Technical specifications and references

FlexPod

NetApp
August 27, 2021

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Technical specifications and references

Technical specifications provide details about the hardware components in a FlexPod solution, such as chassis, FEXs, servers, switches, and storage controllers.

Cisco UCS B-Series blade server chassis

The technical specifications for Cisco UCS B-Series Blade Server chassis, as shown in the table below, include the following components:

- Number of rack units
- Maximum number of blades
- Unified Fabric capability
- Midplane I/O bandwidth per server
- Number of I/O bays for FEXs

Component	Cisco UCS 5100 Series blade server chassis
Rack units	6
Maximum full-width blades	4
Maximum half-width blades	8
Capable of Unified Fabric	Yes
Midplane I/O	Up to 80Gbps of I/O bandwidth per server
I/O bays for FEXs	Two bays for Cisco UCS 2104XP, 2204/8XP, 2408XP, and 2304 FEXs

For more information, see the Cisco UCS 5100 Series Blade Server Chassis Datasheet.

Cisco UCS B-Series blade servers

The technical specifications for Cisco UCS B-Series Blade Servers, as shown in the table below, include the following components:

- Number of processor sockets
- Processor support
- Memory capacity
- Size and speed
- SAN boot support
- Number of mezzanine adapter slots
- I/O maximum throughput
- Form factor
- Maximum number of servers per chassis

Component	Cisco UCS datasheet
Cisco UCS B200 M5	Cisco UCS B200 M5 Blade Server
Cisco UCS B480 M5	Cisco UCS B480 M5 Blade Server

Cisco UCS C-Series rack servers

The technical specifications for the Cisco UCS C-Series rack servers include processor support, maximum memory capacity, the number of PCIe slots, and the size of the form factor. For additional details on compatible UCS server models, see the Cisco Hardware Compatibility list. The tables below illustrate the C-Series Rack Server datasheets and Cisco UCS C-Series chassis option, respectively.

Component	Cisco UCS datasheet
Cisco UCS C220 M5	Cisco UCS C220 M5 Rack Server
Cisco UCS C240 M5	Cisco UCS C240 M5 Rack Server
Cisco UCS C480 M5	Cisco UCS C480 M5 Rack Server
Cisco UCS C480 ML M5	Cisco UCS C480 ML M5 Rack Server
Cisco UCS C125 M5	Cisco UCS C125 M5 Rack Server Node

Cisco UCS C-Series Chassis	Cisco UCS datasheet
Cisco UCS C4200	Cisco UCS C4200 Series Rack Server Chassis

GPU recommendation for FlexPod AI, ML, and DL

The Cisco UCS C-Series Rack Servers listed in the table below can be used in a FlexPod architecture for hosting AI, ML, and DL workloads. The Cisco UCS C480 ML M5 Servers are purpose built for AI, ML, and DL workloads and use NVIDIA's SXM2- based GPUs while the other servers use PCIe- based GPUs.

The table below also lists the recommended GPUs that can be used with these servers.

Server	GPUs
Cisco UCS C480 ML M5	NVIDIA SXM2 V100 32G
Cisco UCS C480 M5	NVIDIA V100 (16GB/ 32GB) NVIDIA T4 (16GB)
Cisco UCS C240 M5	NVIDIA V100 (16GB/ 32GB) NVIDIA T4 (16GB)
Cisco UCS C220 M5	NVIDIA T4 (16GB)
Cisco UCS C125 M5	NVIDIA T4 (16GB)

Cisco UCS VIC adapters for Cisco UCS B-Series blade servers

The technical specifications for Cisco UCS Virtual Interface Card (VIC) adapters for Cisco UCS B-Series Blade

Servers include the following components:

- Number of uplink ports
- Performance per port (IOPS)
- Power
- Number of blade ports
- Hardware offload
- Single root input/output virtualization (SR-IOV) support

All currently validated FlexPod architectures use a Cisco UCS VIC. Other adapters are supported if they are listed on the NetApp IMT and are compatible with your deployment of FlexPod, but they might not deliver all the features that are outlined in corresponding reference architectures. The following table illustrates the Cisco UCS VIC adapter datasheets.

Component	Cisco UCS datasheet
Cisco UCS Virtual Interface Adapters	Cisco UCS VIC Datasheets

Cisco UCS fabric interconnects

The technical specifications for Cisco UCS fabric interconnects include form factor size, the total number of ports and expansion slots, and throughput capacity. The following table illustrates the Cisco UCS fabric interconnect datasheets.

Component	Cisco UCS datasheet
Cisco UCS 6248UP	Cisco UCS 6200 Series Fabric Interconnects
Cisco UCS 6296UP	
Cisco UCS 6324	Cisco UCS 6324 Fabric Interconnect
Cisco UCS 6300	Cisco UCS 6300 Series Fabric Interconnects
Cisco UCS 6454	Cisco UCS 6400 Series Fabric Interconnects

Cisco Nexus 5000 Series switches

The technical specifications for Cisco Nexus 5000 Series Switches, including the form factor size, the total number of ports, and layer- 3 module and daughter card support, are contained in the datasheet for each model family. These datasheets can be found in the following table.

Component	Cisco Nexus datasheet
Cisco Nexus 5548UP	Cisco Nexus 5548UP Switch
Cisco Nexus 5596UP (2U)	Cisco Nexus 5596UP Switch
Cisco Nexus 56128P	Cisco Nexus 56128P Switch
Cisco Nexus 5672UP	Cisco Nexus 5672UP Switch

Cisco Nexus 7000 Series switches

The technical specifications for Cisco Nexus 7000 Series Switches, including the form factor size and the maximum number of ports, are contained in the datasheet for each model family. These datasheets can be found in the following table.

Component	Cisco Nexus datasheet
Cisco Nexus 7004	Cisco Nexus 7000 Series Switches
Cisco Nexus 7009	
Cisco Nexus 7010	
Cisco Nexus 7018	
Cisco Nexus 7702	Cisco Nexus 7700 Series Switches
Cisco Nexus 7706	
Cisco Nexus 7710	
Cisco Nexus 7718	

Cisco Nexus 9000 Series switches

The technical specifications for Cisco Nexus 9000 Series Switches are contained in the datasheet for each model. Specifications include the form factor size; the number of supervisors, fabric module, and line card slots; and the maximum number of ports. These datasheets can be found in the following table.

Component	Cisco Nexus datasheet
Cisco Nexus 9000 Series	Cisco Nexus 9000 Series Switches
Cisco Nexus 9500 Series	Cisco Nexus 9500 Series Switches
Cisco Nexus 9300 Series	Cisco Nexus 9300 Series Switches
Cisco Nexus 9336PQ ACI Spine Switch	Cisco Nexus 9336PQ ACI Spine Switch
Cisco Nexus 9200 Series	Cisco Nexus 9200 Platform Switches

Cisco Application Policy Infrastructure controller

When you deploy Cisco ACI, in addition to the items in the section Cisco Nexus 9000 Series Switches, you must configure three Cisco APICs. The following table lists the Cisco APIC datasheet.

Component	Cisco Application Policy Infrastructure datasheet
Cisco Application Policy Infrastructure Controller	Cisco APIC Datasheet

Cisco Nexus fabric extender details

The technical specifications for the Cisco Nexus FEX include speed, the number of fixed ports and links, and form factor size.

The following table lists the Cisco Nexus 2000 Series FEX datasheet.

Component	Cisco Nexus fabric extender datasheet
Cisco Nexus 2000 Series Fabric Extenders	Nexus 2000 Series FEX Datasheet

SFP modules

For information about the SFP modules, review the following resources:

- For information about the Cisco 10Gb SFP, see Cisco 10 Gigabit Modules.
- For information about the Cisco 25Gb SFP, see Cisco 25 Gigabit Modules.
- For information about the Cisco QSFP module, see the Cisco 40GBASE QSFP Modules datasheet.
- For information about the Cisco 100Gb SFP, see Cisco 100 Gigabit Modules.
- For information about the Cisco FC SFP module, see the Cisco MDS 9000 Family Pluggable Transceivers datasheet.
- For information about all supported Cisco SFP and transceiver modules, see Cisco SFP and SFP+ Transceiver Module Installation Notes and Cisco Transceiver Modules.

NetApp storage controllers

The technical specifications for NetApp storage controllers include the following components:

- Chassis configuration
- Number of rack units
- Amount of memory
- NetApp FlashCache caching
- Aggregate size
- Volume size
- Number of LUNs
- Supported network storage
- Maximum number of NetApp FlexVol volumes
- Maximum number of supported SAN hosts
- Maximum number of Snapshot copies

FAS Series

All available models of FAS storage controllers are supported for use in a FlexPod Datacenter. Detailed specifications for all FAS series storage controllers are available in the NetApp Hardware Universe and in the platform datasheets listed in the following table.

Component	FAS Series Controller Datasheet
FAS9000 Series	FAS9000 Series Datasheet
FAS8700 Series	FAS8700 Series Datasheet

Component	FAS Series Controller Datasheet
FAS8300 Series	FAS8300 Series Datasheet
FAS2700 Series	FAS2700 Series Datasheet

AFF A-Series

All current models of NetApp AFF A-Series storage controllers are supported for use in FlexPod. Additional information can be found in the AFF Technical Specifications datasheet and in the NetApp Hardware Universe. See the platform- specific documentation listed in the following table for detailed information about a specific AFF Model.

Component	AFF A-Series controller platform documentation
NetApp AFF A800	AFF A800 Platform Documentation
NetApp AFF A700	AFF A700 Platform Documentation
NetApp AFF A700s	AFF A700s Platform Documentation
NetApp AFF A400	AFF A400 Platform Documentation
NetApp AFF A300	AFF A300 Platform Documentation
NetApp AFF A220	AFF A220 Platform Documentation

AFF ASA A-Series

All current models of NetApp AFF ASA A-Series storage controllers are supported for use in FlexPod. Additional information can be found in the All SAN Array documentation resources, ONTAP AFF All SAN Array System technical report, and in the NetApp Hardware Universe. See the platform-specific documentation listed in the following table for detailed information about a specific AFF Model.

Component	AFF A-Series controller platform documentation
NetApp AFF ASA A800	AFF ASA A800 Platform Documentation
NetApp AFF ASA A700	AFF ASA A700 Platform Documentation
NetApp AFF ASA A400	AFF ASA A400 Platform Documentation
NetApp AFF ASA A250	AFF ASA A250 Platform Documentation
NetApp AFF ASA A220	AFF ASA A220 Platform Documentation

NetApp disk shelves

The technical specifications for NetApp disk shelves include the form factor size, the number of drives per enclosure, and the shelf I/O modules; this documentation can be found in the following table. For more information, see the NetApp Disk Shelves and Storage Media Technical Specifications and the NetApp Hardware Universe.

Component	NetApp FAS/AFF disk shelf documentation
NetApp DS212C Disk Shelf	DS212C Disk Shelf Documentation
NetApp DS224C Disk Shelf	DS224C Disk Shelf Documentation

Component	NetApp FAS/AFF disk shelf documentation
NetApp DS460C Disk Shelf	DS460C Disk Shelf Documentation
NetApp NS224 NVMe-SSD Disk Shelf	NS224 Disk Shelf Documentation

NetApp drives

The technical specifications for NetApp drives include the form factor size, disk capacity, disk RPM, supporting controllers, and ONTAP version requirements. These specifications can be found in the Drives section of the NetApp Hardware Universe.