



Product Bulletin

Fibre Channel over Ethernet (FCoE) Ecosystem Expansion and Data Center Bridging Support

Revision History

14 October 2010: Added Cisco Nexus 2248TP, Cisco Nexus 2232PP, 7M/10M cables, Unified Connect in Data ONTAP 8.0.1
11 May 2010: Added Emulex OneConnect UCNAs
21 April 2010: Update Description of X1109A-R6 in section 6
25 January 2010: Update for FCoE ecosystem additions and revisions
6 August 2009: Update for FCoE ecosystem additions
12 January 2009: Initial version

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This product bulletin informs NetApp sales and NetApp partners about new or changed NetApp® products or services.

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1. Summary

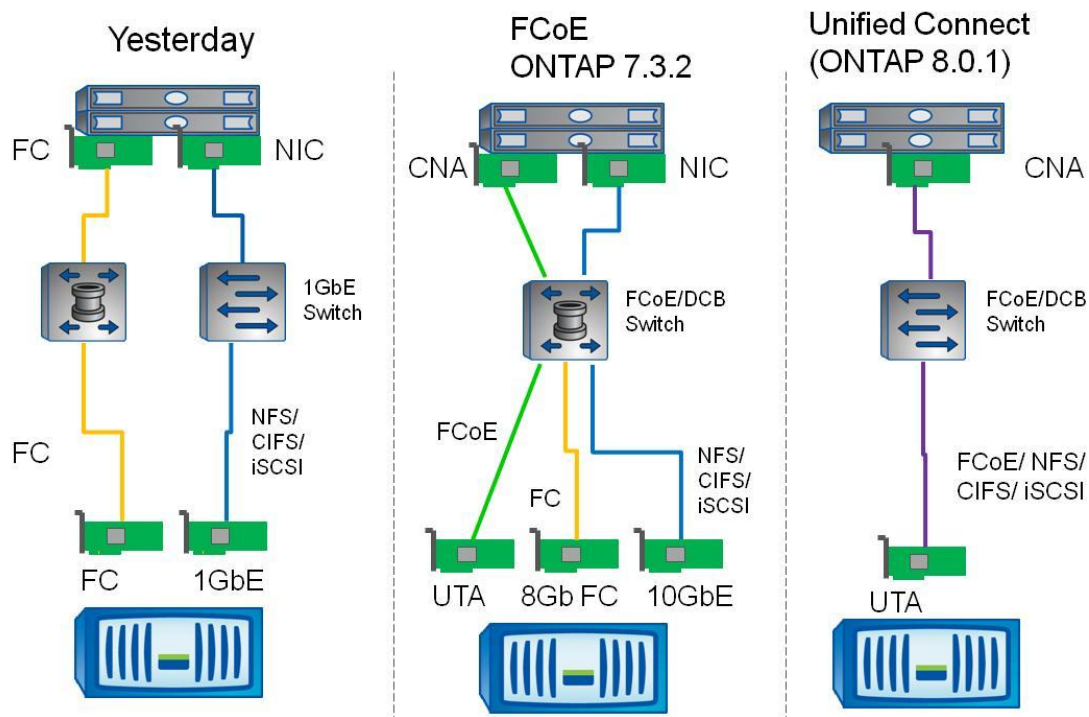
This product bulletin is an overview of the NetApp portfolio of Fibre Channel over Ethernet and 10GbE products. As part of the FCoE ecosystem expansion that began in late 2008 with the first generation of FCoE-enabled, end-to-end products, NetApp has added server-based converged network adapters (CNAs), FCoE switches, and the NetApp 10GbE Unified Target Adapter (UTA) to the 10GbE portfolio. In addition to the standards-based FCoE equipment, NetApp also offers Cisco Nexus 5010/5020 FCoE switches, Cisco Nexus 2248TP, Cisco Nexus 2232PP-10G, and 2148T extenders as well as Brocade 8000 FCoE switches for deployments in which NetApp storage is involved.

FCoE is a standards-based protocol that transports Fibre Channel (FC) traffic natively over 10 Gigabit Ethernet. In combination with the emerging IEEE Data Center Bridging (DCB) standard, FCoE enables the use of CNAs at the host, to consolidate FC and Internet Protocol (TCP/IP) traffic onto the same physical wire, which can then be transported across an FCoE-enabled switch. This I/O consolidation enables

simplified cabling deployments and manageability, along with reductions in power consumption and ultimately, the ability to achieve capital and operational efficiencies by migrating to a single, consolidated network. FCoE preserves traditional FC requirements for latency, security, and traffic management characteristics and is managed like FC for typical operational functions such as name server referencing, host multipathing, and World Wide Port Names. This enables the integration and effective transition of traditional FC storage systems into an FCoE-enabled host and network environment.

With Data ONTAP® 8.0.1, NetApp supports mixed protocols over the same wire to our Unified Target Adapter (best practices and associated white papers will be available on the NOW™ site).

The following is a view of how network topologies have evolved with the introduction of FCoE and subsequently Unified Connect. [[NOTE: In following figure, please change "ONTAP" to "Data ONTAP" (twice)]]



2. What's New?

Continuing its Ethernet storage leadership, NetApp's FCoE product portfolio includes the following products:

FCoE host infrastructure: Converged network adapters have the capability to combine FCoE and IP traffic on the same 10GbE connection from the host. The 10GbE CNAs offered include the following:

- Emulex OCE10102 (new): dual-port CNAs with options for bundled short-wave (SW) SFP+ optics or without optics for connection with (Twinax) copper SFP+ cables
- QLogic QLE8152 (new): dual-port CNAs with options for bundled short-wave (SW) SFP+ optics or without optics for connection with (Twinax) copper SFP+ cables
- Brocade BR1022 (new): dual-port CNAs with options for bundled short-wave (SW) SFP+ optics or without optics for connection with (Twinax) copper SFP+ cables

FCoE-capable 10GbE switch infrastructure: NetApp offers the following 10GbE-enabled switch products as part of the product portfolio:

- Cisco Nexus 5010 10GbE DCB switch: Top-of-rack, 1RU 10GbE DCB and FCoE switch with 20 ports 10GbE plus 1 expansion slot for additional FC or FCoE ports
- Cisco Nexus 5020 10GbE DCB switch: Top-of-rack, 2RU 10GbE DCB and FCoE switch with 40 ports 10GbE plus 2 expansion slots for additional FC or FCoE ports
- Cisco Nexus 2148T Fabric Extender: 48 ports of 1GbE (RJ45) copper with 4 ports 10GbE (fiber) for uplinks to the Cisco Nexus 5010/5020
- Cisco Nexus 2248TP Fabric Extender: 48 ports of 100M/1G (RJ45) copper with 4 ports 10GbE (fiber) for uplinks to the Cisco Nexus 5010/5020
- Cisco Nexus 2232PP-10G Fabric Extender: 24 SFP+ based ports of 10GbE with 8 ports 10GbE (fiber) for uplinks to the Cisco Nexus 5010/5020
- Brocade 8000 10GbE DCB switch: Top-of-rack, 1RU 10GbE DCB and FCoE switch with 24 ports 10GbE plus eight 8Gb FC ports
- Brocade FCoE10-24 blade: 24-port FCoE blade for DCX and DCX-4S directors

10GbE Unified Target Adapter: NetApp offers a new 10GbE Unified Target Adapter for end-to-end native FCoE deployments with adherence to the latest industry standards.

- NetApp 10GbE Unified Target Adapter for FCoE connectivity to the storage controllers (new). Requires Data ONTAP 7.3.2 or later. Multiprotocol and mixed protocol support is included in the Data ONTAP 8.0.1 release. The 10GbE UTA is a dual-port target adapter with two options: one version with short-wave SFP+ optics and one version without optics for connection using Twinax copper cables.

Host operating system support:

- For NetApp FCoE storage system configurations that are supported by NetApp, refer to the NetApp Interoperability Matrix, <http://now.netapp.com/matrix/mtx/login.do>. FCoE is listed in the protocol column.

Multiprotocol support: NetApp supports FCoE-to-FC and FCoE-to-FCoE server-to-storage traffic with Data ONTAP 7.3.2 and later 7.3.x releases. In addition, other IP-based protocols (iSCSI, NFS, and CIFS) are supported in the Data ONTAP 8.0.1 release. This includes support for a mix of protocols (FCoE/iSCSI/CIFS/NFS) over the same wire to the same Unified Target Adapter port.

3. Sales Tools (Sales Guides, Training Presentations, SE Presentations)

- [NetApp FCoE SAN Overview](#)
- [NetApp Ethernet Storage Overview](#)
- [NetApp Field Portal](#)
- [NetApp PartnerCenter SAN](#)

4. Customer-Ready Tools (Customer Presentations, Datasheets)

- [NetApp Field Portal](#)
- [NetApp PartnerCenter SAN](#)

5. System Requirements

- **Interoperability:** For NetApp FCoE storage system configurations that are supported by NetApp, refer to the NetApp Interoperability Matrix, <http://now.netapp.com/matrix/mtx/login.do>. FCoE is listed in the protocol column.
- **FCoE licensing:** FCoE protocol is currently enabled using the FC protocol license in the NetApp storage systems. Users with a valid FC protocol license for the storage system for which FCoE support is desired can enable FCoE with no additional protocol license.
- **NetApp storage controller support for FCoE:** The 10GbE Unified Target Adapter is a dual-port adapter and is supported in the following PCIe-capable FAS and V-Series storage systems: 2050, 3040, 3070, 3100 series, and 6000 series.
- **Data Center Bridging (DCB):** Data Center Bridging includes the following standards: IEEE 802.1Qaz (Enhanced Transmission Selection), IEEE 802.Qbb (Priority Flow Control), and IEEE 802.1Qau (End-to-End Congestion Notification).
- **10GbE:** Since the FCoE protocol is based on 10GbE, any 1GbE links should be considered as general Ethernet and noncompliant with the FCoE standard.
- **NetApp management software:** NetApp SnapDrive® 6.1 for Windows® is supported with FCoE configurations using QLogic's CNAs (to FC and FCoE storage systems). SnapDrive with additional configurations is targeted for future support as FCoE host OS support is expanded. NetApp storage management software (for example, Operations Manager, Systems Manager, and FilerView®) is supported today with FCoE.
- **NetApp SnapMirror® and MetroCluster™:** SnapMirror and MetroCluster are supported with FCoE host-to-storage-system configurations (both FCoE and FC storage systems), with the following restriction: Unified Target Adapters can only be used for host-facing connections, not for (FAS) controller-to-controller connections.
- **System configuration:** Configuration and installation guides for the 10GbE Unified Target Adapter can be found at the System Configuration Guide portion of the NOW site: <http://now.netapp.com/NOW/knowledge/docs/hardware/NetApp/syscfg>.

6. Product Information

FCoE Host Infrastructure

- NetApp supports and resells the QLogic QLE8152 converged network adapters for host server configurations. FCoE host configurations use FC host utilities, as listed in the NetApp Interoperability Matrix; there are no distinct FCoE host utilities or installation guides.
- NetApp also supports and resells the Brocade BR1022 and Emulex OCE10102 converged network adapters for host server configurations.
- The Brocade, Emulex, and QLogic CNAs are available with and without SFP+ optics as per the individual part numbers listed in the following tables.

QLogic QLE8152 CNA Part Numbers

Part Number	Description	Discount Category
X1109A-R6	ADPT, Qlogic QLE8152, 2-Port, 10GbE, SFP+, PCIe, R6	C
X1111A-R6	ADPT, Qlogic QLE8152, 2-Port, 10GbE, CU, PCIe, R6	C

Brocade BR-1020 CNA Part Numbers

Part Number	Description	Discount Category
X1113A-R6	ADPT, BRCD BR1020, 2-Port, 10GbE, SFP+, PCIe, R6	C
X1115A-R6	ADPT, BRCD BR1020, 2-Port, 10GbE, CU-REDY, PCIe, R6	C

Emulex OCe10102 CNA Part Numbers

Part Number	Description	Discount Category
X1118A-R6	ADPT, Emulex OCe10102, 2-Port, 10GbE, SFP+, PCIe, R6	C
X1119A-R6	ADPT, Emulex OCe10102, 2-Port, 10GbE, CU, PCIe, R6	C

FCoE Switch Infrastructure

- NetApp resells the Brocade 8000 10GbE DCB switch with or without FCoE license. The Brocade 8000 is a 1RU top-of-rack DCB/FCoE switch with 24 ports of 10GbE (without SFP+ modules) and eight 8Gb Fibre Channel ports with 8G SFP optical modules (configured with FCoE license).
- The Brocade 8000 switch base configuration does not include 10GbE optics, which are available using part number X-000180-R6 (SW) or X-000182-R6 (LW).
- The Brocade 8000 is sold as an access-layer switch to be used in server-rack configurations. NetApp does not currently offer NetApp storage system cabinet integration for the Brocade 8000.
- In the FCoE-enabled version of the Brocade 8000, the 8 FC ports come equipped with 8G FC SFP+ modules. With the DCB/Ethernet-only version of the Brocade 8000, the FC ports are not enabled, and therefore no SFP+ modules are included.
- The FCoE license is included with the X-8000-0008-A-R5 part number. The Brocade 8000 can also be ordered without the FCoE license using the X-8000-0000-R5 part number.
- The Brocade 8000 switch is supported using Brocade Direct Support.
- The Brocade 8000 switch includes the individual part numbers listed in the following table.

Brocade 8000 Part Numbers

Part Number	Description	Discount Category
X-8000-0008-A-R5	Brocade 8000 FCoE Switch w/eight 8Gb SWL SFP+, R5	C
X-8000-0000-R5	Brocade 8000 DCB/Ethernet Switch, no SFPs, R5	C

SW-CNVSVC-01-QS	SW, Brocade 8000 FCoE License	C
X-1867-R6	BRCD Branded SWL SFP,8Gbps,R6	C
X-000180-R6	Brocade,SFP+,SR,10GbE,1-pack,R6	C
X-000182-R6	Brocade,SFP+,LR,10GbE,1-pack,R6	C
X-TWX-0101-R6	Brocade,Cable,Twinax 10GbE Copper SFP+,1M,R6	C
X-TWX-0301-R6	Brocade,Cable,Twinax 10GbE Copper SFP+,3M,R6	C
X-TWX-0501-R6	Brocade,Cable,Twinax 10GbE Copper SFP+,5M,R6	C
X-000165-R6	Brocade 8000 Mid-Mount (Telco Rack) kit,R6	C
X-R000162-R6	Brocade 8000 Rack Mount Kit,R6	C

10GbE Unified Target Adapter

- NetApp offers a 10GbE Unified Target Adapter for end-to-end native FCoE deployments and mixed protocol installations. The 10GbE UTA is supported in the following PCIe-capable FAS and V-Series storage systems: 2050, 3040, 3070, 3100 series, and 6000 series. The NetApp 10GbE UTA supports FCoE traffic as well as a mix of FCoE and IP (iSCSI/NFS/CIFS) protocols over the same wire to the same port.
- FCoE protocol is currently enabled using the FC protocol license in NetApp storage systems. Users with a valid FC protocol license for the storage system with which FCoE support is desired can enable FCoE with no additional protocol license.
- 10GbE cables. NetApp supports FCoE configurations with 10GbE copper or optical cables using SFP+ connections from the host server to the FCoE switch and 10GbE optical cables using SFP+ connections from the FCoE switch to NetApp FCoE-enabled storage. Copper SFP+ cables are switch-constrained; see the Brocade 8000 and Cisco Nexus sections for details on the 10GbE cables and optics.
- The 10GbE Unified Target Adapter can be mixed with other IP and/or FC target adapters in the same storage controller. The following table shows the maximum number of 10GbE Unified Target Adapters per storage controller.

Storage Controller	Number of PCIe slots	Max Number of 10GbE ports
FAS2050	1	2
FAS3020/3050	None	Not supported
FAS3040/3070	3	6
FAS3100 series	4	8
FAS6000 series	4	8

The new 10GbE Unified Target Adapter will be released with the individual part numbers shown in the following table.

NetApp 10GbE Unified Target Adapter Part Numbers

Part Number	Description	Discount Category
X1139A-R6	ADPT,Unified Target,2pt,10GbE,SFP+,PCle,R6	A
X1139A-R6-C	ADPT,Unified Target,2pt,10GbE,SFP+,PCle,-C,R6	A
X1140A-R6	ADPT,Unified Target,2pt,10GbE,CU,PCle,R6	A
X1140A-R6-C	ADPT,Unified Target,2pt,10GbE,CU,PCle,-C,R6	A

Brocade FCoE10-24 Blade for Brocade DCX/DCX-4S Directors

- The Brocade FCoE10-24 blade is designed for installation into existing Brocade DCX/DCX-4S directors. It provides 24 ports of 10GbE FCoE.
- The Brocade FCoE10-24 Blade is covered under existing NetApp SupportEdge service contracts for the DCX and DCX-4S chassis where the blades will be installed.
- The Brocade FCoE10-24 blade includes the individual part numbers shown in the following table.

Brocade FCoE10-24 Blade Part Numbers

Part Number	Description	Discount Category
X-BR-FCOE10-2400-R5	Brocade FCoE 10-24, 24-pt 10GbE Blade for DCX and DCX-4S, SFP+s included,R5	C

Cisco Nexus 5010 Switch

- NetApp resells the Cisco Nexus 5010 switch as part of the network infrastructure offering. The Cisco Nexus 5010 is a 1U FCoE-capable switch with 20 fixed 10GbE (DCB/FCoE) ports and 1 expansion slot. The Cisco Nexus 5010 is available with or without the FCoE license installed (Ethernet-only version available starting in September 2009). The expansion module can be any of the following:
 - Six ports of 10GbE (DCB/FCoE)
 - Eight ports of 4Gb FC (requires FCoE license)
 - Four ports of 10GbE (DCB/FCoE) plus four ports of 4Gb FC (requires FCoE license)
 - Six ports of 8Gb FC (requires FCoE license)

Cisco Nexus 5010 Part Numbers

Part Number	Description	Discount Category
X-N5K-C5010P-BFS-R5-C	Cisco N5010 Switch,20-Pt,10GE FCoE,-C,R5	C
X-N5K-C5010P-BF-E-R5-C	Cisco, Switch, N5010 Ethernet,20-Pt,10GE,-C,R5	C
X-N5K-M1008-R5	Cisco N50XX, Module,4Gb,8-port FC,R5	C
X-N5K-M1008-R5-C	Cisco N50XX, Module,4Gb,8-port FC,-C,R5	C

X-N5K-M1404-R5	Cisco N50XX Module 4x10GE,4xFC 4/2/1G,R5	C
X-N5K-M1404-R5-C	Cisco N50XX Module 4x10GE,4xFC 4/2/1G,-C,R5	C
X-N5K-M1600-R5	Cisco N50XX 6-port 10GE Module,R5	C
X-N5K-M1600-R5-C	Cisco N50XX 6-port 10GE Module,-C,R5	C
X-N5K-M1060-R5	Cisco N50XX Module, 8Gb, 6-port FC, R5	C
X-N5K-M1060-R5-C	Cisco N50XX Module, 8Gb, 6-port FC, -C, R5	C
X-SFP-10G-SR-R6	Cisco 10GBase SR SFP+ Optic,R6	C
X-SFP-10G-SR-R6-C	Cisco 10GBase SR SFP+ Optic,-C,R6	C
X-SFP-H10GB-CU1M-R6-C	Cisco N5020 10GBase Copper SFP+cable 1m,-C,R6	C
X-SFP-H10GB-CU3MR6-C	Cisco N5020 10GBase Copper SFP+cable 3m,-C,R6	C
X-SFP-H10GB-CU5MR6-C	Cisco N5020 10GBase Copper SFP+cable 5m,-C,R6	C
X-SFP-H10GB-ACU7MR6-C	Cisco N5020 10GBase Copper SFP+cable 7m,-C,R6	C
X-SFP-H10GB-ACU10MR6-C	Cisco N5020 10GBase Copper SFP+cable 10m,-C,R6	C
X-N5K-C5010-FAN-R5	Cisco Nexus 5010 Fan Module, Spare	C
X-N5K-PAC-550W-R5	Cisco N5010 Power Supply,550W,R5	C
X-N5K-PAC-550W-R5-C	Cisco N5010 Power Supply,550W,-C,R5	C
X-N5010-ACC-KIT-R5	Cisco N5010 Accessory Kit,R5	C

Cisco Nexus 5020 Switch

- NetApp resells the Cisco Nexus 5020 switch as part of the network infrastructure offering. The Cisco Nexus 5020 is a 2U FCoE-capable switch with 40 fixed 10GbE (DCB/FCoE) ports and 2 expansion slots. The Cisco Nexus 5020 is available with or without the FCoE license installed (Ethernet-only version available starting in September 2009). The expansion modules are the same as for the Cisco Nexus 5010 and can be any two of the following:
 - Six ports of 10GbE (DCB/FCoE)
 - Eight ports of 4Gb FC (requires FCoE license)
 - Four ports of 10GbE (DCB/FCoE) plus four ports of 4Gb FC (requires FCoE license)
 - Six ports of 8Gb FC (requires FCoE license)

Cisco Nexus 5020 Part Numbers

Part Number	Description	Discount Category
X-N5K-C5020P-BFS-R5-C	Cisco N5020 Switch,40-Pt,10GE FCoE,-C,R5	C
X-N5K-C5020P-BF-E-R5-C	Cisco, Switch, N5020 Ethernet,40-Pt,10GE,-C,R5	C
X-N5K-C5020-FAN-R5	Cisco Nexus 5020 Fan Module, Spare	C
X-N5K-PAC-750W-R5	Cisco N5020 Power Supply,750W,R5	C
X-N5K-PAC-750W-R5-C	Cisco N5020 Power Supply,750W,-C,R5	C
X-N5020-ACC-KIT-R5	Cisco N5020 Accessory Kit,R5	C

Cisco Nexus 2148T Fabric Extender

- NetApp resells the Cisco Nexus 2148T Fabric Extender as part of the network infrastructure offering. The Cisco Nexus 2148T is a 1U Fabric Extender with 48 fixed 1GbE copper (RJ45) ports and four 10GbE WAN ports (requires SFP+). The Cisco Nexus 2148T is a 1GbE Fabric Extender and does not support DCB/FCoE, but is sold as part of the Cisco Nexus Ethernet line.

Cisco Nexus 2148T Part Numbers

Part Number	Description	Discount Category
X-N2K-C2148T-1GE-R5-C	Cisco,Switch,N2148 Ethernet,48/4,-C,R5	C
X-GLC-SX-MM-R6	Cisco,1GBase SR SFP+,R6	C
X-GLC-LH-SM-R6	SFP, Cisco 1Gb Ethernet Long Reach SFP+	C
X-N2K-PAC-200W-R5	Cisco, Power Supply,200W,N2148,R5	C
X-N2K-PAC-200W-R5-C	Cisco, Power Supply,200W,N2148,-C, R5	C
X-N2K-C2148T-FAN-R5	Cisco, Fan Module,N2148,R5	C

Cisco Nexus 2248TP Fabric Extender

- NetApp resells the Cisco Nexus 2248TP Fabric Extender as part of the network infrastructure offering. The Cisco Nexus 2248TP is a 1U Fabric Extender with 48 fixed 100M/1GbE copper (RJ45) ports and four 10GbE WAN ports (requires SFP+). The Cisco Nexus 2248TP is a 100M/1GbE Fabric Extender and does not support DCB/FCoE, but is sold as part of the Cisco Nexus Ethernet line. The Cisco Nexus 2248TP utilizes the same optical modules as the Cisco Nexus 2148T.

Cisco Nexus 2248TP Part Numbers

Part Number	Description	Discount Category
X-N2K-C2248TP-1GE-R6-C	Switch,Cisco N2248 Fab Ext 48/4 10GE 2PSU,-C	C
X-N2200-PAC-400W-R6	Power Supply,Cisco N22XX 400 Watt	C
X-N2K-C2248-FAN-R6	Fan,Cisco N2248 Fabric Extender	C

The Cisco Nexus 2248 is also sold as a bundle with eight Fabric Extender Transceivers (FETs)

included, four for the Cisco Nexus 2248 and four for the Cisco Nexus 5000 that is connected to the Cisco Nexus 2248.

Cisco Nexus 2248TF Bundle Part Numbers

Part Number	Description	Discount Category
X-N2K-C2248TF-1GE-R5-C	Switch,Cisco N2248 FEX 48/4 10GE 2PSU 8FET,-C	C

Cisco Nexus 2232PP-10G Fabric Extender

- NetApp also resells the Cisco Nexus 2232PP-10G Fabric Extender as part of the network infrastructure offering. The Cisco Nexus 2232PP-10G is a 1U Fabric Extender with 24 fixed 10GbE ports (requires SFP+) and eight 10GbE WAN ports (requires SFP+). The Cisco Nexus 2232PP-10G is a 10GbE Fabric Extender and supports DCB/FCoE, although the Cisco Nexus 2232PP-10G does not perform any of the Fibre Channel Switch forwarding functions. The Cisco Nexus 2232PP-10G utilizes the same optical modules as the Cisco Nexus 2248TP.

Cisco Nexus 2232PP-10G Part Numbers

Part Number	Description	Discount Category
X-N2K-C2232PP-10GE-R6-C	Switch,Cisco N2232 Fab Ext 32/8 10GE 2PSU,-C	C
X-N2K-C2232-FAN-R6	Fan,Cisco N2232 Fabric Extender	C

The Cisco Nexus 2232 is also sold as a bundle with 16 Fabric Extender Transceivers (FETs) included, eight for the Cisco Nexus 2232 and eight for the Cisco Nexus 5000 that is connected to the Cisco Nexus 2232.

Cisco Nexus 2232PF Bundle Part Numbers

Part Number	Description	Discount Category
X-N2K-C2232PF-10GE-R5-C	Switch,Cisco N2232 FEX 32/8 10G 2PSU 16FET,-C	C

Service Options

NetApp requires Brocade Direct Support (BDS) for the Brocade 8000 switch. No NetApp SupportEdge service is offered for the Brocade 8000 switch. The BDS part numbers are the same for both the FCoE-enabled and DCB/Ethernet versions of the 8000 switch.

Brocade 8000 Service Part Numbers

Part Number	Description	Discount Category
SVCVN-BRCD-8000-4OS-x	Service,Brocade 8000 x Yr 4HR Onsite	C
SVCVN-BRCD-8000-4P-x	Service, Brocade 8000 x Yr 4HR Parts	C
SVCVN-BRCD-8000-NDO-x	Service, Brocade 8000 x Yr NBD Onsite	C
SVCVN-BRCD-8000-NDP-x	Service, Brocade 8000 x Yr NBD Parts	C

SVCVN-BRCD-8000-RTF-x	Service, Brocade 8000 x Yr Return to Factory	C
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Where x = 1 to 5 years

NetApp offers SupportEdge service for the Brocade FCoE10-24 blade as part of the DCX and DCX-4S chassis service offering. The duration and level of service are determined by the service level and contract duration for the chassis itself, since the blades are inherently covered under the umbrella contract for the DCX/DCX-4S chassis.

NetApp resells Cisco SMARTnet service contracts for the Cisco Nexus 2000 and 5000 products.

Cisco Nexus 5010 SMARTnet Part Numbers

Part Number	Description	Discount Category
SVCVN-CON-OSE-N5010S	Cisco Onsite 8x5x4hr,5010 w/FCoE	C
SVCVN-CON-OS-N5010S	Cisco Onsite 8x5xNBD,5010 w/FCoE	C
SVCVN-CON-OSP-N5010S	Cisco Onsite 24x7x4hr,5010 w/FCoE	C
SVCVN-CON-PREM-N5010S	Cisco Onsite 24x7x2hr,5010 w/FCoE	C
SVCVN-CON-S2P-N5010S	Cisco AR 24x7x2hr,5010 w/FCoE	C
SVCVN-CON-SNTE-N5010S	Cisco AR 8x5x4hr,5010 w/FCoE	C
SVCVN-CON-SNT-N5010S	Cisco AR 8x5xNBD,5010 w/FCoE	C
SVCVN-CON-SNTP-N5010S	Cisco AR 24x7x4hr,5010 w/FCoE	C
SVCVN-CON-OSE-N5010	Cisco Onsite 8x5x4hr,5010 Ethernet	C
SVCVN-CON-OS-N5010	Cisco Onsite 8x5xNBD,5010 Ethernet	C
SVCVN-CON-OSP-N5010	Cisco Onsite 24x7x4hr,5010 Ethernet	C
SVCVN-CON-PREM-N5010	Cisco Onsite 24x7x2hr,5010 Ethernet	C
SVCVN-CON-S2P-N5010	Cisco AR 24x7x2hr,5010 Ethernet	C
SVCVN-CON-SNTE-N5010	Cisco AR 8x5x4hr,5010 Ethernet	C
SVCVN-CON-SNT-N5010	Cisco AR 8x5xNBD,5010 Ethernet	C
SVCVN-CON-SNTP-N5010	Cisco AR 24x7x4hr,5010 Ethernet	C

Cisco Nexus 5020 SMARTnet Part Numbers

Part Number	Description	Discount Category
SVCVN-CON-OSE-N5020S	Cisco Onsite 8x5x4hr,5020 w/FCoE	C
SVCVN-CON-OS-N5020S	Cisco Onsite 8x5xNBD,5020 w/FCoE	C
SVCVN-CON-OSP-N5020S	Cisco Onsite 24x7x4hr,5020 w/FCoE	C
SVCVN-CON-PREM-N5020S	Cisco Onsite 24x7x2hr,5020 w/FCoE	C
SVCVN-CON-S2P-N5020S	Cisco AR 24x7x2hr,5020 w/FCoE	C
SVCVN-CON-SNTE-N5020S	Cisco AR 8x5x4hr,5020 w/FCoE	C
SVCVN-CON-SNT-N5020S	Cisco AR 8x5xNBD,5020 w/FCoE	C
SVCVN-CON-SNTP-N5020S	Cisco AR 24x7x4hr,5020 w/FCoE	C
SVCVN-CON-OSE-N5020	Cisco Onsite 8x5x4hr,5020 Ethernet	C
SVCVN-CON-OS-N5020	Cisco Onsite 8x5xNBD,5020 Ethernet	C
SVCVN-CON-OSP-N5020	Cisco Onsite 24x7x4hr,5020 Ethernet	C
SVCVN-CON-PREM-N5020	Cisco Onsite 24x7x2hr,5020 Ethernet	C

SVCVN-CON-S2P-N5020	Cisco AR 24x7x2hr,5020 Ethernet	C
SVCVN-CON-SNTE-N5020	Cisco AR 8x5x4hr,5020 Ethernet	C
SVCVN-CON-SNT-N5020	Cisco AR 8x5xNBD,5020 Ethernet	C
SVCVN-CON-SNTP-N5020	Cisco AR 24x7x4hr,5020 Ethernet	C

Cisco Nexus 5K Expansion Modules SMARTnet Part Numbers

Part Number	Description	Discount Category
SVCVN-CON-SNTP-N5008	Cisco AR 24x7x4hr,8-port 4G FC	C
SVCVN-CON-OSE-N5008	Cisco Onsite 8x5x4hr,8-port 4G FC	C
SVCVN-CON-OS-N5008	Cisco HW Svc,5020 8Pt 4G FC,Onsite 8x5xNBD	C
SVCVN-CON-OSP-N5008	Cisco Onsite 24x7x4hr,8-port 4G FC	C
SVCVN-CON-PREM-N5008	Cisco Onsite 24x7x2hr,8-port 4G FC	C
SVCVN-CON-S2P-N5008	Cisco AR 24x7x2hr,8-port 4G FC	C
SVCVN-CON-SNTE-N5008	Cisco AR 8x5x4hr,8-port 4G FC	C
SVCVN-CON-SNT-N5008	Cisco AR 8x5xNBD,8-port 4G FC	C
SVCVN-CON-SNTP-N5600	Cisco AR 24x7x4hr,6-port 10GbE	C
SVCVN-CON-OSE-N5600	Cisco Onsite 8x5x4hr,6-port 10GbE	C
SVCVN-CON-OS-N5600	Cisco HW Svc,50XX 6Pt 10GbE,Onsite 8x5xNBD	C
SVCVN-CON-OSP-N5600	Cisco Onsite 24x7x4hr,6-port 10GbE	C
SVCVN-CON-PREM-N5600	Cisco Onsite 24x7x2hr,6-port 10GbE	C
SVCVN-CON-S2P-N5600	Cisco AR 24x7x2hr,6-port 10GbE	C
SVCVN-CON-SNTE-N5600	Cisco AR 8x5x4hr,6-port 10GbE	C
SVCVN-CON-SNT-N5600	Cisco AR 8x5xNBD,6-port 10GbE	C
SVCVN-CON-SNTP-N5404	Cisco AR 24x7x4hr,4pt 10GbE/FC	C
SVCVN-CON-OSE-N5404	Cisco Onsite 8x5x4hr,4pt 10GbE/FC	C
SVCVN-CON-OS-N5404	Cisco HW Svc,50XX 4pt 10GE/FC,Onsite 8x5xNBD	C
SVCVN-CON-OSP-N5404	Cisco Onsite 24x7x4hr,4pt 10GbE/FC	C
SVCVN-CON-PREM-N5404	Cisco Onsite 24x7x2hr,4pt 10GbE/FC	C
SVCVN-CON-S2P-N5404	Cisco AR 24x7x2hr,4pt 10GbE/FC	C
SVCVN-CON-SNTE-N5404	Cisco AR 8x5x4hr,4pt 10GbE/FC	C
SVCVN-CON-SNT-N5404	Cisco AR 8x5xNBD,4pt 10GbE/FC	C
SVCVN-CON-OS-N5060	Cisco,HW Svc,Onsite 8x5xNBD,50XX 6-Pt 8G FC	C
SVCVN-CON-OSE-N5060	Cisco,HW Svc,Onsite 8x5x4hr,50XX 6-Pt 8G FC	C
SVCVN-CON-OSP-N5060	Cisco,HW Svc,Onsite 24x7x4hr,50XX 6-Pt 8G FC	C
SVCVN-CON-PREM-N5060	Cisco,HW Svc,Onsite 24x7x2hr,50XX 6-Pt 8G FC	C
SVCVN-CON-S2P-N5060	Cisco,HW Svc,AR 24x7x2hr,50XX 6-Pt 8G FC	C
SVCVN-CON-SNT-N5060	Cisco,HW Svc,AR 8x5xNBD,50XX 6-Pt 8G FC	C
SVCVN-CON-SNTE-N5060	Cisco,HW Svc,AR 8x5x4hr,50XX 6-Pt 8G FC	C
SVCVN-CON-SNTP-N5060	Cisco,HW Svc,AR 24x7x4hr,50XX 6-Pt 8G FC	C

Cisco Nexus 2000 Series Fabric Extenders SMARTnet Part Numbers

Part Number	Description	Discount Category
SVCVN-CON-SNTP-N2148	Cisco AR 24x7x4hr,FEX 2148T	C
SVCVN-CON-OSE-N2148	Cisco Onsite 8x5x4hr,FEX 2148T	C
SVCVN-CON-OS-N2148	Cisco HW Svc, FEX 2148T,Onsite 8x5xNBD	C
SVCVN-CON-OSP-N2148	Cisco Onsite 24x7x4hr,FEX 2148T	C
SVCVN-CON-PREM-N2148	Cisco Onsite 24x7x2hr,FEX 2148T	C
SVCVN-CON-S2P-N2148	Cisco AR 24x7x2hr,FEX 2148T	C
SVCVN-CON-SNTE-N2148	Cisco AR 8x5x4hr,FEX 2148T	C
SVCVN-CON-SNT-N2148	Cisco AR 8x5xNBD,FEX 2148T	C
SVCVN-CON-OS-N2248T	Service,Cisco 2248 Onsite 8x5xNBD	C
SVCVN-CON-OSE-N2248T	Service,Cisco 2248 Onsite 8x5x4hr	C
SVCVN-CON-OSP-N2248T	Service,Cisco 2248 Onsite 24x7x4hr	C
SVCVN-CON-PREM-N2248T	Service,Cisco 2248 Onsite 24x7x2hr	C
SVCVN-CON-S2P-N2248T	Service,Cisco 2248 Part 24x7x2hr	C
SVCVN-CON-SNT-N2248T	Service,Cisco 2248 Part 8x5xNBD	C
SVCVN-CON-SNTE-N2248T	Service,Cisco 2248 Part 8x5x4hr	C
SVCVN-CON-SNTP-N2248T	Service,Cisco 2248 Part 24x7x4hr	C
SVCVN-CON-OS-N2232P	Service,Cisco 2232 Onsite 8x5xNBD	C
SVCVN-CON-OSE-N2232P	Service,Cisco 2232 Onsite 8x5x4hr	C
SVCVN-CON-OSP-N2232P	Service,Cisco 2232 Onsite 24x7x4hr	C
SVCVN-CON-PREM-N2232P	Service,Cisco 2232 Onsite 24x7x2hr	C
SVCVN-CON-S2P-N2232P	Service,Cisco 2232 Part 24x7x2hr	C
SVCVN-CON-SNT-N2232P	Service,Cisco 2232 Part 8x5xNBD	C
SVCVN-CON-SNTE-N2232P	Service,Cisco 2232 Part 8x5x4hr	C
SVCVN-CON-SNTP-N2232P	Service,Cisco 2232 Part 24x7x4hr	C

7. Regulatory Compliance

The new FCoE products are validated for compliance with all defined NetApp EMI and RoHS compliance requirements.

8. Warranty and Service

The warranty period and coverage depend on the particular products selected. All Cisco and Brocade hardware has a one-year limited hardware warranty. The warranty includes hardware replacement with a 10-day turnaround. Each Cisco Nexus switch purchase requires a SMARTnet service contract and each Brocade 8000 switch purchase requires a Brocade Direct Support (BDS) contract. The Brocade FCoE10-24 blade does not require a separate service contract because it is covered by the existing NetApp SupportEdge contract for the DCX/DCX-4S chassis where the blade is installed. The Unified Target Adapters are covered under the SupportEdge service contract for the NetApp storage system where the Unified Target Adapter is installed. The Brocade, Emulex, and QLogic CNAs, when purchased from NetApp, are covered under a limited (standard field replacement) warranty.

Contact information: Please contact your NetApp sales or channel partner representative with questions about this bulletin.

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