

Cisco ASR 9000 Series Transceiver Modules: Line Card Support

This data sheet provides information about transceiver modules supported on Cisco® ASR 9000 Series line cards.

Cisco ASR 9000 Series line cards support the following transceiver modules:

- Cisco CPAK® Form-Factor Pluggable modules for use on 100 Gigabit Ethernet interfaces
- C Form-Factor Pluggable (CFP and CFP2) modules for use on 100 Gigabit Ethernet interfaces
- Quad Small Form-Factor Pluggable (QSFP) for use on 100 Gigabit Ethernet interfaces
- QSFP for use on 40 Gigabit Ethernet interfaces
- 10-Gigabit Small Form-Factor Pluggable (XFP) modules for use on 10 Gigabit Ethernet interfaces
- SFP Plus (SFP+) modules for use on some 10 Gigabit Ethernet interfaces
- Small Form-Factor Pluggable (SFP) modules for use on Gigabit Ethernet, optical carrier, and Synchronous Transport Module (STM) interfaces

Table 1 shows the line card support for Cisco ASR 9000 Series transceiver modules.

Table 1. Cisco ASR 9000 Series Transceiver Module Support Matrix

Product Description	Part Number	SFP	XFP	SFP+	QSFP	CFP	CFP2	Cisco CPAK
Cisco ASR 9000 12-Port 100GE Line Card, requires QSFP28 optics	A99-12X100GE	No	No	No	Yes ¹	No	No	No
Cisco ASR 9000 12-Port 100GE Consumption Model Line Card, requires QSFP28 optics	A99-12X100GE-CM	No	No	No	Yes ¹	No	No	No
Cisco ASR 9000 8-Port 100GE Service Edge Optimized Line Card, with 7-Fabric Support, requires Cisco CPAK optics	A99-8X100GE-SE	No	No	No	No	No	No	Yes
Cisco ASR 9000 8-Port 100GE Packet Transport Optimized Line Card with 7-Fabric Support, requires Cisco CPAK optics	A99-8X100GE-TR	No	No	No	No	No	No	Yes
Cisco ASR 9000 8-Port 100 GE Consumption Model Line Card with 7-Fabric Support, requires Cisco CPAK optics	A99-8X100GE-CM	No	No	No	No	No	No	Yes
Cisco ASR 9000 8-Port 100GE Service Edge Optimized Line Card, requires Cisco CPAK optics	A9K-8X100GE-SE	No	No	No	No	No	No	Yes
Cisco ASR 9000 8-Port 100GE Packet Transport Optimized Line Card, requires Cisco CPAK optics	A9K-8X100GE-TR	No	No	No	No	No	No	Yes
Cisco ASR 9000 8-Port 100GE Consumption Model Line Card	A9K-8X100GE-CM	No	No	No	No	No	No	Yes
Cisco ASR 9000 8-Port 100GE "LAN Only" Service Edge Optimized Line Card, requires Cisco CPAK optics	A9K-8X100G-LB-SE	No	No	No	No	No	No	Yes
Cisco ASR 9000 8-Port 100GE "LAN Only" Packet Transport Optimized Line Card, requires Cisco CPAK optics	A9K-8X100G-LB-TR	No	No	No	No	No	No	Yes

Product Description	Part Number	SFP	XFP	SFP+	QSFP	CFP	CFP2	Cisco CPAK
Cisco ASR 9000 4-Port 100GE Service Edge Optimized Line Card, requires Cisco CPAK optics	A9K-4X100GE-SE	No	No	No	No	No	No	Yes
Cisco ASR 9000 4-Port 100GE Packet Transport Optimized Line Card, requires Cisco CPAK optics	A9K-4X100GE-TR	No	No	No	No	No	No	Yes
Cisco ASR 9000 400G IPoDWDM Packet Transport Optimized Line Card, requires CFP2 and SFP+ optics	A9K-400G-DWDM-TR	No	No	Yes	No	No	Yes ²	No
Cisco ASR 9000 40-Port 1GE Service Edge Optimized Line Card, requires SFP optics	A9K-40GE-SE	Yes	No	No	No	No	No	No
Cisco ASR 9000 40-Port 1GE Packet Transport Optimized Line Card, requires SFP optics	A9K-40GE-TR	Yes	No	No	No	No	No	No
Cisco ASR 9000 4-Port 10GE and 16-Packet Service Edge Optimized Line Card, requires SFP optics	A9K-4T16GE-SE	Yes ³	No	Yes ³	No	No	No	No
Cisco ASR 9000 4-Port 10GE and 16-Packet Transport Optimized Line Card, requires SFP optics	A9K-4T16GE-TR	Yes ³	No	Yes ³	No	No	No	No
Cisco ASR 9000 2-Port 100GE Service Edge Optimized Line Card, requires CFP optics	A9K-2x100GE-SE	No	No	No	No	Yes	No	No
Cisco ASR 9000 2-Port 100GE Packet Transport Optimized Line Card, requires CFP optics	A9K-2x100GE-TR	No	No	No	No	Yes	No	No
Cisco ASR 9000 1-Port 100GE Service Edge Optimized Line Card, requires CFP optics	A9K-1x100GE-SE	No	No	No	No	Yes	No	No
Cisco ASR 9000 1-Port 100GE Packet Transport Optimized Line Card, requires CFP optics	A9K-1x100GE-TR	No	No	No	No	Yes	No	No
Cisco ASR 9000 24-Port 10GE Service Edge Optimized Line Card, requires SFP+ optics	A9K-24x10GE-SE	No	No	Yes	No	No	No	No
Cisco ASR 9000 24-Port 10GE Packet Transport Optimized Line Card, requires SFP+ optics	A9K-24x10GE-TR	No	No	Yes	No	No	No	No
Cisco ASR 9000 36-Port 10GE Service Edge Optimized Line Card, requires SFP+ optics	A9K-36x10GE-SE	No	No	Yes	No	No	No	No
Cisco ASR 9000 36-Port 10GE Packet Transport Optimized Line Card, requires SFP+ optics	A9K-36x10GE-TR	No	No	Yes	No	No	No	No
Cisco ASR 9000 20-Port 10 GE Modular Port Adapter, requires SFP+ optics	A9K-MPA-20X10GE	No	No	Yes	No	No	No	No
Cisco ASR 9000 2-Port 100GE Modular Port Adapter, requires CFP2 for ER4 or Cisco CPAK optics for other reach types	A9K-MPA-2X100GE	No	No	No	No	No	Yes ⁴	Yes
Cisco ASR 9000 1-Port 10GE Modular Port Adapter, requires CFP2 or Cisco CPAK optics	A9K-MPA-1X100GE	No	No	No	No	No	Yes ⁴	Yes
Cisco ASR 9000 8-Port 10 GE Modular Port Adapter, requires SFP+ optics	A9K-MPA-8X10GE	No	No	Yes	No	No	No	No
Cisco ASR 9000 20-Port 1 GE Modular Port Adapter, requires SFP optics	A9K-MPA-20X1GE	Yes	No	No	No	No	No	No
Cisco ASR 9000 4-Port 10 GE Modular Port Adapter, requires XFP optics	A9K-MPA-4X10GE	No	Yes	No	No	No	No	No
Cisco ASR 9000 1-Port 40GE Modular Port Adapter, requires QSFP optics	A9K-MPA-1X40GE	No	No	No	Yes	No	No	No
Cisco ASR 9000 2-Port 40GE Modular Port Adapter, requires QSFP optics	A9K-MPA-2X40GE	No	No	No	Yes	No	No	No
Cisco ASR 9000 40-Port GE Low Queue Line Card, requires SFPs	A9K-40GE-L	Yes	No	No	No	No	No	No
Cisco ASR 9000 40-Port GE Medium Queue Line Card, requires SFPs	A9K-40GE-B	Yes	No	No	No	No	No	No
Cisco ASR 9000 40-Port GE High Queue Line Card, requires SFPs	A9K-40GE-E	Yes	No	No	No	No	No	No

Product Description	Part Number	SFP	XFP	SFP+	QSFP	CFP	CFP2	Cisco CPAK
Cisco ASR 9000 2-Port 10GE, 20-Port GE Low Queue Combo Line Card, requires XFPs for 10GE, SFPs for GE	A9K-2T20GE-L	Yes	Yes	No	No	No	No	No
Cisco ASR 9000 2-Port 10GE, 20-Port GE Medium Queue Combo Line Card, requires XFPs for 10GE, SFPs for GE	A9K-2T20GE-B	Yes	Yes	No	No	No	No	No
Cisco ASR 9000 2-Port 10GE, 20-Port GE High Queue Combo Line Card, requires XFPs for 10GE, SFPs for GE	A9K-2T20GE-E	Yes	Yes	No	No	No	No	No
Cisco ASR 9000 4-Port 10GE Low Queue Line Card, requires XFPs	A9K-4T-L	No	Yes	No	No	No	No	No
Cisco ASR 9000 4-Port 10GE Medium Queue Line Card, requires XFPs	A9K-4T-B	No	Yes	No	No	No	No	No
Cisco ASR 9000 4-Port 10GE High Queue Line Card, requires XFPs	A9K-4T-E	No	Yes	No	No	No	No	No
Cisco ASR 9000 8-Port 10GE Low Queue Line Card, requires XFPs	A9K-8T/4-L	No	Yes	No	No	No	No	No
Cisco ASR 9000 8-Port 10GE Medium Queue Line Card, requires XFPs	A9K-8T/4-B	No	Yes	No	No	No	No	No
Cisco ASR 9000 8-Port 10GE High Queue Line Card, requires XFPs	A9K-8T/4-E	No	Yes	No	No	No	No	No
Cisco ASR 9000 8-Port 10GE Low Queue Line Card, requires XFPs	A9K-8T-L	No	Yes	No	No	No	No	No
Cisco ASR 9000 8-Port 10GE Medium Queue Line Card, requires XFPs	A9K-8T-B	No	Yes	No	No	No	No	No
Cisco ASR 9000 8-Port 10GE High Queue Line Card, requires XFPs	A9K-8T-E	No	Yes	No	No	No	No	No
Cisco ASR 9000 16-Port 10GE Medium Queue Line Card, requires SFP+s	A9K-16T/8-B	No	No	Yes	No	No	No	No
Cisco ASR 9000 SPA Interface Processor (SIP)700 Line Card	A9K-SIP-700 ⁵	Yes	Yes	No	No	No	No	No

¹ QSFP28 (100G) optics.

² Only CFP2-DWDM is supported.

³ The 10GE ports uses SFP+ and GE ports use SFP.

⁴ Only CFP2-ER4 is supported; other reach types are supported through Cisco CPAK.

⁵ A9K-SIP-700 does not support all SFP and XFP types. Please see the later section, "SIP Line Card Requiring SFP and XFP Modules."

The remaining sections of this data sheet are as follows:

- Ethernet Line Cards Requiring Cisco CPAK Modules
- Ethernet Line Cards Requiring CFP2 Modules
- Ethernet Line Cards Requiring CFP Modules
- Ethernet Line Cards Requiring QSFP Modules
- Ethernet Line Cards Requiring SFP Modules
- Ethernet Line Cards Requiring XFP Modules
- Ethernet Line Cards Requiring SFP+ Modules
- SIP Line Card Requiring SFP and XFP Modules

Ethernet Line Cards Requiring Cisco CPAK Modules

The following Cisco ASR 9000 Series Ethernet line cards and modular port adapters require Cisco CPAK modules:

- A9K-8X100G-LB-SE
- A9K-8X100G-LB-TR
- A9K-8X100GE-SE
- A9K-8x100GE-TR
- A9K-8x100GE-CM
- A99-8X100GE-SE
- A99-8x100GE-TR
- A99-8x100GE-CM
- A9K-4X100GE-SE
- A9K-4x100GE-TR
- A9K-MPA-1X100GE^{*} (ASR 9000 modular line cards required)
- A9K-MPA-2X100GE^{*} (ASR 9000 modular line cards required)

Table 2 shows the part numbers and descriptions of the supported Cisco CPAK 100 Gigabit Ethernet transceivers.

Table 2. Supported Cisco CPAK Pluggable Interfaces^{**}

Part Number	100 Gigabit Ethernet Cisco CPAK Optics	Product Data Sheet
CPAK-100G-LR4	100GBASE Gigabit Ethernet long-reach optics, single-mode fiber (SMF), 10 km	Cisco CPAK optics data sheet
CPAK-10X10G-LR	10x10GBASE Gigabit Ethernet long-reach optics, SMF, 10 km	
CPAK-100G-SR10	100BASE Gigabit Ethernet short-reach optics, OM3 and OM4 multimode fiber (MMF), 100 m	
CPAK-100G-SR4	100GBASE Gigabit Ethernet short-reach optics, OM4 MMF, 100 m	
CPAK-100G-ER4L	100GBASE Gigabit Ethernet extended reach lite optics, SMF, 25 km	
CPAK-10X10G-ERL	10x10GBASE Gigabit Ethernet extended reach lite optics, SMF, 25 km	

^{*} The 100G modular port adapters require CFP2-CPAK adapters to support Cisco CPAK optics. Table 3 shows the part numbers and descriptions for these adapters.

^{**} SR4 and 10x10GERL will be supported in future releases.

Table 3. CFP2-CPAK Adapters Supported on 100 Gigabit Modular Port Adapters

Part Number	CFP2 to Cisco CPAK Adapters for 100GE Modular Port Adapters
CVR-CFP2-CPAK4	CFP2 to Cisco CPAK adapter for 4x25G interface (supports CPAK-100G-LR4, CPAK-100G-SR4, and CPAK-100G-ER4L)
CVR-CFP2-CPAK10	CFP2 to Cisco CPAK adapter for 10X10G interface (supports CPAK-10X10G-LR, CPAK-100G-SR10, and CPAK-10X10G-ERL)

Ethernet Line Cards Requiring CFP2 Modules

The following Cisco ASR 9000 Series Ethernet line cards require CFP2 modules:

- A9K-MPA-1X100GE
- A9K-MPA-2X100GE

Table 4 shows the part number for this module.

Table 4. CFP2 Pluggable Interface

Part Number	100 Gigabit Ethernet CFP Optics
CFP2-100G-ER4	100GBASE-ER4 CFP2, up to 40 km SMF

Ethernet Line Cards Requiring CFP2-WDM Modules

The following Cisco ASR 9000 Series Ethernet line card requires a CFP2-WDM module:

- A9K-400G-DWDM-TR

Table 5 shows the part number for this module.

Table 5. CFP2-WDM Pluggable Interface

Part Number	100 Gigabit Ethernet CFP Optics
ONS-CFP2-WDM	100GBASE QPSK/200G 16-QAM - WDM CFP2 Pluggable

Ethernet Line Cards Requiring CFP Modules

The following Cisco ASR 9000 Series Ethernet line cards require CFP modules:

- A9K-1X100GE-SE
- A9K-1X100GE-TR
- A9K-2X100GE-SE
- A9K-2X100GE-TR

Table 6 shows the part numbers and descriptions for the Cisco CFP 100 Gigabit Ethernet transceivers.

Table 6. CFP Pluggable Interfaces

Part Number	100 Gigabit Ethernet CFP Optics	Product Data Sheet
CFP-100G-LR4	100 Gigabit Ethernet long-reach over 4 WDM lanes (LR4) optics single-mode fiber (SMF), 10 km	CFP optics data sheet
CFP-100G-SR10	100 Gigabit Ethernet BASE-SR10 CFP, OM3 multimode fiber, 100 m	
CFP-100G-ER4	100GBASE-ER4 CFP, SMF, 40 km	

Ethernet Line Cards Requiring QSFP Modules

The following Cisco ASR 9000 Series Ethernet line cards (described in Table 1) require QSFP-100G modules:

- A99 -12X100GE
- A99 -12X100GE-CM

Table 7 shows the part numbers and descriptions for the Cisco QSFP 100 Gigabit Ethernet transceivers.

Table 7. QSFP 100G Pluggable Interfaces**

Part Number	100 Gigabit Ethernet QSFP Optics	Product Data Sheet
QSFP-100G-SR4-S	100GBASE SR4 QSFP Transceiver, MPO, 100 m over OM4 multimode fiber	QSFP optics data sheet
QSFP-100G-LR4-S	100GBASE LR4 QSFP Transceiver, LC, 10 km over single-mode fiber (SMF)	
QSFP-100G-CWDM4-S	100GBASE CWDM4 QSFP Transceiver, LC, 2 km over SMF	
QSFP-100G-PSM4-S	100GBASE PSM4 QSFP Transceiver, MPO, 500 m over SMF	

** CWDM4 and PSM4 are planned to be supported in future releases.

The following Cisco ASR 9000 Series Ethernet line cards (described in Table 1) require QSFP 40G modules:

- A9K-MPA-1X40GE
- A9K-MPA-2X40GE

Table 8 shows the part numbers and descriptions for the Cisco QSFP 40 Gigabit Ethernet transceivers.

Table 8. QSFP Pluggable Interfaces

Part Number	40 Gigabit Ethernet QSFP Optics	Product Data Sheet
QSFP-40G-SR4	40GBASE SR4 QSFP, LAN mode only, 100 m	QSFP optics data sheet
QSFP-40G-CSR4	40GBASE SR4 QSFP, 300m, LAN mode only, 300 m	
QSFP-40G-LR4	40GBASE LR4 QSFP, LAN mode only, 10 km	
QSFP-40G-ER4	40GBASE ER4 QSFP, LAN mode only, 40 km	
QSFP-H40G-ACU10M	40GBASE-CR4 QSFP+ direct-attach copper cable, 10 m, active	
QSFP-H40G-ACU7M	40GBASE-CR4 QSFP+ direct-attach copper cable, 7 m, active	
QSFP-40G-SR-BD	QSFP40G bidirectional short-reach transceiver, multimode fiber	

Ethernet Line Cards Requiring SFP Modules

The following Cisco ASR 9000 Series Ethernet line cards (described in Table 1) require SFP modules:

- A9K-40GE-L (this card is at end of sale)
- A9K-40GE-B (this card is at end of sale)
- A9K-40GE-E (this card is at end of sale)
- A9K-2T20GE-L (two 10-Gigabit Ethernet ports only) (this card is at end of sale)
- A9K-2T20GE-B (20 Gigabit Ethernet ports only) (this card is at end of sale)
- A9K-2T20GE-E (20 Gigabit Ethernet ports only) (this card is at end of sale)
- A9K-MPA-20X1GE (ASR 9000 modular cards required)
- A9K-40GE-SE
- A9K-40GE-TR
- A9K-4T16GE-SE (16 Gigabit Ethernet ports only)
- A9K-4T16GE-TR (16 Gigabit Ethernet ports only)

These line cards support the following SFP transceiver modules:

- Cisco 100BASE-FX SFP Fast Ethernet (FE) interface converter on Gigabit SFP ports
- Cisco SFP modules
- Cisco CWDM SFP modules
- Cisco DWDM SFP modules

Table 9 shows the part numbers and descriptions for the Cisco SFP Fast Ethernet 100BASE-FX interface converters on Gigabit SFP ports.

Table 9. Cisco 100BASE-FX SFP Fast Ethernet Interface Converters on Gigabit SFP Ports

Part Number	Product Description	Product Data Sheet
GLC-GE-100FX=	100BASE-FX SFP, multimode fiber, 2 km	SFP optics data sheet
GLC-FE-100EX=	100BASE-EX SFP, single-mode fiber (SMF), 40 km	
GLC-FE-100ZX=	100BASE-ZX SFP, SMF, 80 km	

Table 10 shows the part numbers and descriptions for the Cisco SFP modules.

Table 10. Cisco SFP Modules

Part Number	Product Description	Product Data Sheet
SFP-GE-T=	1000BASE-T SFP (NEBS 3), unshielded twisted pair (UTP), 100 m	SFP optics data sheet
SFP-GE-S=	1000BASE-SX SFP (DOM), MMF, 550/220 m	
SFP-GE-L=	1000BASE-LX/LH SFP (DOM), SMF 10Km, MMF 550 m	
SFP-GE-Z=	1000BASE-ZX Gigabit Ethernet SFP (DOM), SMF, 70 km	
GLC-BX-D=	1000BASE-BX SFP, 1490 nm	
GLC-BX-U=	1000BASE-BX SFP, 1310 nm	
GLC-BX40-D-I	1000BASE-BX40-D for 40 km single-fiber bidirectional applications; with DOM	
GLC-BX40-U-I	1000BASE-BX40-U for 40 km single-fiber bidirectional applications; with DOM	
GLC-BX40-DA-I	1000BASE-BX40-D (Alternative) for 40 km single-fiber bidirectional applications; with DOM	
GLC-BX80-D-I	1000BASE-BX80-D for 80 km single-fiber bidirectional applications; with DOM	
GLC-BX80-U-I	1000BASE-BX80-U for 80 km single-fiber bidirectional applications; with DOM	
GLC-SX-MMD=	1000BASE-SX SFP transceiver module, MMF, 850 nm, 550 m/ 220 m, DOM	
GLC-LH-SMD=	1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310 nm, 10 km, DOM	
GLC-EX-SMD=	1000BASE-EX SFP transceiver module, SMF, 1310 nm, 40 km, DOM	
GLC-ZX-SMD=	1000BASE-ZX SFP transceiver module, SMF, 1550 nm, 70 km, DOM	

Table 11 shows the part numbers and descriptions for the Cisco coarse wavelength-division multiplexing (CWDM) SFP modules. V01 versions of these modules are not supported on the line cards.

Table 11. Cisco CWDM SFP Modules

Part Number	Product Description	Product Data Sheet
CWDM-SFP-1470=	Cisco CWDM 1470-nm SFP; Gigabit Ethernet and 1 and 2 Gb Fiber Channel	CWDM SFP optics data sheet
CWDM-SFP-1490=	Cisco CWDM 1490-nm SFP; Gigabit Ethernet and 1 and 2 Gb Fiber Channel	
SCWDM-SFP-1510=	Cisco CWDM 1510-nm SFP; Gigabit Ethernet and 1 and 2 Gb Fiber Channel	
CWDM-SFP-1530=	Cisco CWDM 1530-nm SFP; Gigabit Ethernet and 1 and 2-Gb Fiber Channel	
CWDM-SFP-1550=	Cisco CWDM 1550-nm SFP; Gigabit Ethernet and 1 and 2 Gb Fiber Channel	
CWDM-SFP-1570=	Cisco CWDM SFP 1570 nm; Gigabit Ethernet and 1 and 2 Gb Fiber Channel	
CWDM-SFP-1590=	Cisco CWDM SFP 1590 nm; Gigabit Ethernet and 1 and 2 Gb Fiber Channel	
CWDM-SFP-1610=	Cisco CWDM SFP 1610 nm; Gigabit Ethernet and 1 and 2 Gb Fiber Channel	

Table 12 shows the part numbers and descriptions for the Cisco dense wavelength-division multiplexing (DWDM) SFP modules.

Table 12. Cisco DWDM SFP modules

Part Number	Product Description	Product Data Sheet
DWDM-SFP-6141=	1000BASE-DWDM 1561.42 nm SFP (100-GHz ITU grid)	DWDM SFP optics data sheet
DWDM-SFP-6061=	1000BASE-DWDM 1560.61 nm SFP (100-GHz ITU grid)	
DWDM-SFP-5979=	1000BASE-DWDM 1559.79 nm SFP (100-GHz ITU grid)	
DWDM-SFP-5898=	1000BASE-DWDM 1558.98 nm SFP (100-GHz ITU grid)	
DWDM-SFP-5817=	1000BASE-DWDM 1558.17 nm SFP (100-GHz ITU grid)	
DWDM-SFP-5736=	1000BASE-DWDM 1557.36 nm SFP (100-GHz ITU grid)	
DWDM-SFP-5655=	1000BASE-DWDM 1556.55 nm SFP (100-GHz ITU grid)	
DWDM-SFP-5575=	1000BASE-DWDM 1555.75 nm SFP (100-GHz ITU grid)	
DWDM-SFP-5494=	1000BASE-DWDM 1554.94 nm SFP (100-GHz ITU grid)	
DWDM-SFP-5413=	1000BASE-DWDM 1554.13 nm SFP (100-GHz ITU grid)	
DWDM-SFP-5332=	1000BASE-DWDM 1553.33 nm SFP (100-GHz ITU grid)	
DWDM-SFP-5252=	1000BASE-DWDM 1552.52 nm SFP (100-GHz ITU grid)	
DWDM-SFP-5172=	1000BASE-DWDM 1551.72 nm SFP (100-GHz ITU grid)	
DWDM-SFP-5092=	1000BASE-DWDM 1550.92 nm SFP (100-GHz ITU grid)	
DWDM-SFP-5012=	1000BASE-DWDM 1550.12 nm SFP (100-GHz ITU grid)	
DWDM-SFP-4931=	1000BASE-DWDM 1549.32 nm SFP (100-GHz ITU grid)	
DWDM-SFP-4851=	1000BASE-DWDM 1548.51 nm SFP (100-GHz ITU grid)	
DWDM-SFP-4772=	1000BASE-DWDM 1547.72 nm SFP (100-GHz ITU grid)	
DWDM-SFP-4692=	1000BASE-DWDM 1546.92 nm SFP (100-GHz ITU grid)	
DWDM-SFP-4612=	1000BASE-DWDM 1546.12 nm SFP (100-GHz ITU grid)	
DWDM-SFP-4532=	1000BASE-DWDM 1545.32 nm SFP (100-GHz ITU grid)	
DWDM-SFP-4453=	1000BASE-DWDM 1544.53 nm SFP (100-GHz ITU grid)	
DWDM-SFP-4373=	1000BASE-DWDM 1543.73 nm SFP (100-GHz ITU grid)	
DWDM-SFP-4294=	1000BASE-DWDM 1542.94 nm SFP (100-GHz ITU grid)	
DWDM-SFP-4214=	1000BASE-DWDM 1542.14 nm SFP (100-GHz ITU grid)	
DWDM-SFP-4134=	1000BASE-DWDM 1541.35 nm SFP (100-GHz ITU grid)	
DWDM-SFP-4056=	1000BASE-DWDM 1540.56 nm SFP (100-GHz ITU grid)	
DWDM-SFP-3977=	1000BASE-DWDM 1539.77 nm SFP (100-GHz ITU grid)	
DWDM-SFP-3898=	1000BASE-DWDM 1538.98 nm SFP (100-GHz ITU grid)	
DWDM-SFP-3819=	1000BASE-DWDM 1538.19 nm SFP (100-GHz ITU grid)	
DWDM-SFP-3739=	1000BASE-DWDM 1537.40 nm SFP (100-GHz ITU grid)	
DWDM-SFP-3661=	1000BASE-DWDM 1536.61 nm SFP (100-GHz ITU grid)	
DWDM-SFP-3582=	1000BASE-DWDM 1535.82 nm SFP (100-GHz ITU grid)	
DWDM-SFP-3504=	1000BASE-DWDM 1535.04 nm SFP (100-GHz ITU grid)	
DWDM-SFP-3425=	1000BASE-DWDM 1534.25 nm SFP (100-GHz ITU grid)	
DWDM-SFP-3346=	1000BASE-DWDM 1533.47 nm SFP (100-GHz ITU grid)	
DWDM-SFP-3268=	1000BASE-DWDM 1532.68 nm SFP (100-GHz ITU grid)	
DWDM-SFP-3190=	1000BASE-DWDM 1531.90 nm SFP (100-GHz ITU grid)	
DWDM-SFP-3112=	1000BASE-DWDM 1531.12 nm SFP (100-GHz ITU grid)	
DWDM-SFP-3033=	1000BASE-DWDM 1530.33 nm SFP (100-GHz ITU grid)	

Ethernet Line Cards Requiring XFP Modules

The following Cisco ASR 9000 Series line cards (described in Table 1) require XFP modules:

- A9K-4T-L (end of sale)
- A9K-4T-B (end of sale)
- A9K-4T-E (end of sale)
- A9K-8T/4-L (end of sale)
- A9K-8T/4-B (end of sale)
- A9K-8T/4-E (end of sale)
- A9K-8T-L (end of sale)
- A9K-8T-B (end of sale)
- A9K-8T-E (end of sale)
- A9K-2T20GE-L (two 10-Gigabit Ethernet ports only) (end of sale)
- A9K-2T20GE-B (two 10-Gigabit Ethernet ports only) (end of sale)
- A9K-2T20GE-E (two 10-Gigabit Ethernet ports only) (end of sale)
- A9K-MPA-2X10GE (ASR 9000 modular line cards required)
- A9K-MPA-4X10GE (ASR 9000 modular line cards required)

These line cards support the following transceiver modules:

- Cisco XFP modules for 10 Gigabit Ethernet and POS applications
- Cisco 10GBASE DWDM XFP modules.

Table 13 shows part numbers and descriptions for Cisco XFP modules for 10 Gigabit Ethernet and POS applications.

Table 13. Cisco XFP Modules for 10-Gigabit Ethernet and POS Applications

Part Number	Product Description	Product Data Sheet
XFP-10GLR-OC192SR= (Version V03; versions V01 and V02 are not supported)	Multi-rate 10GBASE-LR and OC-192/STM-64 SR-1 XFP, SMF	XFP optics data sheet ONS optics data sheet
XFP-10GZR-OC192LR= (Version V02; Version V01 is not supported)	Multirate 10GBASE-ZR and OC-192/STM-64 IR-2 XFP, SMF	
XFP-10GER-192IR+=	Multirate 10GBASE-ER and OC-192/STM-64 IR-2 XFP, SMF	
XFP10GER-192IR-L	Low-power multirate XFP supporting 10GBASE-ER and OC-192 IR	
XFP-10G-MM-SR=	Multirate 10GBASE-SR, SMF	
XFP10GLR-192SR-L	Low-power multirate XFP supporting 10GBASE-LR and OC-192 SR	
ONS-XC-10G-1470=	OC192/10GE/OTU2, CWDM, 1470 nm, XFP C-Temp, 40 km range	
ONS-XC-10G-1490=	OC192/10GE/OTU2, CWDM, 1490 nm, XFP C-Temp, 40 km range	
ONS-XC-10G-1510=	OC192/10GE/OTU2, CWDM, 1510 nm, XFP C-Temp, 40 km range	
ONS-XC-10G-1530=	OC192/10GE/OTU2, CWDM, 1530 nm, XFP C-Temp, 40 km range	
ONS-XC-10G-1550=	OC192/10GE/OTU2, CWDM, 1550 nm, XFP C-Temp, 40 km range	
ONS-XC-10G-1570=	OC192/10GE/OTU2, CWDM, 1570 nm, XFP C-Temp, 40 km range	
ONS-XC-10G-1590=	OC192/10GE/OTU2, CWDM, 1590 nm, XFP C-Temp, 40 km range	

Table 14 shows part numbers and descriptions for the Cisco 10GBASE DWDM XFP modules.

Table 14. Cisco 10GBASE DWDM XFP modules

Part Number	Product Description	Product Data Sheet
DWDM-XFP-C=	10G Multirate C Band Tunable DWDM XFP	
DWDM-XFP-60.61=	10GBASE-DWDM 1560.61 nm XFP (100-GHz ITU grid)	
DWDM-XFP-59.79=	10GBASE-DWDM 1559.79 nm XFP (100-GHz ITU grid)	
DWDM-XFP-58.98=	10GBASE-DWDM 1558.98 nm XFP (100-GHz ITU grid)	
DWDM-XFP-58.17=	10GBASE-DWDM 1558.17 nm XFP (100-GHz ITU grid)	
DWDM-XFP-56.55=	10GBASE-DWDM 1556.55 nm XFP (100-GHz ITU grid)	
DWDM-XFP-55.75=	10GBASE-DWDM 1555.75 nm XFP (100-GHz ITU grid)	
DWDM-XFP-54.94=	10GBASE-DWDM 1554.94 nm XFP (100-GHz ITU grid)	
DWDM-XFP-54.13=	10GBASE-DWDM 1554.13 nm XFP (100-GHz ITU grid)	
DWDM-XFP-52.52=	10GBASE-DWDM 1552.52 nm XFP (100-GHz ITU grid)	
DWDM-XFP-51.72=	10GBASE-DWDM 1551.72 nm XFP (100-GHz ITU grid)	
DWDM-XFP-50.92=	10GBASE-DWDM 1550.92 nm XFP (100-GHz ITU grid)	
DWDM-XFP-50.12=	10GBASE-DWDM 1550.12 nm XFP (100-GHz ITU grid)	
DWDM-XFP-48.51=	10GBASE-DWDM 1548.51 nm XFP (100-GHz ITU grid)	
DWDM-XFP-47.72=	10GBASE-DWDM 1547.72 nm XFP (100-GHz ITU grid)	
DWDM-XFP-46.92=	10GBASE-DWDM 1546.92 nm XFP (100-GHz ITU grid)	
DWDM-XFP-46.12=	10GBASE-DWDM 1546.12 nm XFP (100-GHz ITU grid)	XFP optics data sheet
DWDM-XFP-44.53=	10GBASE-DWDM 1544.53 nm XFP (100-GHz ITU grid)	
DWDM-XFP-43.73=	10GBASE-DWDM 1543.73 nm XFP (100-GHz ITU grid)	
DWDM-XFP-42.94=	10GBASE-DWDM 1542.94 nm XFP (100-GHz ITU grid)	
DWDM-XFP-42.14=	10GBASE-DWDM 1542.14 nm XFP (100-GHz ITU grid)	
DWDM-XFP-40.56=	10GBASE-DWDM 1540.56 nm XFP (100-GHz ITU grid)	
DWDM-XFP-39.77=	10GBASE-DWDM 1539.77 nm XFP (100-GHz ITU grid)	
DWDM-XFP-38.98=	10GBASE-DWDM 1538.98 nm XFP (100-GHz ITU grid)	
DWDM-XFP-38.19=	10GBASE-DWDM 1538.19 nm XFP (100-GHz ITU grid)	
DWDM-XFP-36.61=	10GBASE-DWDM 1536.61 nm XFP (100-GHz ITU grid)	
DWDM-XFP-35.82=	10GBASE-DWDM 1535.82 nm XFP (100-GHz ITU grid)	
DWDM-XFP-35.04=	10GBASE-DWDM 1535.04 nm XFP (100-GHz ITU grid)	
DWDM-XFP-34.25=	10GBASE-DWDM 1534.25 nm XFP (100-GHz ITU grid)	
DWDM-XFP-32.68=	10GBASE-DWDM 1532.68 nm XFP (100-GHz ITU grid)	
DWDM-XFP-31.90=	10GBASE-DWDM 1531.90 nm XFP (100-GHz ITU grid)	
DWDM-XFP-31.12=	10GBASE-DWDM 1531.12 nm XFP (100-GHz ITU grid)	
DWDM-XFP-30.33=	10GBASE-DWDM 1530.33 nm XFP (100-GHz ITU grid)	

Ethernet Line Cards Requiring SFP+ Modules

The following Cisco ASR 9000 Series Ethernet line cards support SFP+ modules:

- A9K-24x10GE-SE
- A9K-24x10GE-TR
- A9K-36x10GE-SE
- A9K-36x10GE-TR
- A9K-16T/8-B (end of sale)
- A9K-4T16GE-SE* (only the four 10GE ports)
- A9K-4T16GE-TR* (only the four 10GE ports)
- A9K-MPA-8X10GE* (ASR 9000 modular line card required)
- A9K-MPA-20X10GE* (ASR 9000 modular line card required)
- A9K-400G-DWDM-TR* (only the twenty 10GE ports)

Table 15 shows the part numbers and descriptions for the Cisco SFP+ transceiver modules.

Table 15. Cisco 10GBASE SFP+ Modules

Part Number	Product Description	Product Data Sheet
SFP-10G-SR	10GBASE-SR 850 nm MMF	SFP+ optics data sheet
SFP-10G-LR	10GBASE-LR 1310 nm SMF	
SFP-10G-ER	10GBASE-ER 1550 nm SMF ¹	
SFP-10G-ZR	10GBASE-ZR SFP+, SMF 80km	
SFP-H10GB-ACU7M	SFP+ Active Twinax cable assembly, 7m	
SFP-H10GB-ACU10M	SFP+ Active Twinax cable assembly, 10m	
SFP-10G-SR-X	10GBASE-SR 850 nm MMF, extended temp, 100 m	
SFP-10G-SR-S	S-Class 10GBASE-SR 850 nm MMF	
SFP-10G-LR-X	10GBASE-LR 1310 nm SMF 10 km, extended temp	
SFP-10G-LR-S	S-Class 10GBASE-LR 1310 nm SMF 10 km	
SFP-10G-ER-S	S-Class 10GBASE-ER 1550 nm SMF 40 km	
SFP-10G-ZR-S	10GBASE-ZR SFP+, SMF 80 km	
SFP-10G-BXD-I	10G SFP+ BiDi up to 10 km (Tx of 1330-nm channel and Rx 1270-nm signal)	
SFP-10G-BXU-I	10G SFP+ BiDi up to 10 km (Tx of 1270-nm channel and Rx 1330-nm signal)	
SFP-10G-BX40D-I	10G-SFP Bidirectional for 40 km (Tx of 1330-nm channel and Rx 1270-nm signal)	
SFP-10G-BX40U-I	10G-SFP Bidirectional for 40 km (Tx of 1270-nm channel and Rx 1330-nm signal)	
ONS-SC+-10G-SR=	SFP+ SR - commercial temp, 100 m	
ONS-SC+-10G-LR=	SFP+ LR - commercial temp, 10 km	
ONS-SC+-10G-ER=	SFP+ ER - commercial temp, 40 km	
ONS-SC+-10G-ZR=	SFP+ ZR - commercial temp, 80 km	
ONS-SC+-10G-C=	SFP+ -10G MR, Full C Band Tunable DWDM SFP+, 50 GHz, LC	
ONS-SC+-10G-XX.Y=	SFP+ -10G MR, DWDM SFP+, 50 GHz, all wavelengths	
ONS-SC+-10GEPXX.Y=	10G MR, Edge Performance SFP+ 1530.33 - 1561.83, 100 GHz, all wavelengths	

* Minimum XR release required to support some SFP+ optics is different.

Table 16 shows the part numbers and descriptions for the Cisco DWDM SFP+ modules.

Table 16. Cisco DWDM SFP+ Modules

Part Number	Product Description	Product Data Sheet
DWDM-SFP10G-30.33	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-31.12	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-31.90	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-32.68	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-33.47	10GBASE DWDM SFP+, 100GHz, 80 km	
DWDM-SFP10G-34.25	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-35.04	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-35.82	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-36.61	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-37.40	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-38.19	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-38.98	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-39.77	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-40.56	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-41.35	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-42.14	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-42.94	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-43.73	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-44.53	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-45.32	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-46.12	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-46.92	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-47.72	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-48.51	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-49.32	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-50.12	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-50.92	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-51.72	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-52.52	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-53.33	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-54.13	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-54.94	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-55.75	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-56.55	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-57.36	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-58.17	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-58.98	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-59.79	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-60.61	10GBASE DWDM SFP+, 100 GHz, 80 km	
DWDM-SFP10G-61.41	10GBASE DWDM SFP+, 100 GHz, 80 km	

[DWDM SFP+ optics data sheet](#)

SIP Line Card Requiring SFP and XFP Modules

The following Cisco ASR 9000 Series SPA Interface Processor (SIP) line card (described in Table 1) supports SFP and XFP modules:

- A9K-SIP-700

The Line card supports the following transceiver modules:

- Cisco OC3/STM1 SFP modules
- Cisco OC12/STM4 SFP modules
- Cisco OC48/STM16 SFP modules
- Cisco XFP modules for OC192/STM64 POS applications

Table 17 shows the part numbers and descriptions for the Cisco OC3/STM1 SFP modules.

Table 17. Cisco OC3/STM1 SFP Modules

Part Number	Product Description	Product Data Sheet
SFP-OC3-MM	OC-3/STM-1 pluggable short-reach (2 km) transceiver module, 1310-nm wavelength, MMF, LC connector	SFP optics data sheet
SFP-OC3-SR	OC-3/STM-1 pluggable short-reach (2 km) transceiver module, 1310-nm wavelength, LC connector	
SFP-OC3-IR1	OC-3/STM-1 pluggable intermediate-reach (15 km) transceiver module, 1310-nm wavelength	
SFP-OC3-LR1	OC-3/STM-1 pluggable long-reach (40 km) transceiver module, 1310-nm wavelength, LC connector	
SFP-OC3-LR2	OC-3/STM-1 pluggable long-reach (80 km) transceiver module, 1550-nm wavelength, LC connector	

Table 18 shows the part numbers and descriptions for the Cisco OC12/STM4 SFP modules.

Table 18. Cisco OC12/STM4 SFP Modules

Part Number	Product Description	Product Data Sheet
SFP-OC12-MM	OC-12/STM-4 pluggable short-reach (2 km) transceiver module, 1310-nm wavelength, MMF, LC connector	SFP optics data sheet
SFP-OC12-SR	OC-12/STM-4 pluggable short-reach (2 km) transceiver module, 1310-nm wavelength, LC connector	
SFP-OC12-IR1	OC-12/STM-4 pluggable intermediate-reach (15 km) transceiver module, 1310-nm wavelength	
SFP-OC12-LR1	OC-12/STM-4 pluggable long-reach (40 km) transceiver module, 1310-nm wavelength, LC connector	
SFP-OC12-LR2	OC-12/STM-4 pluggable long-reach (80 km) transceiver module, 1550-nm wavelength, LC connector	

Table 19 shows the part numbers and descriptions for the Cisco OC48/STM16 SFP modules.

Table 19. Cisco OC48/STM16 SFP Modules

Part Number	Product Description	Product Data Sheet
SFP-OC48-SR	OC-48c/STM-16 pluggable short-reach (2 km) transceiver module, 1310-nm wavelength, LC connector	SFP optics data sheet
SFP-OC48-IR1	OC-48c/STM-16 pluggable intermediate-reach (15 km) transceiver module, 1310-nm wavelength, LC connector	
SFP-OC48-LR2	OC-48c/STM-16 pluggable long-reach (80 km) transceiver module, 1550-nm wavelength, LC connector	

Table 20 shows the part numbers and descriptions for the Cisco XFP modules for 10 Gigabit Ethernet and POS applications.

Table 20. Cisco XFP Modules for 10 Gigabit Ethernet and POS Applications

Part Number	Product Description	Product Data Sheet
XFP-10GLR-OC192SR=	Multirate 10GBASE-LR and OC-192/STM-64 SR-1 XFP, SMF	
XFP-10GZR-OC192LR=	Multirate 10GBASE-ZR and OC-192/STM-64 IR-2 XFP, SMF	XFP optics data sheet
XFP-10GER-192IR+=	Multirate 10GBASE-ER and OC-192/STM-64 IR-2 XFP, SMF	

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