X6848-TX-2T Ethernet modules. Note WS-X67xx versions of these three modules can be upgraded with the DFC4-A daughter card so that they can operate with the Supervisor Engine 2T	<ul style="list-style-type: none"> WS-X6824-SFP-2T WS-X6848-SFP-2T WS-X6848-TX-2T WS-X6724-SFP WS-X6748-SFP WS-X6748-GE-TX 	<ul style="list-style-type: none"> 1 GB 1 GB 1 GB 1 GB 1 GB 1 GB 	2.38 A at 42 VDC

Table A-2 CFC and DFC Daughter Card Descriptions (continued)

CFC and DFC Daughter Card	Description	Modules supported on	Memory	Power Required
WS-F6K-DFC4-AXL	<p>The DFC4-AXL daughter card replaces the DFC-4-A on the heavy versions of the WS-X6824-SFP-2T, WS-X6848-SFP-2T, and the WS-X6848-TX-2T Ethernet modules.</p> <p>Note WS-X67xx versions of these three modules can be upgraded with the DFC4-AXL daughter card so that they can operate with the Supervisor Engine 2T</p>	<ul style="list-style-type: none"> • WS-X6824-SFP-2TXL • WS-X6848-SFP-2TXL • WS-X6848-TX-2TXL • WS-X6724-SFP • WS-X6748-SFP • WS-X6748-GE-TX 	<ul style="list-style-type: none"> • 1GB 	2.74 A at 42 VDC
WS-F6K-DFC4-E	<p>The DFC4-E daughter card is shipped standard on the WS-X6816-10G-2T, the WS-X6816-10T-2T, and the WS-X6904-40G-2T Ethernet modules.</p> <p>Note WS-X67xx versions of these two modules can be upgraded with the DFC4-E daughter card so that they can operate with the Supervisor Engine 2T</p>	<ul style="list-style-type: none"> • WS-X6816-10G-2T • WS-X6816-10T-2T • WS-X6904-40G-2T 	<ul style="list-style-type: none"> • 1G • 1G 	2.38 at 42 VDC
WS-F6K-DFC-EXL	<p>The DFC4-EXL daughter card replaces the DFC4-E on the WS-X6816-10G-2T, the WS-X6816-10T-2T, and the WS-X6904-40G-2T Ethernet modules.</p> <p>Note WS-X67xx versions of these two modules can be upgraded with the DFC4-EXL daughter card so that they can operate with the Supervisor Engine 2T</p>	<ul style="list-style-type: none"> • WS-X6816-10G-2TXL • WS-X6816-10T-2TXL • WS-X6904-40G-2TXL 	<ul style="list-style-type: none"> • 	2.74 A at 42 VDC

1. Requires a memory upgrade on the base module. Refer to the *Catalyst 6500 Series DFC3A, DFC3B, DFC3BXL, DFC3C, and DFC3CXL Installation Note* for additional information.
2. 512 MB is standard. The memory can be upgraded to 1 GB.

Table A-3 lists the supported combinations of WS-F6K-DFC3 daughter cards with the Supervisor Engine 720 models and the corresponding functionality levels.

Table A-3 WS-F6K-DFC Daughter Card Functionality Levels

Supervisor Engine 720 Model	WS-F6K-DFC3A	WS-F6K-DFC3B	WS-F6K-DFC3BXL
WS-SUP720	PFC3A functionality	PFC3A functionality	PFC3A functionality
WS-SUP720-3B	PFC3A functionality	PFC3B functionality	PFC3B functionality
WS-SUP720-3BXL	PFC3A functionality	PFC3B functionality	PFC3BXL functionality
VS-S720-10G-3C	PFC3A functionality	PFC3B functionality	PFC3B functionality
VS-S720-10G-3CXL	PFC3A functionality	PFC3B functionality	PFC3BXL functionality

Table A-4 lists the supported combinations of WS-F6700-DFC3 daughter cards with the Supervisor Engine 720 and Supervisor Engine 720-10G models and the corresponding functionality levels.

Table A-4 WS-F6700-DFC Daughter Card Functionality Levels

Supervisor Engine 720 Model	WS-F6700-DFC3A	WS-F6700-DFC3B	WS-F6700-DFC3BXL	WS-F6700-DFC3C	WS-F6700-DFC3CXL
WS-SUP720	PFC3A functionality	PFC3A functionality	PFC3A functionality	PFC3A functionality	PFC3A functionality
WS-SUP720-3B	PFC3A functionality	PFC3B functionality	PFC3B functionality	PFC3B functionality	PFC3B functionality
WS-SUP720-3BXL	PFC3A functionality	PFC3B functionality	PFC3BXL functionality	PFC3B functionality	PFC3BXL functionality
VS-S720-10G-3C	PFC3A functionality	PFC3B functionality	PFC3B functionality	PFC3C functionality	PFC3C functionality
VS-S720-10G-3CXL	PFC3A functionality	PFC3B functionality	PFC3BXL functionality	PFC3C functionality	PFC3CXL functionality

When DFC4 and DFC4XL daughter cards are mixed in a chassis, the system will operate in the lowest common denominator mode (DFC4). Supervisor Engine 2T does not support DFC3 daughter cards installed on modules..