

SFP+ Copper Cable Assemblies Compatibility

Introduction

The Panduit® SFP+ 10 Gb/s Direct Attach Passive and Active Cable Assemblies are MSA, SFF-8431, SFF-8432 and SFF-8472 compliant, which means they are compatible with all active equipment with MSA compliant ports. Unfortunately, Panduit SFP+ Direct Attach Copper (DAC) cable assemblies may not be compatible with equipment built with non-MSA compliant or non up-to-date ports. Additionally, some equipment vendors may utilize a lock-out mechanism by requiring vendor specific information on the EEPROM located on the SFP+ DAC cable assembly connector. This was originally implemented to ensure authorized optical transceivers were used with a particular vendor's equipment, and now some equipment vendors have implemented similar requirements for SFP+ DAC cable assemblies as well. Since DAC cables are often used between two different vendors' equipment, most vendors have removed EEPROM lock-out from their equipment. However, a few vendors maintain this lock-out feature. The goal of this technical reference is to provide guidance for understanding the compatibility of Panduit® SFP+ DAC Cable Assemblies.

Compatibility Guide

While most equipment vendors currently are open to third party SFP+ DAC cables, the below table provides awareness of different known compatibility issues with Panduit DAC cable assemblies. The table below will be updated any time prior compatibility issues are resolved or new compatibility issues are discovered. It should be noted that while most servers are open, compatibility issues can occur with a few CAN server cards (noted below). Additionally, some Fibre Channel ports require active copper cables.

Vendor	Equipment	Compatibility Comments
Arista	Switch	Arista does not restrict the use of third-party copper cables. These cables need to comply with the IEEE specifications, to allow them to be correctly recognized by the Arista switch. Interfaces with cables not recognized correctly will be disabled. DAC compatible on 7010T, 7048T, 7150S, 7280E, 7280R, 7500E, 7500R series. https://www.arista.com/en/products/transceivers-cables
Avaya	Switch	Avaya recommends that you only use Avaya-qualified transceivers. If you use other vendor transceivers, Avaya does not support them. DAC compatible on all models. https://downloads.avaya.com/css/P8/documents/101012862
Brocade	Switch	DAC compatible on VDX 6740, VDX 6740T, VDX 6940-36Q, VDX 6940-144S, VDX 8770 series. 8000 FCoE series switches are not open to third-party cables. Proprietary SFP+ ports require a proprietary Brocade active cable. VDX6730 and Iron series switches third-party cables require a custom EEPROM code to work. Panduit can provide a Brocade VDX6730 specific cable. 1010/1020 CNA server cards only work with Active DAC cable assemblies. https://www.brocade.com/content/dam/common/documents/content-types/product-matrix/brocade-vdx-sfp-transceivers-support-mx.pdf
Cisco	Switch/NIC	When a customer reports a product fault or defect and Cisco believes the fault or defect can be traced to the use of third-party memory products, cables, GBIC's, filters, or other non-Cisco components by a customer or reseller, then, at Cisco's discretion, Cisco may withhold support under warranty or a Cisco support program such as SMARTnet™ service. When a product fault or defect occurs in the network, and Cisco concludes that the fault or defect is not attributable to the use of third-party memory, cables, GBICs, filters, or other non-Cisco components installed by a customer or reseller, Cisco will continue to provide support for the affected product under warranty or covered by a Cisco support program. Nexus 5000/2000 switches are open to third-party cables. Panduit is the only third-party vendor to have SFP+ DAC Cisco certified cable assemblies on the Nexus 5000 and 2000 platforms. All other Nexus switches and UCS products are open to third-party cables. Ensure that the latest OS software is installed. Catalyst Series Switches standard configuration is closed to third-party cables. Starting from the 12.2(25)SE release, the user has the option via CLI to turn on the support for third-party SFPs. http://www.cisco.com/c/en/us/products/prod_warranty09186a00800b5594.html

Vendor	Equipment	Compatibility Comments
Dell	Switch/NIC	Server network adapters from Broadcom, Intel, Qlogic, Emulex, Brocade, and Mellanox. DAC compatible on all models. http://www.dell.com/us/business/p/networking-cards?~ck=anav
D-Link	Switch/NIC	D-Link provides a range of stacking cables that allows stackable switches to be connect to be managed and operate as a single unit. DAC compatible on DGS-1510, DGS-3420, DGS-3620, DGS-6600, DGS-3600 series. http://us.dlink.com/product-category/business-solutions/switching/network-and-switch-accessories/stacking-cables/
ECI Telecom	Switch	DAC compatible on all models.
EMC	NIC	Prior to DDOS5.2 there are only some set of DA cables which are supported. From DDOS5.2 onwards, any SFP+ passive direct attach copper cable that complies with the SFF-8431 v4.1 and SFF-8472 v10.4 specifications will be supported. Maximum cable length for passive cables is 7 meters. Table 1 lists several examples of compatible third-party SFP+ direct attach cables. We only support PASSIVE DA cables (active DA cables are not supported). VNX Series Unified Storage Systems only work with active SFP+ DAC cable assemblies. https://community.emc.com/docs/DOC-32487
Ericsson	NIC	DAC compatible on all models.
Extreme	Switch	This section provides data for compatibility between Extreme Networks SFP, SFP+, and QSFP+ transceiver modules and the Extreme Switching and Summit switches. DAC compatible on all models. http://documentation.extremenetworks.com/hw_sw_compatibility/hardwaresoftwarecompatibility/r_sfp-sfp-and-qsfp-support.shtml
Fortinet	Switch	DAC compatible on 1024D, 1048D, 3032D series https://www.fortinet.com/content/dam/fortinet/assets/data-sheets/Fortinet_Transceivers.pdf
Gigamon	NIC	Field tests show incompatibility on select network monitoring equipment. https://www.gigamon.com/sites/default/files/resources/datasheet/ds-gigavue-2404-4012.pdf
HPE	Switch/NIC	DAC compatible on switches using Comware Operating System. Procurve switches require a HP code in the SFP+ DAC cable assembly EEPROM.
Huawei	Switch	DAC compatible on all models.
IBM	Switch/NIC	DAC compatible on all models. https://www-947.ibm.com/support/entry/portal/docdisplay?lnocid=migr-5087884
Intel	NIC	DAC compatible on all models. http://www.intel.com/content/www/us/en/support/network-and-i-o/ethernet-products/000005528.html
Juniper	Switch	If you face a problem running a Juniper Networks device that uses a third-party optic or cable, the Juniper Networks Technical Assistance Center (JTAC) can help you diagnose the source of the problem. Your JTAC engineer might recommend that you check the third-party optic or cable and potentially replace it with an equivalent Juniper Networks optic or cable that is qualified for the device. DAC compatible on all models. http://www.juniper.net/documentation/en_US/release-independent/junos/topics/reference/general/cable-ex-series-sfp-plus-direct-attach.html
Lenovo	NIC	DAC compatible on all models. http://www.lenovo.com/images/products/system-x/pdfs/datasheets/lenovo_networking_catalog_ds.pdf
Mellanox	Switch/NIC	Mellanox guaranties this cable / module functionality only in a Mellanox End-to-End solution, for any other vendor's equipment, please consult your vendor on his ability to support this cable / module. DAC compatible on all models. http://www.mellanox.com/page/cables?mtag=cable_overview#table
NETAPP	NIC	DAC compatible on all models.
Netgear	NIC	DAC compatible on all models. http://www.netgear.com/business/products/switches/modules-accessories/?cid=wmt_netgear_organic
Nutanix	NIC	DAC compatible on all models. https://next.nutanix.com/t5/Installation-Configuration/With-Nutanix-Twinax-Cables-which-Switches-are-supported/m-p/1614

Vendor	Equipment	Compatibility Comments
Oracle	Switch/NIC	The transceivers and cables that directly plug into the Oracle switch and are supplied by Oracle are compliant to the industry standards for SFP+ solutions (SR, LR, TwinX copper). Though standards-compliant, third-party SFP+ solutions "should" interoperate with Oracle switch, but Oracle does not qualify third-party solutions with the switch and does not know whether they will work or not work and therefore does not support them. If you choose to use third-party SFP+ solutions and encounters an issue that cannot be isolated to the Oracle switch, you must replicate the issue with an Oracle qualified solution before Oracle can triage the issue. Transceivers that directly plug into third-party switches should be purchased from the third-party switch suppliers and not from Oracle. DAC compatible on all models. http://www.oracle.com/us/products/networking/ethernet-transceivers-cables-faq-1994166.pdf
Palo Alto Networks	NIC	Palo Alto Networks, Inc. has the following policy regarding the use of third-party transceivers, power supplies, hard drives, or other components used within the Palo Alto Networks devices. If a customer uses a third-party component in a Palo Alto Networks device, and a fault is traced to the use of this third-party component, then at Palo Alto Networks' discretion, support and warranty service may be withheld. If a product fault is determined to not be related to the use of third-party components, then Palo Alto Networks will continue to support the customer per our standard support policies. At no time will hardware RMA support be provided on third-party components. If hardware is replaced and the fault is determined to have been caused by the installation of a third-party component, Palo Alto Networks reserves the right to charge for reasonable time and material rates for the service provided. DAC compatible on all models. https://www.paloaltonetworks.com/services/support/support-policies/third-party-components-support
QLogic	NIC	Passive DAC compatible on QLE3440-CU, QLE3442-CU, QLE8440-CU, QLE8442-CU series. QLE8xxx-SR CNA server cards only work with Active DAC cable assemblies. http://www.qlogic.com/Resources/Documents/QLogic_Product_Guide.pdf
SolarFlare	NIC	DAC compatible on SFN5122F, SFN5152F, SFN5162F, SFN5322F, SFN6122F, SFN6322F, SFN6832F, SFA6902F, SFN7002F, SFN7122F, SFN7322F series. http://solarflare.com/transceivers-and-cables
SuperMicro	NIC	DAC compatible on all models. https://www.supermicro.com/support/resources/AOC/Networking_Cables_Transceivers_Compatibility.cfm
ZyXEL	Switch/NIC	DAC compatible on 3900, XGS3700, XGS1910 series. https://www.zyxel.com/us/en/products_services/transceiver_series.shtml?t=p

Troubleshooting SFP+ Problems

Panduit® SFP+ 10 Gb/s Active and Passive Cable Assemblies are compatible with any switch or server that includes MSA compliant SFP+ ports, unless that product requires active cable assemblies or requires a proprietary code in the SFP+ DAC cable assembly. Referring to the table on page 1, the known switches that will not work with Panduit SFP+ DAC cable assemblies are: Cisco Catalyst Series (These can be enabled through the command line interface (CLI)), HP (Procurve switches), and Brocade (8000 FCoE, VDX6730, and Iron series switches). Panduit can provide a custom cable programmed for the VDX6730, please contact Panduit for details.

There are some instances when passive SFP+ cables assemblies will not work, where the ports require an active SFP+ cable assembly. Known CNA cards that require active SFP+ cable assemblies include: Brocade (1010/1020 CNA) and QLogic (QLE-8xxx-SR CNA). The EMC VNX Series Unified Storage Systems also requires active SFP+ cable assemblies.

If using SFP+ DAC cable assemblies between equipment that should be open, and the link is not working, a quick check can be performed by plugging in a different SFP+ cable assembly between the same two ports. If the link does come up, it is likely a problem with the first SFP+ cable assembly. If the link does not come up, it is likely a problem with the configuration of the ports or incompatibility between server and switch.

SFP+ Cables and Cisco Technical Assistance Center (TAC)

Panduit is the only 3rd party passive SFP+ vendor currently Cisco certified on the Nexus 2000 and the Nexus 5000 series of switches. This means Panduit passive SFP+ cables can be used and still receive support from Cisco TAC. While Cisco switches may still show the “NON-CISCO_TRANSCEIVER” message with Panduit passive SFP+, this message just indicates it is a non-Cisco cable. Cisco TAC will still provide support for Panduit passive SFP+ cables on the Nexus 2000 and Nexus 5000 series of switches as if they were Cisco cables. If non-certified cables are being used and the cable is suspected to be at fault, Cisco TAC will require that the non-certified cable be replaced with Cisco certified cables before troubleshooting can begin.

Note that even if the information message stating “NON-CISCO_TRANSCEIVER: Non-Cisco transceiver on interface” is on any Nexus switch, *all compliant SFP+ DAC cable assemblies will work.* (Note: N7K will be open with OS revision 5.2.1 due out in the fourth quarter of 2012). Note: If the message “IF_UNSUPPORTED_TRANSCEIVER: Transceiver on interface *** is not supported” is received, it means that support for 3rd party SFP+ must be enabled via the CLI.

SFP+ 10 Gb/s Direct Attach Passive Cable Assembly Part Numbers

Part Number	Length (m)	Length (ft.)
PSF1PXA0.5MBU	0.5	1.6
PSF1PXA1MBU	1	3.3
PSF1PXA1.5MBU	1.5	4.9
PSF1PXA2MBU	2	6.6
PSF1PXA2.5MBU	2.5	8.2
PSF1PXA3MBU	3	9.8
PSF1PXA3.5MBU	3.5	11.5
PSF1PXD4MBU	4	13.1
PSF1PXD4.5MBU	4.5	14.4
PSF1PXD5MBU	5	16.4
PSF1PXD5.5MBU	5.5	17.6
PSF1PXD6MBU	6	19.7
PSF1PXD6.5MBU	6.5	20.8
PSF1PXD7MBU	7	23.0

Note: For standard cable colors other than BU (Blue), replace BU with WH (White), BL (Black), GR (Green), RD (Red), OR (Orange).

SFP+ 10 Gb/s Direct Attached Active Cable Assembly Part Numbers

PartNumber	Length(m)	Length(ft.)
PSF1AXA3MBU	3	9.8
PSF1AXA5MBU	5	16.4
PSF1AXA7MBU	7	23.0
PSF1AXA8MBU	8	26.2
PSF1AXA9MBU	9	29.5
PSF1AXA10MBU	10	32.8

Note: For standard cable colors other than BU (Blue), replace BU with WH (White), BL (Black), GR (Green), RD (Red), OR (Orange).