

Cisco UCS for Microsoft Azure Stack HCI

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Cisco UCS C240 M5L Rack Server (QLogic) with Cisco UCS 6332 Fabric Interconnect

Overview

Cisco UCS® for Microsoft Azure HCI offers highly available and scalable software-defined hyperconverged and storage systems based on Microsoft Azure Stack HCI operating system technology.

If you run your business on Microsoft software, you need a solution that uses hardware designed specifically for Microsoft HCI. Look no further. Cisco and Microsoft have partnered to deliver a solution that accelerates access to data, provides comprehensive data management tools, and is powered by the latest 2nd Generation Intel® Xeon® Scalable processors to set a new standard of excellence.

Main benefits

Cisco UCS for Microsoft Azure Stack HCI offers these main benefits:

- **Provides unified management:** Cisco UCS Manager service profiles help ensure consistent server setup. They integrate with Microsoft System Center and PowerShell toolkit and, when combined with the Cisco Intersight™ solution, enable cloud management expansion to meet future requirements.
- **Delivers fault tolerance:** Built-in resiliency handles storage, server, and switch failures with continuous availability. Larger deployments can also be configured for chassis and rack fault tolerance. When hardware fails, just swap it out; the software heals itself, with no complicated management steps.
- **Provides massive resilient storage:** Help ensure the security of your critical data for applications, databases, and hybrid-cloud initiatives with Cisco UCS for Microsoft Azure Stack HCI.
- **Reduces Operating Expenses (OpEx):** Integrated storage with enterprise-class performance, reliability, and capabilities allows one team to manage your entire Microsoft environment.
- **Provides enterprise-class performance:** The Cisco UCS C240 M5L Rack Server (Figure 1) uses the latest Intel Xeon Scalable processor technology. With a configuration of up to 3 TB per server and up to 16 servers, the system infrastructure can accommodate your enterprise-class workloads. The solution uses 40 Gigabit Ethernet end to end to help ensure enough bandwidth for large workloads. It uses RDMA over Converged Ethernet (RoCE) to enable Remote Direct Memory Access (RDMA) to help ensure that performance requirements are met.
- **Offers true scalability:** Start with from 4 to 16 servers in increments of 1, configure 24 to 56 Intel processor cores per server, configure 384 GB to 3 TB of system memory per server, configure a 32- to 121-TB Hard-Disk Drive (HDD) per server, and configure Non-Volatile Memory Express (NVMe) storage to help ensure enterprise-class performance. To scale out, simply add drives or servers; Storage Spaces Direct will automatically configure the new drives and begin using them. Storage efficiency and performance improve predictably at scale.
- **Get exceptional availability:** Users of Azure Stack HCI will benefit because the system does not have a single point of failure. If a server fails, Cisco UCS Manager can assign the service profile for the workload to another server in the cluster that may be running a lower-priority workload. The profile is reassigned, and another server can replace the failed node, all without the user taking any action. Also, if a fabric interconnect fails, its partner fabric interconnect maintains a copy of its configuration. Therefore, a replacement fabric interconnect can be cabled in and the configuration restored from the partner fabric interconnect.

- **Delivers one-stop support:** If you require a Windows Server 2019 license, one can be optionally provided to each server within the system configuration. Cisco can also provide level-1 and level-2 support, with level-3 support directed to Microsoft. One phone call to Cisco can address your support requirements.
- **Global world-class support:** Microsoft and Cisco work together to help ensure that all support issues are handled in a timely manner. Cisco® support is bundled with every system, providing the highest level of solution support for our valued customers. Customers can contact either support organization for support-related issues. A simple set of questions help ensure that your call is routed to the correct support team within Cisco or Microsoft to provide support for Cisco UCS for Microsoft Azure Stack HCI.



Figure 1.
Cisco UCS C240 M5L Rack Server

Solution example

Table 1 and Figure 2 show a sample configuration.

Table 1. Sample configuration components

| Configuration name | Description |
|-----------------------------------|--------------------------------------------------------|
| Part number | UCS-MAH-B00R00 |
| Windows OS | Azure Stack HCI, version 21H2 |
| Solution type and profile | Premium hyperconverged solution, with capacity profile |
| Form factor | Rack-mount 2-Rack-Unit (2RU) nodes |
| Trusted Platform Module (TPM) 2.0 | Yes |
| CPU | Intel Xeon Scalable processor |
| Core count | 12 - 28 cores: up to 56 cores per server |
| Memory | 384 GB to 3 TB per server |
| Host Bus Adapter (HBA) | Cisco 12-Gbps modular SAS HBA |

| Network Interface Card (NIC) | Quantity | Type | RDMA type |
|------------------------------|----------|---------------------------------------|-----------|
| | 1 | QLogic QL45412H dual-port 40-Gbps NIC | RoCE |

| Drives (per-node minimum) | Type | Quantity | Size | Category |
|---------------------------|--------------------------------------------------------------------------------------|----------|-----------------|-----------|
| Cache | NVMe | 2 | 1.6 and 3.2 | Mixed use |
| Capacity | HDD | 8 to 12 | 4, 8, and 10 TB | Mixed use |
| Switch | Cisco UCS 6332 Fabric Interconnect and Cisco Nexus 2000 N2K-C2348UPQ Fabric extender | | | |

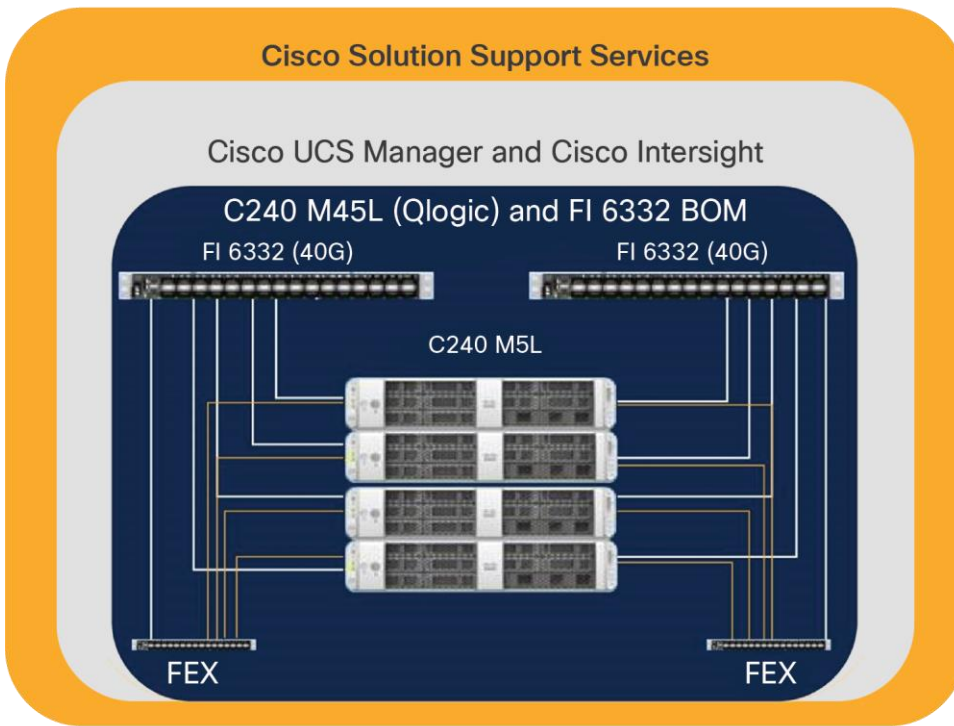


Figure 2.
Sample configuration

Ordering information

Table 2 lists the part numbers for the solution. The solution has a 4-node minimum configuration and is expandable to 16 nodes - UCS-MAH-B00ROO - Microsoft Azure stack HCI Bundle.

| Category | SKUs | Description |
|-----------|-------------------|-------------------------------------------------------------------------------------------------------------------|
| Cisco UCS | UCS-MAN-S31A0T0V0 | MSFT AzureStack HCI Hyb CTO Node C240 M5L w/ 40G QL (UCS 240 M5 12LFF + 2 rear drives w/o CPU, mem, HD, PCIe, PS) |
| | CON-OSP-CC240M5L | SNTC 24X7X4OS UCS C240 M5 12 LFF |
| | UCSC-PCI-1-C240M5 | Riser 1 incl 3 PCIe slots (x8, x16, and x8); slot 3 req CPU2 |
| | UCSC-PSU1-1050W | Cisco UCS 1050W AC power supply for rack server |
| | CAB-C13-CBN | Cabinet jumper power cord, 250 VAC 10A, C14-C13 connectors |
| | UCSC-RAILB-M4 | Ball Bearing Rail Kit for C220 and C240 M4 and M5 rack servers |
| | CIMC-LATEST | IMC SW (recommended) latest release for C-Series Servers. |
| | UCS-MSTOR-M2 | Mini storage carrier for M.2 SATA/NVMe (holds up to 2) |
| | UCSC-BBLKD-L2 | C-Series M5 LFF drive blanking panel |
| | UCSC-SAS-M5 | Cisco 12-Gbps modular SAS HBA (max 16 drives) |
| | UCSC-BBLKD-S2 | UCS C-Series M5 SFF drive blanking panel |
| | UCSX-TPM2-002 | Trusted Platform Module 2.0 for UCS servers |
| | UCSC-PCI-2B-240M5 | Riser 2B incl 3PCIe slots (x8, x16, and x8) supports GPU plus rear NVMe |
| CPU | UCS-CPU-I4214 | Intel 4214 2.2GHz/85W 12C/16.75MB DDR4 2400MHz |
| | UCS-CPU-I5218 | Intel 5218 2.3GHz/125W 16C/22MB 3DX DDR4 2666MHz |
| | UCS-CPU-I6248 | Intel 6248 2.5GHz/150W 20C/27.5MB 3DX DDR4 2933 MHz |
| | UCS-CPU-I6230 | Intel 6230 2.1GHz/125W 20C/27.50MB DCP DDR4 2933 MHz |
| | UCS-CPU-I6238 | Intel 6238 2.1GHz/140W 22C/30.25MB DCP DDR4 2933 MHz |
| | UCS-CPU-I8260 | Intel 8260 2.4GHz/165W 24C/35.75MB 3DX DDR4 2933 MHz |
| | UCS-CPU-I8276 | Intel 8276 2.2GHz/165W 28C/38.50MB 3DX DDR4 2933 MHz |
| | UCS-CPU-I4214R | Intel 4214R 2.4GHz/100W 12C/16.50MB DDR4 2400 MHz |
| | UCS-CPU-I6226R | Intel 6226R 2.9GHz/150W 16C/22MB DDR4 2933 MHz |
| | UCS-CPU-I5218R | Intel 5218R 2.1GHz/125W 20C/27.5MB DDR4 2666 MHz |
| | UCS-CPU-I5220R | Intel 5220R 2.2GHz/150W 24C/35.75MB DCP DDR4 2666 MHz |

| Category | SKUs | Description |
|---------------------------------|-------------------|-----------------------------------------------------------------|
| | UCS-CPU-I6230R | Intel 6230R 2.1GHz/150W 26C/35.75MB DDR4 2933 MHz |
| | UCS-CPU-I6238R | Intel 6238R 2.2GHz/165W 28C/38.50MB DDR4 2933 MHz |
| Memory | UCS-MR-X32G2RT-H | 32GB DDR4-2933-MHz RDIMM/2Rx4 (8Gb) |
| | UCS-MR-X64G2RT-H | 64GB DDR4-2933-MHz RDIMM/2Rx4 (16Gb) |
| | UCS-ML-128G4RT-H | 128GB DDR4-2933-MHz LRDIMM/4Rx4 (16Gb) |
| | UCSC-SAS-M5 | Cisco 12G Modular SAS HBA (max 16 drives) |
| | UCSC-PCI-1-C240M5 | Riser 1 incl 3 PCIe slots (x8, x16, x8); slot 3 req CPU2 |
| | UCSC-PCI-2B-240M5 | Riser 2B incl 3 PCIe slots (x8, x16, x8) supports GPU+rear NVMe |
| Drives | UCS-HD4T7KL12N | 4 TB 12G SAS 7.2K RPM LFF HDD |
| | UCS-HD8T7K4KAN | 8 TB 12G SAS 7.2K RPM LFF HDD (4K) |
| | UCS-HD10T7KL4KN | 10 TB 12G SAS 7.2K RPM LFF HDD (4K) |
| | UCS-HD12T7KL4KN | 12 TB 12G SAS 7.2K RPM LFF HDD (4K) |
| | UCSC-PCIE-QD40GF | Qlogic QL45412HLCU-SP dual port 40G NIC |
| Rear Facing Drive Option | UCS-NVMEM6-W1600 | 1.6TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance |
| | UCS-NVMEM6-W3200 | 3.2TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance |
| | UCS-NVMEM6-W6400 | 6.4TB 2.5in U.2 WD SN840 NVMe Extreme Perf. High Endurance |
| Boot Storage | UCS-M2-960GB | 960GB SATA M.2 (Boot) |
| | UCSC-PSU1-1050W | Cisco UCS 1050W AC Power Supply for Rack Server |
| | Power Cables | All Power cable options in Base PID |
| | UCSC-RAILB-M4 | Ball Bearing Rail Kit for C220 M4 and C240 M4 rack servers |
| | UCSX-TPM2-002 | Trusted Platform Module 2.0 for UCS servers |
| | GLC-TE | 1000BASE-T SFP transceiver module for Category 5 copper wire |
| | UCSC-INT-SW01 | Chassis Intrusion Switch |
| | UCSC-CMA-M4 | Revisable cable arm |
| | UCSC-BZL-C240M5 | Front Bazel |
| | QSFP-H40G-CU3M | 40GBASE-CR4 Passive Copper Cable, 3m |
| | UCSC-HS-C240M5 | Heat sink for UCS C240 M5 rack servers 150W CPUs and below |

| Category | SKUs | Description |
|--------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|
| | UCSC-HS2-C240M5 | Heat sink for UCS C240 M5 rack servers CPUs above 150W |
| | UCS-MSTOR-M2 | Mini Storage carrier for M.2 SATA/NVME (holds up to 2) |
| | UCSC-BBLKD-L2 | C-Series M5 LFF drive blanking panel |
| | UCSC-BBLKD-S2 | UCS C-Series M5 SFF drive blanking panel |
| Software | N10-MGT017 | Cisco UCS Manager and Intersight Managed mode v4.1 |
| | DC-MGT-ONPREM-EST | Cisco Intersight On-Prem Hybrid SaaS - Essentials |
| Nexus Switch and Fabric Interconnect (FI) | N2K-C2348UPQ | N2K-C2348UPQ-10GE (10GE UP FEX; 48x1/10GE SFP+; 6x40G QSFP), airflow/power option |
| | CON-SSC4P-C2348UPQ | SOLN SUPP 24X7X4OS Nexus 2000 10GE UP FEX; 48x1 10GE |
| | CAB-C13-C14-2M | Power cord jumper, C13-C14 connectors, 2-meter length |
| | N2348UPQ-FA-BUN | Port Side Exhaust, airflow pack: N2K-C2348UPQ, 2AC PS, 3Fan Standard airflow/AC pack: N2K-C2232TM-E-10GE plus uplink module |
| | CON-SSC4P-2348PQFA | SOLN SUPP 24X7X4OS Port Side Exhaust airflow pack: |
| Fabric Interconnect | UCS-FI-6332-U | UCS 6332 1RU Fabric Interconnect/no PSU/32 QSFP+ ports/8p Lic |
| | CON-OSP-FI6332U | Power cord jumper, C13-C14 connectors, 2-meter length |
| | CON-OSP-FI6332U | Onsite 24x7x4, UCS 6332 IRU fabric interconnect/no PSU/32 QS |
| | UCS-ACC-6332 | UCS 6332/ 6454 chassis accessory kit |
| | UCS-FAN-6332 | UCS 6332/ 6454 fan module |
| | UCS-PSU-6332-AC | UCS 6332 power supply/100-240VAC |
| | QSFP-H40G-AOC1M | 40GBASE Active Optical Cable, 1m |
| | UCS-LIC-6300-40GC | 3rd Gen FI Per port License to connect C-direct only |

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Why choose Cisco?

For 10 years Cisco, with the Cisco Unified Computing System™ (Cisco UCS), has partnered with Microsoft to deliver system infrastructures that provide leading performance, availability, security, and ease of management. Through Cisco UCS Manager, workloads do not need to be tied to individual servers, as Cisco UCS Manager is hosted on the Cisco UCS 6332 Fabric Interconnects. Thus, each server is configured exactly the same, a new server can be added in minutes, and servers can easily be repurposed if needed.

Note that configurations must adhere to the specifications provided in the Cisco Validated Design to be fully supported by Microsoft and Cisco.

For more information

For more information about Cisco UCS C-Series Rack Servers, visit <https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rackservers/datasheet-c78-739279.html>.

For more information about the Cisco UCS 6332 Fabric Interconnect, visit <https://www.cisco.com/c/en/us/products/servers-unified-computing/ucs-6332-fabricinterconnect/index.html>.

For more information about Microsoft Storage Spaces Direct, visit <https://docs.microsoft.com/enus/windows-server/storage/storage-spaces/storage-spaces-direct-overview>.

For more information about Cisco UCS and Microsoft, visit <https://www.cisco.com/go/microsoft>.

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