



Cisco UCS B200 M5 Blade Server

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OVERVIEW

Delivering performance, versatility and density without compromise, the Cisco UCS B200 M5 Blade Server addresses the broadest set of workloads, from IT and web infrastructure through distributed database.

The enterprise-class Cisco UCS B200 M5 blade server extends the capabilities of Cisco's Unified Computing System portfolio in a half-width blade form factor. The Cisco UCS B200 M5 harnesses the power of the latest Intel® Xeon® processor scalable family CPUs with up to 3072 GB of RAM (using 128 GB DIMMs), two solid-state drives (SSDs) or hard disk drives (HDDs), and up to 80 Gbps throughput connectivity.

Figure 1 Cisco UCS B200 M5 Blade Server

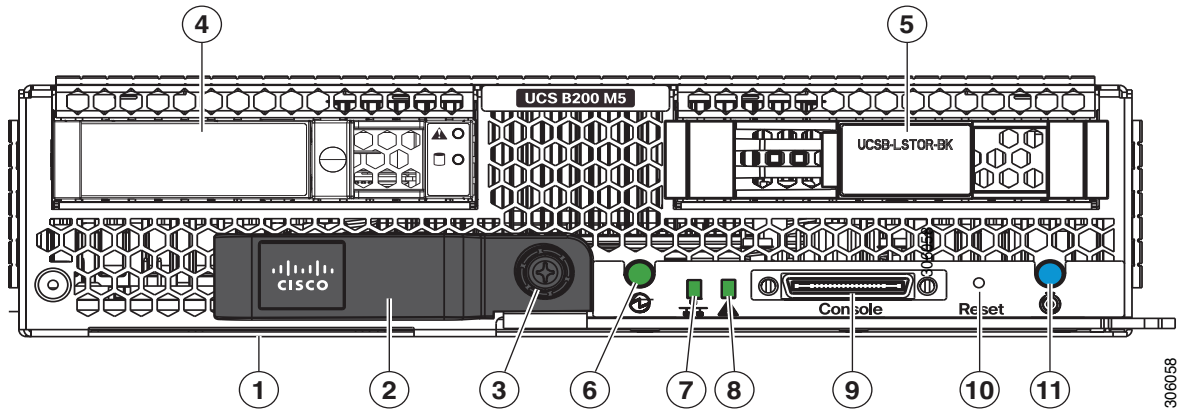


DETAILED VIEWS

Blade Server Front View

Figure 2 is a detailed front view of the Cisco UCS B200 M5 Blade Server.

Figure 2 Blade Server Front View



1	Asset pull tag Each server has a plastic tag that pulls out of the front panel. The tag contains the server serial number as well as the product ID (PID) and version ID (VID). The tag also allows you to add your own asset tracking label without interfering with the intended air flow.	7	Network link status
2	Blade ejector handle	8	Blade health LED
3	Ejector captive screw	9	Console connector ¹
4	Drive bay 1	10	Reset button access
5	Drive bay 2	11	Locater button and LED
6	Power button and LED		

Notes:

- 1. A KVM I/O Cable plugs into the console connector, it can be ordered as a spare. The KVM I/O Cable is included with every Cisco UCS 5100 Series blade server chassis accessory kit

BASE SERVER STANDARD CAPABILITIES and FEATURES

Table 1 lists the capabilities and features of the base server. Details about how to configure the server for a particular feature or capability (for example, number of processors, disk drives, or amount of memory) are provided in *CONFIGURING the SERVER on page 7*

Table 1 Capabilities and Features

Capability/Feature	Description
Chassis	The UCS B200 M5 Blade Server mounts in a Cisco UCS 5108 Series blade server chassis or UCS Mini blade server chassis.
CPU	One or two Intel® Xeon® scalable family CPUs. Also note that the B200 M5 Blade Server BIOS inherently enables support for Intel Advanced Encryption Standard New Instructions (AES-NI) and does not have an option to disable this feature.
Chipset	Intel® C620 series chipset (Lewisburg)
Memory	<ul style="list-style-type: none"> ■ 24 total DIMM slots ■ Support for Advanced ECC ■ Support for registered ECC DIMMs (RDIMMs) ■ Support for load-reduced DIMMs (LR DIMMs) ■ Support for through-silicon via DIMMs (TSV DIMMs) ■ Up to 3072 GB total memory capacity
Modular LOM	One modular LOM (mLOM) Connector for Cisco mLOM VIC Adapter which provides Ethernet or Fibre Channel over Ethernet (FCoE) Connectivity
Mezzanine Adapters (Rear)	<p>One rear mezzanine connector for various types of Cisco mezzanine adapters</p> <ul style="list-style-type: none"> ■ Cisco Mezzanine VIC Adapter OR ■ Cisco Mezzanine Port Expander OR ■ Cisco Mezzanine NVMe Storage Adapter OR ■ Cisco Mezzanine nVIDIA P6 GPU
Mezzanine Adapters (Front)	<p>One front mezzanine connector for</p> <ul style="list-style-type: none"> ■ Cisco FlexStorage Controller OR ■ Cisco Mezzanine nVIDIA P6 GPU <p>NOTE: No Front Mezzanine Cards are available with 165W+ CPUs.</p>
Storage controller	<p>For the front mezzanine connectors</p> <ul style="list-style-type: none"> ■ Cisco FlexStorage 12G RAID Controller ■ Cisco FlexStorage 12G RAID Controller with 1GB Cache ■ Cisco FlexStorage NVMe Passthrough Controller

Table 1 Capabilities and Features

Capability/Feature	Description
Storage devices	<p>Up to two optional, front-accessible, hot-swappable, 2.5-inch small form factor (SFF) drive slots. Choice of</p> <ul style="list-style-type: none"> ■ 10K or 15K Hard Disk Drives (HDD) ■ Enterprise Performance or Enterprise Value Solid State Drives (SSD) ■ High, Medium Endurance NVMe Drives <p>Internal Mini-storage modules that can accommodate either</p> <ul style="list-style-type: none"> ■ Up to two SD Modules (32G, 64G or 128G supporting RAID 1 OR ■ Up to two M.2 SATA Drives (240G or 960G) supported by LSI SW RAID <p>Internal UCS 3.0 Port that can accommodated Cisco 16G USB Drive</p>
Video	<p>The Cisco Integrated Management Controller (CIMC) provides video using Matrox G200e video/graphics controller</p> <ul style="list-style-type: none"> ■ Integrated 2D graphics core with hardware acceleration ■ DDR4 memory interface supports up to 512MB of addressable memory (8MB is allocated by default to video memory) ■ Supports display resolutions up to 1920 x 1200 32 bpp@ 60Hz
Interfaces	<p>Single lane PCI-Express host interface running at Gen 2 speed Front panel One console connector</p>
Power subsystem	<p>Integrated in the Cisco UCS 5108 blade server chassis</p>
Fans	<p>Integrated in the Cisco UCS 5108 blade server chassis.</p>
Integrated management processor	<p>The built-in Cisco Integrated Management Controller (CIMC) GUI or CLI interface enables monitoring of server inventory, health, and system event logs</p>
ACPI	<p>Advanced Configuration and Power Interface (ACPI) 4.0 Standard Supported.</p>

CONFIGURING the SERVER

Follow these steps to configure the Cisco UCS B200 M5 Blade Server:

- *STEP 1 CHOOSE BASE SERVER SKU, page 8*
- *STEP 2 CHOOSE CPU(S), page 9*
- *STEP 3 CHOOSE MEMORY, page 11*
- *STEP 4 CHOOSE MLOM, page 13*
- *STEP 5 CHOOSE SOFTWARE, page 15*
- *STEP 6 CHOOSE OPTIONAL REAR MEZZANINE ADAPTERS (VIC, NVMe or GPU), page 16*
- *STEP 7 CHOOSE OPTIONAL FRONT MEZZANINE ADAPTER: Storage Controller or GPU, page 18*
- *STEP 8 CHOOSE OPTIONAL Hard Disk Drives (HDD), Solid-State Drives (SSD) or NVMe, page 19*
- *STEP 9 CHOOSE OPTIONAL SECURE DIGITAL CARDS or M.2 DRIVES, page 23*
- *STEP 10 CHOOSE OPTIONAL TRUSTED PLATFORM MODULE, page 24*
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- *STEP 12 CHOOSE OPTIONAL VALUE-ADDED SOFTWARE, page 26*
- *STEP 13 CHOOSE OPTIONAL OPERATING SYSTEMS, page 29*
- *STEP 14 CHOOSE OPTIONAL OPERATING SYSTEM MEDIA KIT, page 34*
- *STEP 15 CHOOSE SERVICE and SUPPORT LEVEL, page 35*

STEP 1 CHOOSE BASE SERVER SKU

Verify the product ID (PID) of the server as shown in [Table 2](#).

Table 2 PID of the Base UCS B200 M5 Blade Server

Product ID (PID)	Description
UCSB-B200-M5	UCS B200 M5 Blade Server without CPU, memory, drive bays, HDD, VIC adapter, or mezzanine adapters (Ordered as a blade chassis option)
UCSB-B200-M5-U	UCS B200 M5 Blade Server without CPU, memory, drive bays, HDD, VIC adapter, or mezzanine adapters (UPG) (Ordered standalone)
UCSB-B200-M5-CH	DISTI: UCS B200 M5 Blade Server without CPU, memory, drive bays, HDD, VIC adapter, or mezzanine adapters

A base Cisco UCS B200 M5 blade server ordered in [Table 2](#) does not include any components or option They must be selected during product ordering:

Please follow the steps in the following pages to order the components such as CPU, Memory, mLOM, SW that are required to have a functional blade

- CPUs
- Memory
- Cisco FlexStorage RAID controller with drive bays (or blank, for no local drives support)
- Disk drives
- Cisco adapters (such as the VIC 1340, VIC 1380, or Port Expander)
- Cisco UCS NVMe Flash Storage Adapters or GPUs

STEP 2 CHOOSE CPU(S)

The standard CPU features are:

- Intel® Xeon® scalable Processor family CPUs
- Intel C620 series chipset
- Up to 28 cores per processor, for a total of up to 56 cores per server

Select CPUs from [Table 3](#).

Table 3 Available CPUs

Product ID (PID)	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	UPI ¹ Links (GT/s)	Highest DDR4 DIMM Clock Support (MHz) ²
UCS-CPU-8176	2.1	165	38.5	28	10.4	2666
UCS-CPU-8164	2.0	150	35.75	26	10.4	2666
UCS-CPU-8160	2.1	150	33.00	24	10.4	2666
UCS-CPU-8158	3.0	150	24.75	12	10.4	2666
UCS-CPU-8156	3.6	105	16.50	4	10.4	2666
UCS-CPU-8153	2.0	125	22.00	16	10.4	2666
UCS-CPU-6154	3.0	200	24.75	18	10.4	2666
UCS-CPU-6152	2.1	140	30.25	22	10.4	2666
UCS-CPU-6150	2.7	165	24.75	18	10.4	2666
UCS-CPU-6148	2.4	150	27.50	20	10.4	2666
UCS-CPU-6146	3.2	165	24.75	12	10.4	2666
UCS-CPU-6144	3.5	150	24.75	8	10.4	2666
UCS-CPU-6142	2.6	150	22.00	16	10.4	2666
UCS-CPU-6140	2.3	140	24.75	18	10.4	2666
UCS-CPU-6138	2.0	125	27.50	20	10.4	2666
UCS-CPU-6136	3.0	150	24.75	12	10.4	2666
UCS-CPU-6134	3.2	130	24.75	8	10.4	2666
UCS-CPU-6132	2.6	140	19.25	14	10.4	2666
UCS-CPU-6130	2.1	125	22.00	16	10.4	2666
UCS-CPU-6128	3.4	115	19.25	6	10.4	2666
UCS-CPU-6126	2.6	125	19.25	12	10.4	2666
UCS-CPU-5122	3.6	105	16.50	4	10.4	2666
UCS-CPU-5120	2.2	105	19.25	14	10.4	2400
UCS-CPU-5118	2.3	105	16.50	12	10.4	2400
UCS-CPU-5115	2.4	85	13.75	10	10.4	2400
UCS-CPU-4116	2.1	85	16.50	12	9.6	2400
UCS-CPU-4114	2.2	85	13.75	10	9.6	2400
UCS-CPU-4112	2.6	85	8.25	4	9.6	2400

Table 3 Available CPUs (*continued*)

Product ID (PID)	Clock Freq (GHz)	Power (W)	Cache Size (MB)	Cores	UPI ¹ Links (GT/s)	Highest DDR4 DIMM Clock Support (MHz) ²
UCS-CPU-4110	2.1	85	11.00	8	9.6	2400
UCS-CPU-4108	1.8	85	11.00	8	9.6	2400
UCS-CPU-3106	1.6	85	11.00	8	9.6	2133
UCS-CPU-3104	1.6	85	8.25	6	9.6	2133
The Below "M" CPU SKUs Support up to 1.5T Memory per CPU³						
UCS-CPU-8176M	2.1	165	38.50	28	10.4	2666
UCS-CPU-8160M	2.1	150	33.00	24	10.4	2666
UCS-CPU-6142M	2.6	150	22.00	16	10.4	2666
UCS-CPU-6140M	2.3	140	24.75	18	10.4	2666
UCS-CPU-6134M	3.2	130	24.75	8	10.4	2666
The Below CPUs are "165W+" and operate with limited configurations. No Front Mezzanine Card will be supported with these CPUs: No Front Drives or No Front GPU allowed with the below CPUs.⁴						
UCS-CPU-8180	2.5	205	38.5	28	10.4	2666
UCS-CPU-8168	2.7	205	33.0	24	10.4	2666
UCS-CPU-6154	3.0	200	24.75	18	10.4	2666
UCS-CPU-8180M	2.5	205	38.5	28	10.4	2666

Notes:

1. UPI = Ultra Path Interconnect
2. If higher or lower speed DIMMs are selected than what is shown in the table for a given CPU, the DIMMs will be clocked at the lowest common denominator of CPU clock and DIMM clock.
3. CPU models with a "M" suffix denote those CPUs that support 1.5 TB of memory per CPU. 1.5TB Memory per CPU can be supported via 128G DIMMs
4. System performance may be reduced for greater than 165 W TDP processors if operating with a fan fault or above 32°C (89.6°F) system air inlet temperature, depending upon the application load

Supported Configurations

(1) One-CPU Configuration

- Choose one CPU from any one of the rows of [Table 3 Available CPUs, page 9](#)

(2) Two-CPU Configuration

- Choose two identical CPUs from any one of the rows of [Table 3 Available CPUs, page 9](#)

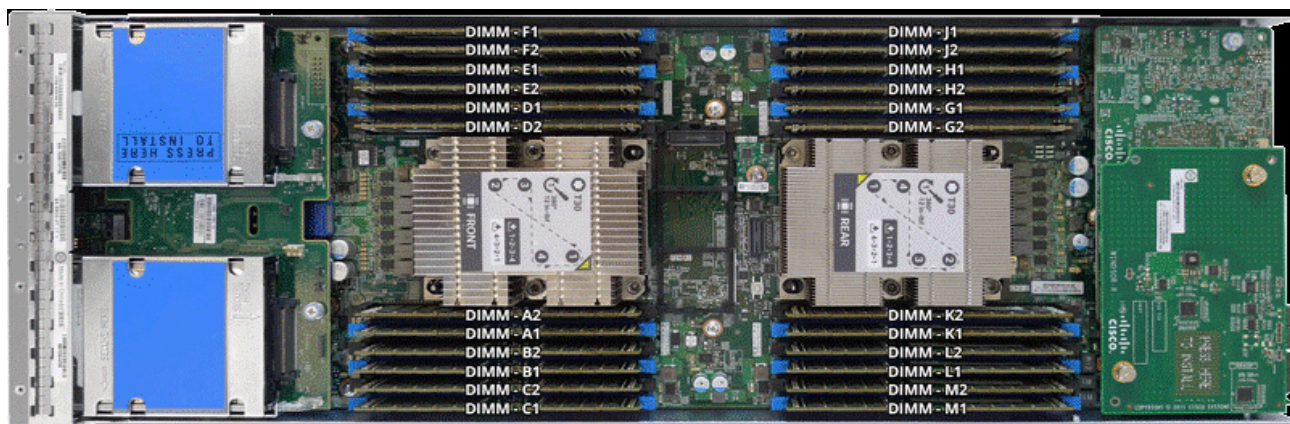
STEP 3 CHOOSE MEMORY

Available Memory for B200 M5 are with

- Clock speed: 2666 MHz
- Ranks per DIMM: 1, 2, 4, or 8
- Operational voltage: 1.2 V
- Registered ECC DDR4 DIMMs (RDIMMs), Load-reduced DIMMs (LRDIMMs) or through-silicon via DIMMs (TSV DIMMs)

Memory is organized with six memory channels per CPU, with up to two DIMMs per channel, as shown in [Figure 3](#).

Figure 3 B200 M5 Memory Organization



24 DIMMs, 6 Memory channels per CPU, up to 2 DIMMs per channel

Choose DIMMs and Memory Mirroring

Select the memory configuration and whether or not you want the memory mirroring option. The supported memory DIMMs and the mirroring option are listed in [Table 4](#), (Available DDR4)

Table 4 Available DDR4 DIMMs

Product ID (PID)	PID Description	Voltage	Ranks /DIMM
UCS-MR-128G8RS-H	128 GB DDR4-2666-MHz TSV-RDIMM//8R/x4	1.2 V	8
UCS-MR-X64G4RS-H	64 GB DDR4-2666-MHz TSV-RDIMM//4R/x4	1.2 V	4
UCS-ML-X64G4RS-H	64 GB DDR4-2666-MHz LRDIMM//4R/x4	1.2 V	4
UCS-MR-X32G2RS-H	32 GB DDR4-2666-MHz RDIMM//2R/x4	1.2 V	2
UCS-MR-X16G1RS-H	16 GB DDR4-2666-MHz RDIMM//1R/x4	1.2 V	1
UCS-MR-X16G2RS-H	16 GB DDR4-2666-MHz RDIMM/2R/x4	1.2 V	2
Memory Mirroring Option¹			

Table 4 Available DDR4 DIMMs

Product ID (PID)	PID Description	Voltage	Ranks /DIMM
N01-MMIRROR	Memory mirroring option		

Notes:

- For Memory Configuration and Mirroring, please refer to [MEMORY CONFIGURATION AND MIRRORING on page 43](#)

Memory Configurations Features and Modes

System speed is dependent on the CPU DIMM speed support. Refer to the Available CPU Table for DIMM Speeds

- The B200 M5 server supports four different memory reliability, availability, and serviceability (RAS) modes:
 - Independent Channel Mode
 - Mirrored Channel Mode
- Below are the system level RAS Mode combination limitations:
 - Mixing of Independent and Lockstep channel mode is not allowed per platform.
 - Mixing of Non-Mirrored and Mirrored mode is not allowed per platform.
 - Mixing of Lockstep and Mirrored mode is not allowed per platform.
 - Do not mix RDIMMs, LRDIMMs, TSV-RDIMMs.
 - Single-rank DIMMs can be mixed with dual-rank DIMMs in the same channel
- For best performance, observe the following:
 - DIMMs with different timing parameters can be installed on different slots within the same channel, but only timings that support the slowest DIMM will be applied to all. As a consequence, faster DIMMs will be operated at timings supported by the slowest DIMM populated.
 - When one DIMM is used, it must be populated in DIMM slot 1 (farthest away from the CPU) of a given channel.
 - When single or dual rank DIMMs are populated for 2DPC, always populate the higher number rank DIMM first (starting from the farthest slot). For a 2DPC example, first populate with dual rank DIMMs in the DIMM slot 1. Then
 - single-rank DIMMs in the DIMM 2 slot.
- DIMMs for CPU 1 and CPU 2 (when populated) must always be configured identically.
- Cisco memory from previous generation servers (DDR3 and DDR4) is not compatible with UCS B200 M5 Blade.
- Please refer to [MEMORY CONFIGURATION AND MIRRORING on page 43](#)
- Memory can be configured in any number of DIMMs as pairs, though for optimal performance, the Memory Performance Optimization Guide will be available.

STEP 4 CHOOSE MLOM

The UCS B200 M5 must be ordered with the Cisco VIC MLOM Adapter. This mLOM Adapter can operate in a Single CPU or Two CPU Configuration [Table 5](#) shows available mLOM Adapter choices.

Table 5 Aggregate Bandwidth with mLOM Only configuration

mLOM Only	Fabrics Extenders in UCS 5108 blade chassis Aggregate Bandwidth (Gb/s)			Fabric Interconnects Support			
	2x 2304	2x2208XP	2x 2204XP	2 x 62xx	1 x 6324	2 x 6332	2 x 6332UP
Vic 1340 mLOM	40 ¹	40 ¹	20	Yes	Yes (20 Gb/s)	Yes	Yes

Notes:

1. This uses two 2x10G port-channels

Cisco developed 1300 Series Virtual Interface Cards (VICs) to provide flexibility to create multiple NIC and HBA devices. The VICs also support adapter Fabric Extender and Virtual Machine Fabric Extender technologies. The VIC features are listed here:

- 1300 Series VICs include enhancements including network overlay offload support for NVGRE and VXLAN, and RoCE services. In addition, 1300 Series VICs support PCIe Gen 3.0.
- Two Converged Network Adapter (CNA) ports, supporting both Ethernet and FCoE
- Delivers 80 Gbps total I/O throughput to the server
- VIC 1340 supports dual 4x 10 Gbps Unified I/O ports or 2x40 (native) Gbps Unified I/O ports
- Creates up to 256 fully functional unique and independent PCIe adapters and interfaces (NICs or HBAs) without requiring single-root I/O virtualization (SR-IOV) support from operating systems or hypervisors
- Provides virtual machine visibility from the physical network and a consistent network operations model for physical and virtual servers
- Supports customer requirements for a wide range of operating systems and hypervisors

The mLOM VIC on the UCS B200 M5 enables connectivity to the Fabric Interconnect either via Fabric Extender (FEX) or directly the UCS 6324 Fabric Connector (UCS Mini) on the UCS 5108 Blade Chassis.

The supported Fabric Extenders for the B200 M5 blades are

- Cisco UCS 2208XP Fabric Extender
- Cisco UCS 2204XP Fabric Extender
- Cisco UCS 2304 Fabric Extender

The supported Fabric Interconnects for the B200 M5 blades are

- Cisco UCS 6248UP Fabric Interconnect

- Cisco UCS 6296UP Fabric Interconnect
- Cisco UCS 6332 Fabric Interconnect
- Cisco UCS 6332-16UP Fabric Interconnect
- Cisco UCS 6324 Fabric Interconnect (UCS-Mini)

UCSM 3.2(2) release is minimum required for UCS B200 M5.

STEP 5 CHOOSE SOFTWARE

UCSM Software Version needs to be selected for Standalone UCS B200 M5 Blade PID(UCSB-B200-M5-UPG).

Note:

- This is a new mandatory option for standalone blade starting with UCS B200 M5.
- When UCS B200 M5 is configured inside of a chassis in CCW Ordering Tool, UCSM SW Version is selected at the chassis level. The SW Option will not be available under the UCS B200 M5 in that case.
- UCSM 3.2(2) release is minimum required for UCS B200 M5

Table 6 Available Software Firmware

Product ID (PID)	Product Description	Software Version
N20-FW015	UCS 5108 Blade Chassis FW Package 3.2(2)	UCSM 3.2(2)

STEP 6 CHOOSE OPTIONAL REAR MEZZANINE ADAPTERS (VIC, NVMe or GPU)

The UCS B200 M5 has one rear mezzanine adapter slot. The UCS B200 M5 can be ordered with or without a Rear Mezzanine Adapter. Refer to [Table 7 Available Rear Mezzanine Adapters](#) for supported adapters.

Table 7 Available Rear Mezzanine Adapters

Product ID(PID)	PID Description	CPUs Required	Connector Type
Port Expander Card for VIC			
This is a hardware option to enable an additional 4 ports of the VIC 1340, bringing the total capability of the VIC 1340 to a dual native 40G interface or a dual 4 x 10 GbE port-channel interface, respectively.			
UCSB-MLOM-PT-01	Cisco UCS Port Expander Card for VIC	ONE or TWO CPU	Rear Mezzanine
Cisco VIC Card			
UCS-VIC-M83-8P	Cisco UCS VIC 1380 mezzanine adapter	TWO CPU REQUIRED	Rear Mezzanine
Cisco NVMe Flash Storage Adapters			
UCSB-F-H5607	UCS Blade PCIe/NVMe Storage Mezz 560 GB High Endurance	TWO CPU REQUIRED	Rear Mezzanine
UCSB-F-H32003	UCS Blade PCIe/NVMe Storage Mezz 3200 GB Medium Endurance	TWO CPU REQUIRED	Rear Mezzanine
Cisco GPU Rear			
UCSB-GPU-P6-R	NVIDIA GRID P6 Rear Mezzanine	TWO CPU REQUIRED	Rear Mezzanine

Table 8 Aggregate Bandwidth with Rear Mezz Cards Installed

Rear Mezz Adapter	Fabrics Extenders in UCS 5108 blade chassis Aggregate Bandwidth (Gb/s)			Fabric Interconnects Support			
	2x 2304	2x2208XP	2x 2204XP	2 x 62xx	1 x 6324	2 x 6332	2 x 6332UP
Port Expander	80 ¹	80 ²	40	Yes	Yes (40 Gb/s)	Yes	Yes
VIC 1380	80 ³	80 ³	40	Yes	Yes (40Gb/s)	Yes	Yes
Flash Card	40 ⁴	40 ⁴	20	Yes	Yes (20Gb/s)	Yes	Yes
GPU	40 ⁴	40 ⁴	20	Yes	Yes (20Gb/s)	Yes	Yes

Notes:

1. This uses a dual native 40G interface

2. This uses two 4x10G port-channels
3. This implements four 2x10G port-channels
4. This uses two 2x10G port-channels

STEP 7 CHOOSE OPTIONAL FRONT MEZZANINE ADAPTER: Storage Controller or GPU

The UCS B200 M5 has one front mezzanine slot. The UCS B200 M5 can be ordered with or without the front mezzanine card. The Front Mezzanine Card can accommodate Storage Controller or GPU. Refer to [Table 9 Available Front Mezzanine Adapters](#).

No Front Mezzanine Adapter available with 165W+ CPU.

Table 9 Available Front Mezzanine Adapters

Product ID(PID)	PID Description	Connector Type
Storage Controller^{1,2}		
This is a required for installing local drives in the UCS B200 M5		
UCSB-MRAID12G ^{3,4}	Cisco FlexStorage 12G SAS RAID controller with drive bays	Front Mezzanine
UCSB-MRAID12G-HE ^{5,3}	Cisco FlexStorage 12G SAS RAID controller with 2 GB flash-backed write cache with drive bays	Front Mezzanine
UCSB-LSTOR-PT ⁶	Cisco FlexStorage NVMe Passthrough module with HDD cage	Front Mezzanine
UCSB-LSTOR-BK ⁷	Cisco FlexStorage blanking panel w/o controller, w/o drive bays	Drive Blank
Cisco GPU Front		
UCSB-GPU-P6-F	NVIDIA GRID P6 Front Mezzanine	Front Mezzanine

Notes:

1. A Storage Controller is required for installing local drives (HDD, SSD, NVMe) on the B200 M5.
2. The RAID and Pass through are three different cards and cannot be upgraded or downgraded
3. For Hard disk drives (HDD) or Solid-state drives (SSD), Cisco FlexStorage 12G SAS RAID Controller is required.
4. Cisco FlexStorage 12G SAS RAID Controller is based on LSI 3108 ROC and runs the iMegaRAID software stack. It provides 12 Gbps RAID functionality for SAS/SATA SSD/HDD and has RAID 0, 1 and JBOD Support
5. Cisco FlexStorage 12G SAS RAID controller with 2 GB Flash-backed write cache is based on the LSI 3108 ROC and runs the LSI MegaRAID Software Stack. It provides 12 Gbps RAID Functionality for SAS/SATA HDD/SSD and has RAID 0, 1, 5 and 6 Support.

The flash-backed write cache provides RAID controller cache protection using NAND flash memory and a supercapacitor. In the event of a power or server failure, cached data is automatically transferred from the RAID controller DRAM write cache to flash. Once power is restored, the data in the NAND flash is copied back into the DRAM write cache until it can be flushed to the disk drives.

6. For NVMe, Cisco FlexStorage NVMe Passthrough is required.
7. For servers that do not need local storage, and where no Storage Controllers are included, Storage Blanking panels are auto-included as a part of configuration rules. Drive Blanks need to be installed if no Storage Controller or GPU in the system for the UCS B200 M5 to function.

STEP 8 CHOOSE OPTIONAL Hard Disk Drives (HDD), Solid-State Drives (SSD) or NVMe

The UCS B200 M5 can be ordered with or without drives. The standard disk drive features are:

- 2.5-inch small form factor
- Hot-pluggable
- Sled-mounted
- Supports hard disk drives (HDD), Solid State Drives (SSD) or Non-Volatile Memory Express (NVMe) Drives
- One or Two Drive Can be selected
- No Drives available with 165W+ CPU ([Table 3](#))
- Always requires One Storage Controllers listed in [Table 9 Available Front Mezzanine Adapters, page 18](#)

Select One or Two Drives from the list of supported drives available in [Table 10](#)

Table 10 Available Drive Options

Product ID (PID)	Description	Drive Type	Speed	Endurance	Size
HDD¹					
UCS-HD900G15K12G	900 GB 12G SAS 15K RPM SFF HDD	SAS	15K RPM	N/A	900 GB
UCS-HD600G15K12G	600 GB 12G SAS 15K RPM SFF HDD	SAS	15K RPM	N/A	600 GB
UCS-HD300G15K12G	300 GB 12G SAS 15K RPM SFF HDD	SAS	15K RPM	N/A	300 GB
UCS-HD18TB10KS4K	1.8 TB 12G SAS 10K RPM SFF HDD (4K) ²	SAS	10K RPM	N/A	1800 GB
UCS-HD12TB10K12G	1.2 TB 12G SAS 10K RPM SFF HDD	SAS	10K RPM	N/A	1200 GB
UCS-HD600G10K12G	600 GB 12G SAS 10K RPM SFF HDD	SAS	10K RPM	N/A	600 GB
UCS-HD300G10K12G	300 GB 12G SAS 10K RPM SFF HDD	SAS	10K RPM	N/A	300 GB
SSD¹					
UCS-SD400G12S4-EP	400 GB 2.5 inch Ent Performance 12G SAS SSD (10X endurance) (SanDisk Lightning II)	SAS	12G	Ent. Perf 10X	400 GB

Table 10 Available Drive Options

UCS-SD800G12S4-EP	800 GB 2.5 inch Ent. Performance 12G SAS SSD (10X endurance) (Samsung 1635)	SAS	12G	Ent. Perf 10X	800 GB
UCS-SD16TB12S4-EP	1.6 TB 2.5 inch Ent. Performance 12G SAS SSD (10X endurance) (SanDisk Lightning II)	SAS	12G	Ent. Perf 10X	1600 GB
UCS-SD800GSAS3-EP	800GB 2.5 inch Enterprise performance 12G SAS SSD(3X endurance) (Toshiba PX05)	SAS	12G	Ent. Perf 3X	800 GB
UCS-SD16TSASS3-EP	1.6TB 2.5 inch Enterprise performance 12G SAS SSD(3X endurance) (Toshiba PX05)	SAS	12G	Ent. Perf 3X	1.6 TB
UCS-SD480GBIS6-EV	480GB 2.5in Enterprise performance 6G SATA SSD(3X endurance) (Intel S4600)	SATA	6G	Ent. Perf 3X	480 GB
UCS-SD960GBIS6-EV	960GB 2.5in Enterprise performance 6G SATA SSD(3X endurance) (Intel S4600)	SATA	6G	Ent. Perf 3X	960 GB
UCS-SD38TBIS6-EV	1.9TB 2.5in Enterprise performance 6G SATA SSD(3X endurance) (Intel S4600)	SATA	6G	Ent. Perf 3X	1.9 TB
UCS-SD480GSAS-EV	480 GB 2.5 inch Enterprise Value 12G SAS SSD (Toshiba PX05)	SAS	12G	Ent. Value	480 GB
UCS-SD960GSAS-EV	960GB 2.5 inch Enterprise Value 12G SAS SSD (Toshiba PX05)	SAS	12G	Ent. Value	960 GB
UCS-SD19GSAS-EV	1.9TB 2.5 inch Enterprise Value 12G SAS SSD (Toshiba PX05)	SAS	12G	Ent. Value	1900 GB
UCS-SD38TSAS-EV	3.8TB 2.5 inch Enterprise Value 12G SAS SSD (Toshiba PX05)	SAS	12G	Ent. Value	3800 GB
UCS-SD240GBKS4-EV	240GB 2.5 inch Enterprise Value 6G SATA SSD (Samsung PM863A)	SATA	6G	Ent. Value	240 GB
UCS-SD480GBKSS-EV	480 GB 2.5 inch Enterprise Value 6G SATA SSD (Samsung PM863A)	SATA	6G	Ent. Value	480 GB
UCS-SD960GBKS4-EV	960GB 2.5 inch Enterprise Value 6G SATA SSD (Samsung PM863A)	SATA	6G	Ent. Value	960 GB
UCS-SD38TBKS4-EV	3.8TB 2.5 inch Enterprise Value 6G SATA SSD (Samsung PM863A)	SATA	6G	Ent. Value	3800 GB
UCS-SD120GBMS4-EV	120 GB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100)	SATA	6G	Ent. Value	120 GB
UCS-SD240GBMS4-EV	240GB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100)	SATA	6G	Ent. Value	240 GB

Table 10 Available Drive Options

UCS-SD480GBMS4-EV	480 GB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100)	SATA	6G	Ent. Value	480 GB
UCS-SD960GBMS4-EV	960GB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100)	SATA	6G	Ent. Value	960 GB
UCS-SD16TBMS4-EV	1.6TB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100)	SATA	6G	Ent. Value	1600 GB
UCS-SD19TBMS4-EV	1.9TB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100)	SATA	6G	Ent. Value	1900 GB
UCS-SD38TBMS4-EV	3.8TB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100)	SATA	6G	Ent. Value	3800 GB
UCS-SD76TBMS4-EV	7.6TB 2.5 inch Enterprise Value 6G SATA SSD (Micron 5100)	SATA	6G	Ent. Value	7600 GB
UCS-SD480GBIS6-EV	480GB 2.5 inch Enterprise Value 6G SATA SSD (Intel S4500)	SATA	6G	Ent. Value	480 GB
UCS-SD960GBIS6-EV	960GB 2.5 inch Enterprise Value 6G SATA SSD (Intel S4500)	SATA	6G	Ent. Value	960 GB
UCS-SD38TBIS6-EV	3.8TB 2.5 inch Enterprise Value 6G SATA SSD (Intel S4500)	SATA	6G	Ent. Value	3.8 TB
NVMe^{3, 4, 5}					
UCSB-NVMEHW-H800	Cisco 2.5" U.2 800GB HGST SN200 NVMe High Perf. High Endurance	NVMe	High Perf	High Endurance	800 GB
UCSB-NVMEHW-H1600	Cisco 2.5" U.2 1.6TB HGST SN200 NVMe High Perf. High Endurance	NVMe	High Perf	High Endurance	1600 GB
UCSB-NVMEHW-H3200	Cisco 2.5" U.2 3.2TB HGST SN200 NVMe High Perf. High Endurance	NVMe	High Perf	High Endurance	3200 GB
UCSB-NVMEHW-H6400	Cisco 2.5" U.2 6.4TB HGST SN200 NVMe High Perf. High Endurance	NVMe	High Perf	High Endurance	6400 GB
UCSB-NVMEHW-H7680	Cisco 2.5" U.2 7.7TB HGST SN200 NVMe High Perf. Value Endurance	NVMe	High Perf	Value Endurance	7680 GB

Notes:

- HDD and SSD require either of the following Storage Controllers in the Front Mezzanine Slot
 - UCSB-MRAID12G
 - UCSB-MRAID12G-HE
- This drive format is a 4K Native.
 - VMware does not support 4K Native drives
 - These drives require UEFI Boot
- NVMe drives require the following Storage Controller in the Front Mezzanine Slot UCSB-LSTOR-PT
- If HDD or SSD are going to be in RAID, then two identical drives required

5. If HDD or SSD are in JBOD Mode, then drives can be different

STEP 9 CHOOSE OPTIONAL SECURE DIGITAL CARDS or M.2 DRIVES

A mini-storage module connector is provided on the motherboard.

For the UCS B200 M5, there are two kinds of Mini-storage modules that fit in the connector on the motherboard, though only one kind can be selected with a single UCS B200 M5.

1. Module with two SD HC sockets that accommodate up to two SDHC devices
2. Module with two M.2 sockets accommodates up to two SATA M.2 devices

Note:

- Cannot Select SD and M.2, only one of the two can be selected
- Can select 1 or 2 drives, require 2 for Mirroring.

Table 11 Available SD Card Options

Product ID (PID)	Description	Mirroring
UCS-SD-128G	128 GB SD Card module for UCS	Supported with Dual Card
UCS-SD-64G-S	64 GB SD Card module for UCS	Supported with Dual Card
UCS-SD-32G-S	32 GB SD Card module for UCS	Supported with Dual Card
UCS-MSTOR-SD ¹	SD module card (holds up to 2)	N/A

Notes:

1. Auto included when SD Card is selected

Table 12 Available M.2 Options

Product ID (PID)	Description	Mirroring
UCS-M2-240GB	240 GB SATA M.2	Supported via SW RAID on Intel PCH ¹
UCS-M2-960GB	960 GB SATA M.2	Supported via SW RAID on Intel PCH ²
UCS-MSTOR-M2 ³	M.2 module card (holds up to 2)	N/A

Notes:

1. Auto included when SD Card is selected
2. VMware does not support SW RAID, so no mirroring options available with VMWare. Drive can still be used as Boot Device
3. Auto included when M.2 Drive is selected

STEP 10 CHOOSE OPTIONAL TRUSTED PLATFORM MODULE

Trusted Platform Module (TPM) is a computer chip or microcontroller that can securely store artifacts used to authenticate the platform or server. These artifacts can include passwords, certificates, or encryption keys. A TPM can also be used to store platform measurements that help ensure that the platform remains trustworthy. Authentication (ensuring that the platform can prove that it is what it claims to be) and attestation (a process helping to prove that a platform is trustworthy and has not been breached) are necessary steps to ensure safer computing in all environments.

Table 13 Available TPM Option

Product ID (PID)	Description
UCSX-TPM2-001	Trusted Platform Module 1.2 for UCS (SPI-based)
UCSX-TPM2-002	Trusted Platform Module 2.0 for UCS servers

NOTE:

1. The TPM module used in this system conforms to TPM v1.2 and 2.0, as defined by the Trusted Computing Group (TCG). It is also SPI-based.
2. TPM installation is supported after-factory. However, a TPM installs with a one-way screw and cannot be replaced, upgraded, or moved to another server. If a server with a TPM is returned, the replacement server must be ordered with a new TPM. If there is no existing TPM in the server, you can install TPM 2.0. Refer to UCS B200 M5 Installation Guide for Installation Location and Instructions

STEP 11 CHOOSE OPTIONAL INTERNAL USB 3.0 DRIVE

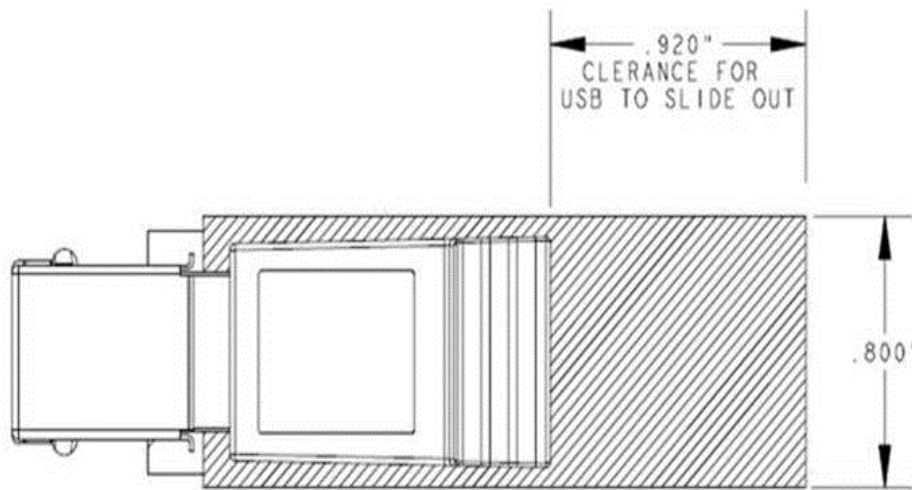
You may order one optional internal USB 3.0 drive. The USB drive ordering information is listed in [Table 14](#).

Table 14 Available USB Option

Product ID (PID)	Description
UCS-USBFLSHB-16GB	UCS Servers 16GB Flash USB Drive

NOTE: A clearance of 0.950 inches (24.1 mm) is required for the USB device to be inserted and removed (see the following figures).

Figure 4 USB Clearance



STEP 12 CHOOSE OPTIONAL VALUE-ADDED SOFTWARE

Several software programs are available. Select as desired from [Table 15](#)

Table 15 Cisco Value-Added Software

Product ID (PID)	PID Description
Cisco One	
C1F2PUCSK9	Cisco ONE Foundation Perpetual UCS
C1A1PUCSK9	Cisco ONE Enterprise Cloud Perpetual UCS
C1UCS-OPT-OUT	Cisco One Data Center Compute Opt Out Option
Energy Management (JouleX)	
CEM-DC-ENERGY	Cisco Energy Management (JouleX) Data Center License 1 Device
CEM-DC-3Y*1	Cisco Energy Management-3 Yr for One DC physical end-device
CEM-DC-PER	Perpetual License Key for Cisco Energy Management for DC
UCS Director	
CUIC-PHY-SERV-BM-U	Cisco UCS Director Resource Lic - 1 Phy Sevr node bare metal
CUIC-PHY-SERV-U	Cisco UCS Director Resource Lic - One physical Server node
CUIC-TERM	Acceptance of Cisco UCS Director License Terms
UCS Performance Manager	
UCS-PM-IE	UCS Performance Manager
UCS-PM-EE	UCS Performance Manager Express
EVAL-UCS-PM-IE	UCS Performance Manager - 90 days evaluation
EVAL-UCS-PM-EE	UCS Performance Manager Express - 90 days evaluation
Nexus 1000V for Hyper-V and vSphere	
N1K-VSG-UCS-BUN	Nexus 1000V Adv Edition for vSphere Paper License Qty 1
UCS Multi-Domain Manager	
UCS-MDMGR-1S	UCS Central NOTE: IF you must order quantity greater than 1 of UCS-MDMGR-1S, you need to reference the UCS Central Per Server Data Sheet to order the standalone PIDs: UCS-MDMGR-LIC= or UCS-MDMGR-1DMN=
StorMagic	
UCS-STORM-2TB-1S	StorMagic SvSAN Software License - 2TB - 1 Year SnS
UCS-STORM-2TB-1YR*	StorMagic SvSAN - Platinum Support - 2TB - 1 Year
UCS-STORM-2TB-3S	StorMagic SvSAN Software License - 2TB - 3 Year SnS

Table 15 Cisco Value-Added Software

UCS-STORM-2TB-3YR*	StorMagic SvSAN - Platinum Support - 2TB - 3 Year
UCS-STORM-2TB-5S	StorMagic SvSAN Software License - 2TB - 5 Year SnS
UCS-STORM-2TB-5YR*	StorMagic SvSAN - Platinum Support - 2TB - 5 Year
UCS-STORM-6TB-1S	StorMagic SvSAN Software License - 6TB, 1 Node; 1Yr SnS Reqd
UCS-STORM-6TB-1YR*	StorMagic SvSAN - Platinum Support - 6TB - 1 Year
UCS-STORM-6TB-3S	StorMagic SvSAN Software License - 6TB, 1 Node; 3Yr SnS Reqd
UCS-STORM-6TB-3YR*	StorMagic SvSAN - Platinum Support - 6TB - 3 Year
UCS-STORM-6TB-5S	StorMagic SvSAN Software License - 6TB, 1 Node; 5Yr SnS Reqd
UCS-STORM-6TB-5YR*	StorMagic SvSAN - Platinum Support - 6TB - 5 Year
UCS-STORM-12TB-1S	StorMagic SvSAN Software License - 12TB, 1Node; 1Yr SnS Reqd
UCS-STORM-12TB-1Y*	StorMagic SvSAN - Platinum Support - 12TB - 1 Year
UCS-STORM-12TB-3S	StorMagic SvSAN Software License - 12TB, 1Node; 3Yr SnS Reqd
UCS-STORM-12TB-3Y*	StorMagic SvSAN - Platinum Support - 12TB - 3 Year
UCS-STORM-12TB-5S	StorMagic SvSAN Software License - 12TB, 1Node; 5Yr SnS Reqd
UCS-STORM-12TB-5Y*	StorMagic SvSAN - Platinum Support - 12TB - 5 Year
UCS-STORM-UTB-1S	StorMagic SvSAN Software License - Unlimited TB - 1 Yr SnS
UCS-STORM-UTB-1YR*	StorMagic SvSAN - Platinum Support - Unlimited TB - 1 Year
UCS-STORM-UTB-3S	StorMagic SvSAN Software License - Unlimited TB - 3 Yr SnS
UCS-STORM-UTB-3YR*	StorMagic SvSAN - Platinum Support - Unlimited TB - 3 Year
UCS-STORM-UTB-5S	StorMagic SvSAN Software License - Unlimited TB - 5 Yr SnS
UCS-STORM-UTB-5YR*	StorMagic SvSAN - Platinum Support - Unlimited TB - 5 Year
UCS-STORM-2TA-1S	StorMagic SvSAN Adv SW License - 2TB, 1 Node; 1Yr SnS Reqd
UCS-STORM-2TA-1Y*	StorMagic SvSAN - Adv Platinum Support - 2TB - 1 Year
UCS-STORM-2TA-3S	StorMagic SvSAN Adv SW License - 2TB, 1 Node; 3Yr SnS Reqd
UCS-STORM-2TA-3Y*	StorMagic SvSAN - Adv Platinum Support - 2TB - 3 Year
UCS-STORM-2TA-5S	StorMagic SvSAN Adv SW License - 2TB, 1 Node; 5Yr SnS Reqd
UCS-STORM-2TA-5Y*	StorMagic SvSAN - Adv Platinum Support - 2TB - 5 Year
UCS-STORM-6TA-1S	StorMagic SvSAN Adv SW License - 6TB, 1 Node; 1Yr SnS Reqd
UCS-STORM-6TA-1Y*	StorMagic SvSAN - Adv Platinum Support - 6TB - 1 Year
UCS-STORM-6TA-3S	StorMagic SvSAN Adv SW License - 6TB, 1 Node; 3Yr SnS Reqd
UCS-STORM-6TA-3Y*	StorMagic SvSAN - Adv Platinum Support - 6TB - 3 Year
UCS-STORM-6TA-5S	StorMagic SvSAN Adv SW License - 6TB, 1 Node; 5Yr SnS Reqd
UCS-STORM-6TA-5Y*	StorMagic SvSAN - Adv Platinum Support - 6TB - 5 Year
UCS-STORM-12TA-1S	StorMagic SvSAN Adv SW License - 12TB, 1 Node; 1Yr SnS Reqd
UCS-STORM-12TA-1Y*	StorMagic SvSAN - Adv Platinum Support - 12TB - 1 Year

Table 15 Cisco Value-Added Software

UCS-STORM-12TA-3S	StorMagic SvSAN Adv SW License - 12TB, 1 Node; 3Yr SnS Reqd
UCS-STORM-12TA-3Y*	StorMagic SvSAN - Adv Platinum Support - 12TB - 3 Year
UCS-STORM-12TA-5S	StorMagic SvSAN Adv SW License - 12TB, 1 Node; 5Yr SnS Reqd
UCS-STORM-12TA-5Y*	StorMagic SvSAN - Adv Platinum Support - 12TB - 5 Year
UCS-STORM-UTA-1S	StorMagic SvSAN Adv SW Lic - Unlim TB, 1Node; 1Yr SnS Reqd
UCS-STORM-UTA-1Y*	StorMagic SvSAN - Adv Platinum Support - Unlimited TB - 1 Yr
UCS-STORM-UTA-3S	StorMagic SvSAN Adv SW Lic - Unlim TB, 1Node; 3Yr SnS Reqd
UCS-STORM-UTA-3Y*	StorMagic SvSAN - Adv Platinum Support - Unlimited TB - 3 Yr
UCS-STORM-UTA-5S	StorMagic SvSAN Adv SW Lic - Unlim TB, 1Node; 5Yr SnS Reqd
UCS-STORM-UTA-5Y*	StorMagic SvSAN - Adv Platinum Support - Unlimited TB - 5 Yr

Notes:

1. PIDs tagged with an asterisk (*) are Resell of an OEM Vendor's Support. They are required to be added to the associated Product License PID

STEP 13 CHOOSE OPTIONAL OPERATING SYSTEMS

Select as desired from [Table 16](#)

To check that your operating system is compatible with the adapter you have selected, please check the Hardware Compatibility List at this URL:

http://www.cisco.com/en/US/products/ps10477/prod_technical_reference_list.html

Table 16 Operating Systems Software

Product ID (PID)	PID Description
Microsoft Windows Server	
MSWS-12R2-DC2S	Windows Server 2012 R2 Datacenter (2 CPU/Unlimited VMs)
MSWS-12R2-DC2S-NS	Windows Server 2012 R2 Datacen (2 CPU/Unlim VM) No Cisco Svc
MSWS-12R2-ST2S	Windows Server 2012 R2 Standard (2 CPU/2 VMs)
MSWS-12R2-ST2S-NS	Windows Server 2012 R2 Standard (2 CPU/2 VMs) No Cisco SVC
MSWS-12R2-ST2S-RM	Windows Server 2012 R2 Standard (2 CPU/2 VMs) Recovery Media
MSWS-12R2-DC2S-RM	Windows Server 2012 R2 Datacen(2 CPU/Unlimited VM) Rec Media
MSWS-16-ST16C	Windows Server 2016 Standard (16 Cores/2 VMs)
MSWS-16-ST24C	Windows Server 2016 Standard (24 Cores/2 VMs)
MSWS-16-ST16C-NS	Windows Server 2016 Standard (16 Cores/2 VMs) - No Cisco SVC
MSWS-16-ST24C-NS	Windows Server 2016 Standard (24 Cores/2 VMs) - No Cisco SVC
MSWS-16-DC16C	Windows Server 2016 Data Center (16 Cores/Unlimited VMs)
MSWS-16-DC24C	Windows Server 2016 Data Center (24 Cores/Unlimited VMs)
MSWS-16-DC16C-NS	Windows Server 2016 DC (16 Cores/Unlim VMs) - No Cisco SVC
MSWS-16-DC24C-NS	Windows Server 2016 DC (24 Cores/Unlim VMs) - No Cisco SVC
MSWS-16-STA2C	Windows Server 2016 Standard - Additional 2 Cores
MSWS-16-STA4C	Windows Server 2016 Standard - Additional 4 Cores
MSWS-16-STA16C	Windows Server 2016 Standard - Additional 16 Cores
MSWS-16-STA2C-NS	Windows Server 2016 Stan - Additional 2 Cores - No Cisco SVC
MSWS-16-STA4C- NS	Windows Server 2016 Stan - Additional 4 Cores - No Cisco SVC
MSWS-16-STA16C-NS	Windows Server 2016 Stan - Additional 16 Cores - No Cisco SVC
MSWS-16-DCA2C	Windows Server 2016 Data Center - Additional 2 Cores
MSWS-16-DCA4C	Windows Server 2016 Data Center - Additional 4 Cores
MSWS-16-DCA16C	Windows Server 2016 Data Center - Additional 16 Cores

Table 16 Operating Systems Software

MSWS-16-DCA2C-NS	Windows Server 2016 DC - Additional 2 Cores - No Cisco SVC
MSWS-16-DCA4C-NS	Windows Server 2016 DC - Additional 4 Cores - No Cisco SVC
MSWS-16-DCA16C-NS	Windows Server 2016 DC - Additional 16 Cores - No Cisco SVC
Red Hat	
RHEL-2S2V-1A	Red Hat Enterprise Linux (1-2 CPU,1-2 VN); 1-Yr Support Req
RHEL-2S2V-3A	Red Hat Enterprise Linux (1-2 CPU,1-2 VN); 3-Yr Support Req
RHEL-2S-HA-1A	RHEL High Availability (1-2 CPU); 1-Yr Support Req
RHEL-2S-HA-3A	RHEL High Availability (1-2 CPU); 3-Yr Support Req
RHEL-2S-RS-1A	RHEL Resilient Storage (1-2 CPU); 1-Yr Support Req
RHEL-2S-RS-3A	RHEL Resilient Storage (1-2 CPU); 3-Yr Support Req
RHEL-2S-SFS-1A	RHEL Scalable File System (1-2 CPU); 1-Yr Support Req
RHEL-2S-SFS-3A	RHEL Scalable File System (1-2 CPU); 3-Yr Support Req
RHEL-2S2V-1S	Red Hat Enterprise Linux (1-2 CPU,1-2 VN); Prem 1-Yr SnS
RHEL-2S2V-1YR*	Red Hat Enterprise Linux (1-2 CPU,1-2 VN);Premium 24x7 - 1Yr
RHEL-2S2V-3S	Red Hat Enterprise Linux (1-2 CPU,1-2 VN); Prem 3-Yr SnS
RHEL-2S2V-3YR*	Red Hat Enterprise Linux (1-2 CPU,1-2 VN);Premium 24x7 - 3Yr
RHEL-2S-HA-1S	RHEL High Availability (1-2 CPU); Premium 1-yr SnS
RHEL-2S-HA-1YR*	RHEL High Availability (1-2 CPU); Premium 24x7 - 1 Year
RHEL-2S-HA-3S	RHEL High Availability (1-2 CPU); Premium 3-yr SnS
RHEL-2S-HA-3YR*	RHEL High Availability (1-2 CPU); Premium 24x7 - 3 Year
RHEL-2S-RS-1S	RHEL Resilient Storage (1-2 CPU); Premium 1-yr SnS
RHEL-2S-RS-1YR*	RHEL Resilient Storage (1-2 CPU); Premium 24x7 - 1 Year
RHEL-2S-RS-3S	RHEL Resilient Storage (1-2 CPU); Premium 3-yr SnS
RHEL-2S-RS-3YR*	RHEL Resilient Storage (1-2 CPU); Premium 24x7 - 3 Year
RHEL-2S-SFS-1S	RHEL Scalable File System (1-2 CPU); Premium 1-yr SnS
RHEL-2S-SFS-1YR*	RHEL Scalable File System (1-2 CPU); Premium 24x7 - 1 Year
RHEL-2S-SFS-3S	RHEL Scalable File System (1-2 CPU); Premium 3-yr SnS
RHEL-2S-SFS-3YR*	RHEL Scalable File System (1-2 CPU); Premium 24x7 - 3 Year
Red Hat SAP	
RHEL-SAPH-PR-1YR	RHEL for SAP Applications - Premium - RH SnS 1 Yr - 2 Socket

Table 16 Operating Systems Software

RHEL-SAPH-PR-3YR	RHEL for SAP Applications - Premium - RH SnS 3 Yr - 2 Socket
RHEL-SAPH-ST-1YR	RHEL for SAP Applications - Standard - RH SnS 1 Yr -2 Socket
RHEL-SAPH-ST-3YR	RHEL for SAP Applications - Standard - RH SnS 3 Yr -2 Socket
RHEL-SAP-2S2V-1S	RHEL for SAP Apps (1-2 CPU, 1-2 VN); Prem 1-Yr SnS
RHEL-SAP-2S2V-1YR*	RHEL for SAP Apps (1-2 CPU, 1-2 VN); Premium 24x7 - 1-Yr
RHEL-SAP-2S2V-3S	RHEL for SAP Apps (1-2 CPU, 1-2 VN); Prem 3-Yr SnS
RHEL-SAP-2S2V-3YR*	RHEL for SAP Apps (1-2 CPU, 1-2 VN); Premium 24x7 - 3-Yr
RHEL-SAPH-2S2V-1S	RHEL for SAP Hana (1-2 CPU, 1-2 VN); Prem 1-Yr SnS
RHEL-SAPH-2S2V-1YR*	RHEL for SAP Hana (1-2 CPU, 1-2 VN); Premium 24x7 - 1-Yr
RHEL-SAPH-2S2V-3S	RHEL for SAP Hana (1-2 CPU, 1-2 VN); Prem 3-Yr SnS
RHEL-SAPH-2S2V-3YR*	RHEL for SAP Hana (1-2 CPU, 1-2 VN); Premium 24x7 - 3-Yr
RHEL-SAPHHAS2S-1S	RHEL for SAP Hana,HA,SmartM (1-2 CPU & VN); Std 1Yr SnS Reqd
RHEL-SAPHHAS2S-1YR*	RHEL for SAP Hana,HA,SmartM (1-2 CPU & VN); Std 5x9 1Yr SnS
RHEL-SAPHHAS2S-3S	RHEL for SAP Hana,HA,SmartM (1-2 CPU & VN); Std 3Yr SnS Reqd
RHEL-SAPHHAS2S-3YR*	RHEL for SAP Hana,HA,SmartM (1-2 CPU & VN); Std 5x9 3Yr SnS
RHEL-SAPHHAP2S-1S	RHEL for SAP Hana,HA,SmartM (1-2 CPU &VN); Prem 1Yr SnS Reqd
RHEL-SAPHHAP2S-1YR*	RHEL for SAP Hana,HA,SmartM(1-2 CPU/VN); Prem 24x7 1Yr SnS
RHEL-SAPHHAP2S-3S	RHEL for SAP Hana,HA,SmartM (1-2 CPU &VN); Prem 3Yr SnS Reqd
RHEL-SAPHHAP2S-3YR*	RHEL for SAP Hana,HA,SmartM(1-2 CPU/VN); Prem 24x7 3Yr SnS
VMware	
VMW-VSP-STD-1A	VMware vSphere 6 Standard (1 CPU), 1-yr, Support Required
VMW-VSP-STD-3A	VMware vSphere 6 Standard (1 CPU), 3-yr, Support Required
VMW-VSP-STD-5A	VMware vSphere 6 Standard (1 CPU), 5-yr, Support Required
VMW-VSP-EPL-3A	VMware vSphere 6 Ent Plus (1 CPU), 3-yr, Support Required
VMW-VSP-EPL-1A	VMware vSphere 6 Ent Plus (1 CPU), 1-yr, Support Required
VMW-VSP-EPL-5A	VMware vSphere 6 Ent Plus (1 CPU), 5-yr, Support Required
VMW-VCS-STD-1A	VMware vCenter 6 Server Standard, 1 yr support required
VMW-VCS-STD-3A	VMware vCenter 6 Server Standard, 3 yr support required
VMW-VCS-STD-5A	VMware vCenter 6 Server Standard, 5 yr support required
VMW-VCS-FND-1A	VMware vCenter 6 Server Foundation (3 Host), 1 yr supp reqd

Table 16 Operating Systems Software

VMW-VCS-FND-3A	VMware vCenter 6 Server Foundation (3 Host), 3 yr supp reqd
VMW-VCS-FND-5A	VMware vCenter 6 Server Foundation (3 Host), 5 yr supp reqd
SLES and SAP Licenses/Support	
SLES-SAP-2S2V-1A	SLES for SAP Apps (1-2 CPU, 1-2 VM); 1-Yr Support Reqd
SLES-SAP-2SUV-1A	SLES for SAP Apps (1-2 CPU, Unl VM); 1-Yr Support Reqd
SLES-SAP-2S2V-3A	SLES for SAP Apps (1-2 CPU, 1-2 VM); 3-Yr Support Reqd
SLES-SAP-2SUV-3A	SLES for SAP Apps (1-2 CPU, Unl VM); 3-Yr Support Reqd
SLES-SAP-2S2V-5A	SLES for SAP Apps (1-2 CPU, 1-2 VM); 5-Yr Support Reqd
SLES-SAP-2SUV-5A	SLES for SAP Apps (1-2 CPU, Unl VM); 5-Yr Support Reqd
SLES-SAP-2S2V-1S	SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 1-Yr SnS
SLES-SAP-2S2V-1YR*	SUSE for SAP Apps; (1-2 CPU,1-2 VM); Prio SnS 24x7 - 1 Year
SLES-SAP-2SUV-1S	SLES for SAP Apps (1-2 CPU, Unl VM); Priority 1-Yr SnS
SLES-SAP-2SUV-1YR*	SUSE for SAP Apps; (1-2 CPU,Unl VM); Prio SnS 24x7 - 1 Year
SLES-SAP-2S2V-3S	SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 3-Yr SnS
SLES-SAP-2S2V-3YR*	SUSE for SAP Apps; (1-2 CPU,1-2 VM); Prio SnS 24x7 - 3 Year
SLES-SAP-2SUV-3S	SLES for SAP Apps (1-2 CPU, Unl VM); Priority 3-Yr SnS
SLES-SAP-2SUV-3YR*	SUSE for SAP Apps; (1-2 CPU,Unl VM); Prio SnS 24x7 - 3 Year
SLES-SAP-2S2V-5S	SLES for SAP Apps (1-2 CPU, 1-2 VM); Priority 5-Yr SnS
SLES-SAP-2S2V-5YR*	SUSE for SAP Apps; (1-2 CPU,1-2 VM); Prio SnS 24x7 - 5 Year
SLES-SAP-2SUV-5S	SLES for SAP Apps (1-2 CPU, Unl VM); Priority 5-Yr SnS
SLES-SAP-2SUV-5YR*	SUSE for SAP Apps; (1-2 CPU,Unl VM); Prio SnS 24x7 - 5 Year
SUSE SLES	
SLES-2S2V-1A	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 1-Yr Support Req
SLES-2SUV-1A	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 1-Yr Support Req
SLES-2S2V-3A	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 3-Yr Support Req
SLES-2SUV-3A	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 3-Yr Support Req
SLES-2S2V-5A	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); 5-Yr Support Req
SLES-2SUV-5A	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); 5-Yr Support Req
SLES-2S2V-1S	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 1-Yr SnS
SLES-2S2V-1YR*	SUSE Linux Entp Svr (1-2 CPU,1-2 VM); Prio SnS 24x7 - 1 Year

Table 16 Operating Systems Software

SLES-2SUV-1S	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 1-Yr SnS
SLES-2SUV-1YR*	SUSE Linux Entp Svr (1-2 CPU,Unl VM); Prio SnS 24x7 - 1 Year
SLES-2S2V-3S	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 3-Yr SnS
SLES-2S2V-3YR*	SUSE Linux Entp Svr (1-2 CPU,1-2 VM); Prio SnS 24x7 - 3 Year
SLES-2SUV-3S	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 3-Yr SnS
SLES-2SUV-3YR*	SUSE Linux Entp Svr (1-2 CPU,Unl VM); Prio SnS 24x7 - 3 Year
SLES-2S2V-5S	SUSE Linux Enterprise Svr (1-2 CPU,1-2 VM); Prio 5-Yr SnS
SLES-2S2V-5YR*	SUSE Linux Entp Svr (1-2 CPU,1-2 VM); Prio SnS 24x7 - 5 Year
SLES-2SUV-5S	SUSE Linux Enterprise Svr (1-2 CPU,Unl VM); Prio 5-Yr SnS
SLES-2SUV-5YR*	SUSE Linux Entp Svr (1-2 CPU,Unl VM); Prio SnS 24x7 - 5 Year
SLES-2S-HA-1S	SUSE Linux High Availability Ext (1-2 CPU); 1yr SnS
SLES-2S-HA-1YR*	SUSE Linux High Avail Ext (1-2 CPU); Inherited SnS - 1 Year
SLES-2S-HA-3S	SUSE Linux High Availability Ext (1-2 CPU); 3yr SnS
SLES-2S-HA-3YR*	SUSE Linux High Avail Ext (1-2 CPU); Inherited SnS - 3 Year
SLES-2S-HA-5S	SUSE Linux High Availability Ext (1-2 CPU); 5yr SnS
SLES-2S-HA-5YR*	SUSE Linux High Avail Ext (1-2 CPU); Inherited SnS - 1 Year
SLES-2S-GC-1S	SUSE Linux GEO Clustering for HA (1-2 CPU); 1yr Sns
SLES-2S-GC-1YR*	SUSE Linux Geo Clustering (1-2 CPU); Inherited SnS - 1 Year
SLES-2S-GC-3S	SUSE Linux GEO Clustering for HA (1-2 CPU); 3yr SnS
SLES-2S-GC-3YR*	SUSE Linux Geo Clustering (1-2 CPU); Inherited SnS - 3 Year
SLES-2S-GC-5S	SUSE Linux GEO Clustering for HA (1-2 CPU); 5yr SnS
SLES-2S-GC-5YR*	SUSE Linux Geo Clustering (1-2 CPU); Inherited SnS - 5 Year
SLES-2S-LP-1S	SUSE Linux Live Patching Add-on (1-2 CPU); 1yr SnS Required
SLES-2S-LP-1YR*	SUSE Linux Live Patching Add-on (1-2 CPU); Inherited SnS 1 Yr
SLES-2S-LP-3S	SUSE Linux Live Patching Add-on (1-2 CPU); 3yr SnS Required
SLES-2S-LP-3YR*	SUSE Linux Live Patching Add-on (1-2 CPU); Inherited SnS 3 Yr

STEP 14 CHOOSE OPTIONAL OPERATING SYSTEM MEDIA KIT

Select the optional operating system media listed in [Table 17](#)

Table 17 OS Media

Product ID (PID)	PID Description
MSWS-12R2-ST2S-RM	Windows Server 2012 R2 Standard (2 CPU/2 VMs) Recovery Media
MSWS-12R2-DC2S-RM	Windows Server 2012 R2 Datacen(2 CPU/Unlimited VM) Rec Media
MSWS-16-ST16C-RM	Windows Server 2016 Stan (16 Cores/2 VMs) - Recovery Media
MSWS-16-ST24C-RM	Windows Server 2016 Stan (24 Cores/2 VMs) - Recovery Media
MSWS-16-DC16C-RM	Windows Server 2016 DC (16 Cores/Unlim VMs) - Recovery Media
MSWS-16-DC24C-RM	Windows Server 2016 DC (24 Cores/Unlim VMs) - Recovery Media

STEP 15 CHOOSE SERVICE and SUPPORT LEVEL

A variety of service options are available, as described in this section.

Unified Computing Warranty, No Contract

If you have noncritical implementations and choose to have no service contract, the following coverage is supplied:

- Three-year parts coverage.
- Next business day (NBD) parts replacement eight hours a day, five days a week.
- 90-day software warranty on media.
- Downloads of BIOS, drivers, and firmware updates.
- UCSM updates for systems with Unified Computing System Manager. These updates include minor enhancements and bug fixes that are designed to maintain the compliance of UCSM with published specifications, release notes, and industry standards.

Unified Computing Support Service

For support of the entire Unified Computing System, Cisco offers the Cisco Smart Net Total Care for UCS Service. This service provides expert software and hardware support to help sustain performance and high availability of the unified computing environment. Access to Cisco Technical Assistance Center (TAC) is provided around the clock, from anywhere in the world

For systems that include Unified Computing System Manager, the support service includes downloads of UCSM upgrades. The Cisco Smart Net Total Care for UCS Service includes flexible hardware replacement options, including replacement in as little as two hours. There is also access to Cisco's extensive online technical resources to help maintain optimal efficiency and uptime of the unified computing environment. For more information please refer to the following url: <http://www.cisco.com/c/en/us/services/technical/smart-net-total-care.html?stickynav=1> You can choose a desired service listed in *Table 18*.

Table 18 Unified Computing Support Service

Service SKU	Service Level GSP	On Site?	Description
CON-PREM-SBB200M5	C2P	Yes	SNTC 24X7X2OS
CON-UCSD8-SBB200M5	UCSD8	Yes	UC SUPP DR 24X7X2OS*
CON-C2PL-SBB200M5	C2PL	Yes	LL 24X7X2OS**
CON-OSP-SBB200M5	C4P	Yes	SNTC 24X7X4OS
CON-UCSD7-SBB200M5	UCSD7	Yes	UCS DR 24X7X4OS*
CON-C4PL-SBB200M5	C4PL	Yes	LL 24X7X4OS**
CON-USD7L-SBB200M5	USD7L	Yes	LLUCS HW DR 24X7X4OS***
CON-OSE-SBB200M5	C4S	Yes	SNTC 8X5X4OS
CON-UCSD6-SBB200M5	UCSD6	Yes	UC SUPP DR 8X5X4OS*

Table 18 Unified Computing Support Service

Service SKU	Service Level GSP	On Site?	Description
CON-SNCO-SBB200M5	SNCO	Yes	SNTC 8x7xNCDOS****
CON-OS-SBB200M5	CS	Yes	SNTC 8X5XNBDOS
CON-UCSD5-SBB200M5	UCSD5	Yes	UCS DR 8X5XNBDOS*
CON-S2P-SBB200M5	S2P	No	SNTC 24X7X2
CON-S2PL-SBB200M5	S2PL	No	LL 24X7X2**
CON-SNTP-SBB200M5	SNTP	No	SNTC 24X7X4
CON-SNTPL-SBB200M5	SNTPL	No	LL 24X7X4**
CON-SNTE-SBB200M5	SNTE	No	SNTC 8X5X4
CON-SNC-SBB200M5	SNC	No	SNTC 8x7xNCD****
CON-SNT-SBB200M5	SNT	No	SNTC 8X5XNBD
CON-SW-SBB200M5	SW	No	SNTC NO RMA

Note: For PID UCSB-B200-M5-U, select Service SKU with BB200M5U suffix (Example: CON-PREM- BB200M5U)

For PID UCSB-B200-M5-CH, select Service SKU with B200M5CH suffix (Example: CON-PREM- B200M5CH)

*Includes Drive Retention (see below for full description)

**Includes Local Language Support (see below for full description) - Only available in China and Japan

***Includes Local Language Support and Drive Retention - Only available in China and Japan

****Available in China Only

Smart Net Total Care for Cisco UCS Onsite Troubleshooting Service

For faster parts replacement than is provided with the standard Cisco Unified Computing System warranty, Cisco offers the Cisco Smart Net Total Care for UCS Hardware Only Service. You can choose from two levels of advanced onsite parts replacement coverage in as little as four hours. Smart Net Total Care for UCS Hardware Only Service provides remote access any time to Cisco support professionals who can determine if a return materials authorization (RMA) is required. You can choose a desired service listed in [Table 19](#).

Table 19 SNTC for Cisco UCS Onsite Troubleshooting Service (PID UCSB-B200-M5)

Service SKU	Service Level GSP	On Site?	Description
CON-UCW7-SBB200M5	UCW7	Yes	UCS HW 24X7X4OS
CON-UCWD7-SBB200M	UCWD7	Yes	UCS HW+DR 24X7X4OS*
CON-UCW7L-SBB200M5	UCW7L	Yes	LL UCS 24X7X4OS**
CON-UWD7L-SBB200M5	UWD7L	Yes	LL UCS DR 24X7X4OS***

Table 19 SNTC for Cisco UCS Onsite Troubleshooting Service (PID UCSB-B200-M5)

CON-UCW5-SBB200M5	UCW5	Yes	UCS HW 8X5XNBDOS
CON-UCWD5-SBB200M	UCWD5	Yes	UCS HW+DR 8X5XNBDOS*

Note: For PID UCSB-B200-M5-U, select Service SKU with BB200M5U suffix (Example: CON-PREM- BB200M5U)
For PID UCSB-B200-M5-CH, select Service SKU with B200M5CH suffix (Example: CON-PREM- B200M5CH)

*Includes Drive Retention (see below for description)

**Includes Local Language Support (see below for full description) – Only available in China and Japan

***Includes Local Language Support and Drive Retention – Only available in China and Japan

Partner Support Service for UCS

Cisco Partner Support Service (PSS) is a Cisco Collaborative Services service offering that is designed for partners to deliver their own branded support and managed services to enterprise customers. Cisco PSS provides partners with access to Cisco's support infrastructure and assets to help them:

- Expand their service portfolios to support the most complex network environments
- Lower delivery costs
- Deliver services that increase customer loyalty

PSS options enable eligible Cisco partners to develop and consistently deliver high-value technical support that capitalizes on Cisco intellectual assets. This helps partners to realize higher margins and expand their practice.

PSS is available to all Cisco PSS partners.

The two Partner Unified Computing Support Options include:

- Partner Support Service for UCS
- Partner Support Service for UCS Hardware Only

PSS for UCS provides hardware and software support, including triage support for third party software, backed by Cisco technical resources and level three support. You can choose a desired service listed in [Table 20](#).

Table 20 PSS for UCS (PID UCSB-B200-M5)

Service SKU	Service Level GSP	On Site?	Description
CON-PSJ8-SBB200M5	PSJ8	Yes	UCS PSS 24X7X2 OS
CON-PSJ7-SBB200M5	PSJ7	Yes	UCS PSS 24X7X4 OS
CON-PSJD7-SBB200M5	PSJD7	Yes	UCS PSS 24X7X4 DR*
CON-PSJ6-SBB200M5	PSJ6	Yes	UCS PSS 8X5X4 OS

Table 20 PSS for UCS (PID UCSB-B200-M5)

CON-PSJD6-SBB200M5	PSJD6	Yes	UCS PSS 8X5X4 DR*
CON-PSJ4-SBB200M5	PSJ4	No	UCS SUPP PSS 24X7X2
CON-PSJ3-SBB200M5	PSJ3	No	UCS SUPP PSS 24X7X4
CON-PSJ2-SBB200M5	PSJ2	No	UCS SUPP PSS 8X5X4
CON-PSJ1-SBB200M5	PSJ1	No	UCS SUPP PSS 8X5XNBD

Note: For PID UCSB-B200-M5-U, select Service SKU with BB200M5U suffix (Example: CON-PREM- BB200M5U)

For PID UCSB-B200-M5-CH, select Service SKU with B200M5CH suffix (Example: CON-PREM- B200M5CH)

*Includes Drive Retention (see below for description)

PSS for UCS Hardware Only

PSS for UCS Hardware Only provides customers with replacement parts in as little as two hours and provides remote access any time to Partner Support professionals who can determine if a return materials authorization (RMA) is required. You can choose a desired service listed in [Table 21](#)

Table 21 PSS for UCS Hardware Only (PID UCSB-B200-M5)

Service SKU	Service Level GSP	On Site?	Description
CON-PSW7-SBB200M5	PSW7	Yes	UCS W PSS 24X7X4 OS
CON-PSWD7-SBB200M5	PSWD7	Yes	UCS W PSS 24X7X4 DR*
CON-PSW6-SBB200M5	PSW6	Yes	UCS W PSS 8X5X4 OS
CON-PSWD6-SBB200M5	PSWD6	Yes	UCS W PSS 8X5X4 DR*
CON-PSW4-SBB200M5	PSW4	No	UCS W PL PSS 24X7X2
CON-PSW3-SBB200M5	PSW3	No	UCS W PL PSS 24X7X4
CON-PSW2-SBB200M5	PSW2	No	UCS W PL PSS 8X5X4

Note: For PID UCSB-B200-M5-U, select Service SKU with BB200M5U suffix (Example: CON-PREM- BB200M5U)

For PID UCSB-B200-M5-CH, select Service SKU with B200M5CH suffix (Example: CON-PREM- B200M5CH)

*Includes Drive Retention (see below for description)

Unified Computing Combined Support Service

Combined Services makes it easier to purchase and manage required services under one contract. SNTC services for UCS help increase the availability of your vital data center infrastructure and realize the most value from your unified computing investment. The more benefits you realize from the Cisco Unified Computing System (Cisco UCS), the more important the technology becomes to your business. These services allow you to:

- Optimize the uptime, performance, and efficiency of your UCS
- Protect your vital business applications by rapidly identifying and addressing issues
- Strengthen in-house expertise through knowledge transfer and mentoring
- Improve operational efficiency by allowing UCS experts to augment your internal staff resources
- Enhance business agility by diagnosing potential issues before they affect your operations You can choose a desired service listed in [Table 22](#).

Table 22 Combined Support Service for UCS (PID UCSB-B200-M5)

Service SKU	Service Level GSP	On Site?	Description
CON-NCF2P-SBB200M5	NCF2P	Yes	CMB SVC 24X7X2OS
CON-NCF4P-SBB200M5	NCF4P	Yes	CMB SVC 24X7X4OS
CON-NCF4S-SBB200M5	NCF4S	Yes	CMB SVC 8X5X4OS
CON-NCFCS-SBB200M5	NCFCS	Yes	CMB SVC 8X5XNBDOS
CON-NCF2-SBB200M5	NCF2	No	CMB SVC 24X7X2
CON-NCFP-SBB200M5	NCFP	No	CMB SVC 24X7X4
CON-NCFE-SBB200M5	NCFE	No	CMB SVC 8X5X4
CON-NCFT-SBB200M5	NCFT	No	CMB SVC 8X5XNBD
CON-NCFW-SBB200M5	NCFW	No	CMB SVC SW

Note: For PID UCSB-B200-M5-U, select Service SKU with BB200M5U suffix (Example: CON-PREM- BB200M5U)

For PID UCSB-B200-M5-CH, select Service SKU with B200M5CH suffix (Example: CON-PREM- B200M5CH)

UCS Drive Retention Service

With the Cisco Unified Computing Drive Retention Service, you can obtain a new disk drive in exchange for a faulty drive without returning the faulty drive.

Sophisticated data recovery techniques have made classified, proprietary, and confidential information vulnerable, even on malfunctioning disk drives. The Drive Retention service enables you to retain your drives and ensures that the sensitive data on those drives is not compromised, which reduces the risk of any potential liabilities. This service also enables you to comply with regulatory, local, and federal requirements.

If your company has a need to control confidential, classified, sensitive, or proprietary data, you might want to consider one of the Drive Retention Services listed in the above tables (where available)



NOTE: Cisco does not offer a certified drive destruction service as part of this service.

Local Language Technical Support for UCS

Where available, and subject to an additional fee, local language support for calls on all assigned severity levels may be available for specific product(s) - see tables above.

For a complete listing of available services for Cisco Unified Computing System, see the following URL: http://www.cisco.com/en/US/products/ps10312/serv_group_home.html

Upgrades and Spares PID

This section lists the upgrade and servicing-related parts for the UCS B200 M5 server. Some of these parts are configured with every server or with every UCS 5108 blade server chassis, and some may be ordered when needed or may be ordered and kept on hand as spares for future use.

Table 23 Upgrades and Spares PIDs

Product ID (PID)	Description
UCSB-LSTOR-BK=	2.5-inch HDD Blanking Panel ¹
UCSB-HS-M5-F=	CPU Heat Sink for UCS B-Series M5 CPU socket (Front)
UCSB-HS-M5-R=	CPU Heat Sink for UCS B-Series M5 CPU socket (Rear) ¹
UCS-DIMM-BLK=	UCS DIMM Blanks ¹
N20-BKVM=	KVM local IO cable for UCS servers console port
UCS-CPU-TIM=	CPU thermal interface material syringe for M5 server HS seal ²
UCSX-HSCK=	UCS Processor Heat Sink Cleaning Kit (when replacing a CPU) ²
UCS-CPUAT=	CPU Assembly Tool for M5 Servers
UCS-M5-CPU-CAR=	UCS M5 CPU Carrier
UCS-MSTOR-SD=	SD module card (holds up to 2)
UCS-MSTOR-M2=	M.2 module card (holds up to 2)
UCSB-MRAID12G=	Cisco FlexStorage 12G SAS RAID controller with drive bays
UCSB-MRAID12G-HE=	Cisco FlexStorage 12G SAS RAID controller with 2 GB flash-backed write cache with drive bays
UCSB-LSTOR-PT=	Cisco FlexStorage NVME Passthrough module with HDD cage

Notes:

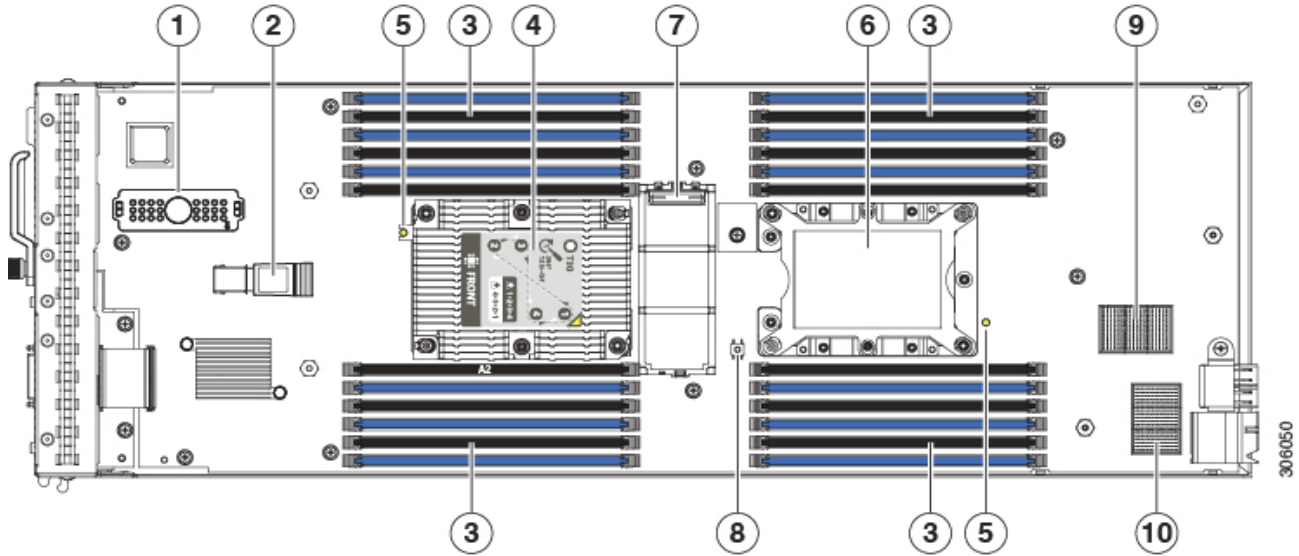
1. This part is included/configured with the UCS B200 M5 server when shipped from factory
2. This part is included with the purchase of options or spare CPU or CPU Processors kit.

Please refer to the UCS B200 M5 Installation Guide for installation procedures.

UCS B200 M5 INTERNALS

A top view of the UCS B200 M5 system board is shown in *Figure 5*.

Figure 5 UCS B200 M5 System Board



1	Front mezzanine connector	2	USB connector (populated) An internal USB 3.0 port is supported. A 16 GB USB drive (UCS-USBFLSHB-16GB) is available from Cisco. A clearance of 0.950 inches (24.1 mm) is required for the USB device to be inserted and removed.
3	DIMM slots	4	CPU 1 socket (populated)
5	CPU heat sink install guide pins	6	CPU 2 socket
7	Mini storage connector	8	Diagnostic button
9	mLOM connector	10	Rear mezzanine connector



Note: When the front mezzanine storage module is installed, the USB connector is underneath it. Use the small cutout opening in the storage module to visually determine the location of the USB connector when you need to insert a USB drive. When the NVIDIA GPU is installed in the front mezzanine slot, you cannot see the USB connector.

MEMORY CONFIGURATION AND MIRRORING

When Memory Mirroring PID (N01-MMIRROR) is selected in [Table 4 Available DDR4 DIMMs, page 11](#), the DIMMs will be placed as shown in the below table by the factory

Each CPU has six DIMM channels:

CPU1 has channels A, B, C, D, E, and F

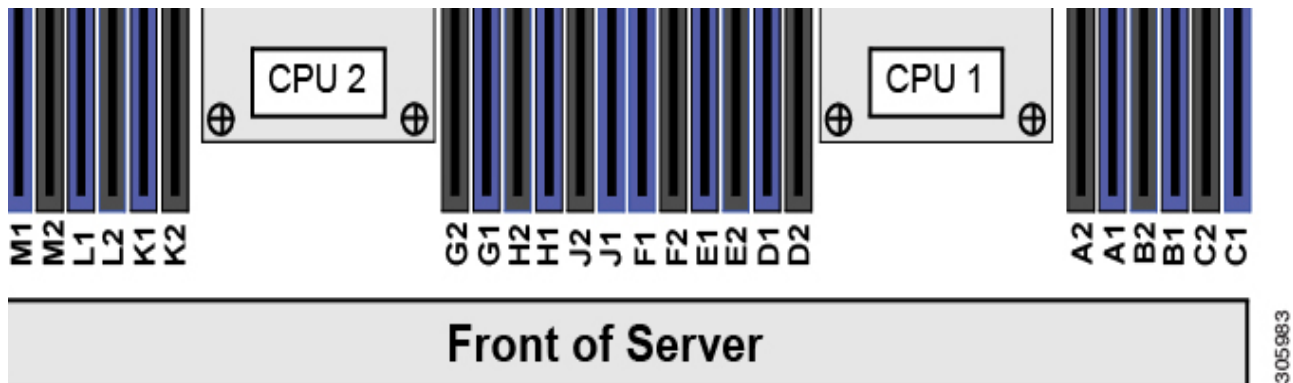
CPU2 has channels G, H, J, K, L, and M

Each DIMM channel has two slots: slot 1 and slot 2. The blue-colored DIMM slots are for slot 1 and the black slots for slot 2.

As an example, DIMM slots A1, B1, C1, D1, E1, and F1 belong to slot 1, while A2, B2, C2, D2, E2, and F2 belong to slot 2.

[Figure 6](#) Shows how slots and channels are physically laid out on the motherboard. The DIMM slots on the right half of the motherboard (channels A, B, C, D, E, and F) are associated with CPU 1, while the DIMM slots on the left half of the motherboard (channels G, H, J, K, L, and M) are associated with CPU 2. The slot 1 (blue) DIMM slots are always located farther away from a CPU than the corresponding slot 2 (black) slots. Slot 1 slots (blue) are populated before slot 2 slots (black).

Figure 6 Figure: Physical Layout of CPU DIMM Channels and Slots



When considering the memory configuration of your server, consider the following items:

- Each channel has two DIMM slots (for example, channel A = slots A1 and A2).
 - A channel can operate with one or two DIMMs installed.
 - If a channel has only one DIMM, populate slot 1 first (the blue slot).
- When both CPUs are installed, populate the DIMM slots of each CPU identically.
 - Fill blue slots in the channels first: C1, F1, B1, E1, A1, D1_
 - For CPU 1 A1, B1, C1, D1, E1, F1. For CPU 2 G1, H1, J1, K1, M1, N1
 - Fill black slots in the channels second: C2, F2, B2, E2, A2, D2 A2, B2, C2, D2, E2, F2
For CPU 2 G2, H2, J2, K2, M2, N2

- Any DIMM installed in a DIMM socket for which the CPU is absent is not recognized.
- Observe the DIMM mixing rules shown in [Table 24](#).

Table 24 DIMM Rules for B200 M5 Servers

DIMM Parameter	DIMMs in the Same Channel	DIMM in the Same Slot ¹
DIMM Capacity RDIMM = 16, 32, 64, or 128 GB LRDIMM = 64 GB TSV-RDIMM = 64 GB _±	DIMMs in the same channel (for example, A1 and A2) can have different capacities.	For best performance, DIMMs in the same slot (for example, A1, B1, C1, D1, E1, F1) should have the same capacity.
<u>DIMM Speed</u> 2666-MHz	Do not mix TSV-RDIMMS with DIMMs will run at the lowest speed of the CPU installed	Do not mix TSV-RDIMMS with LRDIMMs nor RDIMMs DIMMs will run at the lowest speed of the CPU installed
DIMM Type TSV-RDIMMS, RDIMMs, or LRDIMMs	Do not mix DIMM types in a	Do not mix DIMM types in a slot

Notes:

1. Although different DIMM capacities can exist in the same slot, this will result in less than optimal performance. For optimal performance, all DIMMs in the same slot should be identical.

Memory Mirroring

When Memory Mirroring PID (N01-MMIRROR) is selected in STEP X: CHOOSE MEMORY, TABLE, the DIMMS will be placed as shown in the below table by the factory

- Select 4, 6, 8, 12 identical DIMMS per CPU.
- If only 1 CPU is selected, please refer only to the CPU 1 DIMM Placement columns in the below Table.

	CPU 1 DIMM Placement in Channels (for identical ranked DIMMS)	CPU 2 DIMM Placement in Channels (for identical ranked DIMMS)
4	(A1, B1); (D1, E1)	(G1, H1); (K1, L1)
6	(A1, B1, C1); (D1, E1, F1)	(G1, H1, J1); (K1, L1, M1)
8	(A1, A2, B1, B2); (D1, D2, E1, E2)	(G1, G2, H1, H2); (K1, K2, L1, L2);
12	(A1, A2, B1, B2, C1, C2); (D1, D2, E1, E2, F1, F2)	(G1, G2, H1, H2, J1, J2); (K1, K2, L1, L2, M1, M2)

PHYSICAL SPECIFICATIONS

Table 25 UCS B200 M5 Dimensions and Weight

Parameter	Value
Height	1.95 in. (50 mm)
Width	8.00 in. (203 mm)
Depth	24.4 in. (620 mm)
Weight	<ul style="list-style-type: none">■ Base server weight (no HDDs, no CPUs, no DIMMs, no mezzanine adapters or memory) = 9.51 lbs (4.31 kg)■ Minimally configured server■ Fully configured server

POWER SPECIFICATIONS

For configuration-specific power specifications, use the Cisco UCS Power Calculator at:

<http://ucspowercalc.cisco.com>



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