

Cisco HyperFlex HX220c M5, HX220c M5 All Flash, and HX220c M5 All NVMe Nodes



Hyperconvergence engineered on the fifth-generation Cisco UCS platform

Mobility, big data, and the Internet of Everything (IoE) are changing application architectures and IT delivery models. Keeping pace requires a systems-centric strategy in your data center. Cisco HyperFlex™ systems deliver adaptability with complete hyperconvergence. These innovative systems combine software-defined networking and computing with the next-generation Cisco HyperFlex HX Data Platform. Engineered on the Cisco Unified Computing System™ (Cisco UCS®), Cisco HyperFlex systems deliver pay-as-you-grow economics and extend model-based management to the cloud.

Simplicity you can build on

With hybrid, all-flash-memory, or all-Non-Volatile Memory Express (NVMe) storage configurations and a choice of management tools, Cisco HyperFlex systems are deployed as a preintegrated cluster with a unified pool of resources that you can quickly provision, adapt, scale, and manage to efficiently power your applications and your business (Figure 1).

Cisco HyperFlex systems now include Cisco UCS M5 rack servers. Based on Intel® Xeon® Scalable processors, these fifth-generation servers have faster processors, more cores, and faster and larger-capacity memory than previous-generation servers. In addition, they can also utilize Intel 3D XPoint nonvolatile memory, which can be used as both storage and system memory, increasing your virtual server configuration options and flexibility for applications.

Cisco HyperFlex HX220c M5, HX220c M5 All Flash, and HX220c M5 All NVMe Nodes

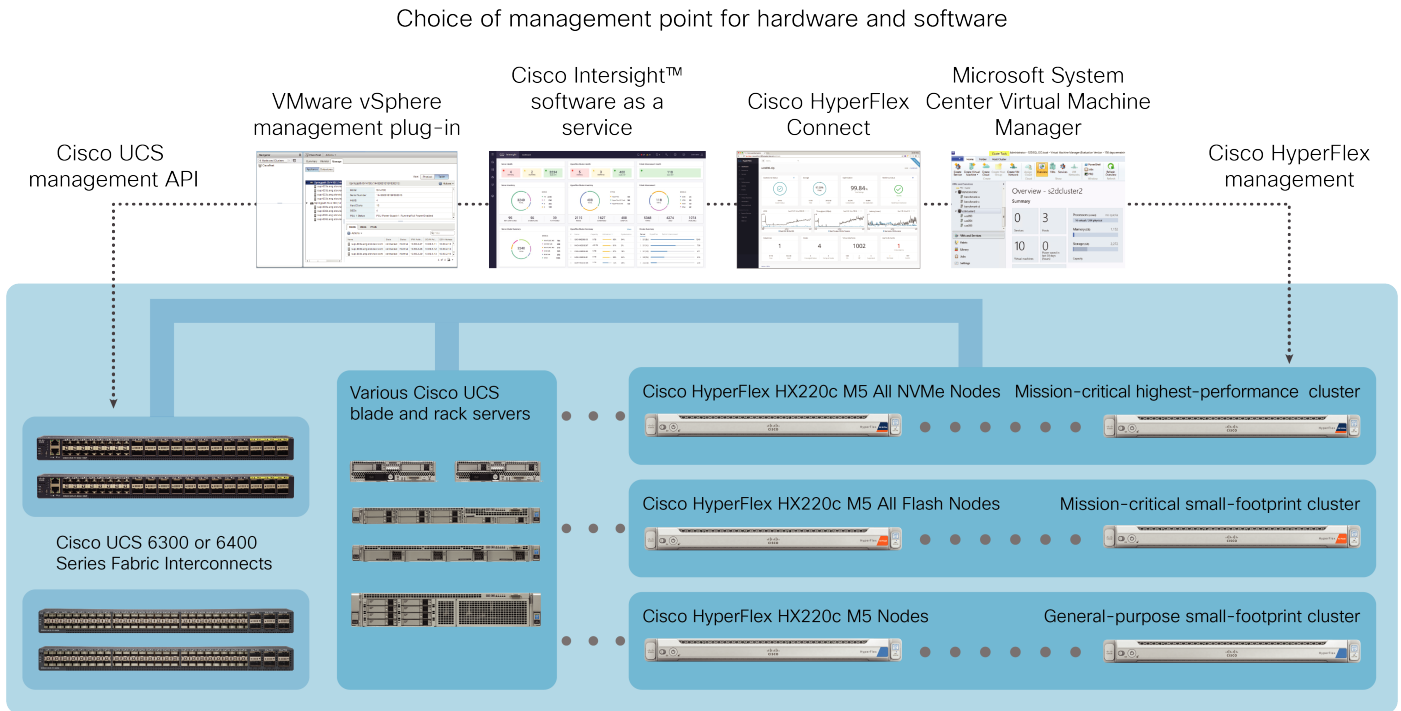
Physically, the system is delivered as a cluster of three or more Cisco HyperFlex HX220c M5, HX220c M5 All Flash, or HX220c M5 All NVMe Nodes that are integrated into a single system by a pair of Cisco UCS 6200 or 6300 Series Fabric Interconnects. The HX220c M5 Node is excellent for general-purpose small-footprint clusters. The HX220c M5 All Flash Node offers excellent performance for mission-critical workloads. The HX220c M5 All NVMe node ushers in a new era in

hyperconverged infrastructure performance for the most latency-sensitive workloads. Each node is configured with the following (for details, see Table 1):

- Hard-disk drives (HDDs), solid-state disk (SSD), or NVMe drives for capacity-layer storage (self-encrypting drive options are available for hard-disk drives and solid-state disks)
- Write-logging SAS SSD or NVMe drive (self-encrypting drive options are available for SSDs)
- Data platform logging drive
- M.2 SATA drives as boot drives for VMware vSphere
- One Cisco UCS virtual interface card (VIC)
- VMware vSphere ESXi 6.0 software preinstalled (ESXi 6.5 is supported but is not preinstalled)
- Cisco UCS service profile templates for automated cluster configuration

All nodes use Intel Xeon Scalable CPUs and next-generation DDR4 memory and offer 12-Gbps SAS throughput. They deliver significant performance and efficiency gains and outstanding levels of adaptability in a 1-rack-unit (1RU) form factor.

Figure 1. Cisco HyperFlex cluster node and management options



Powering next-generation applications

The HX220c M5 Node, HX220c M5 All Flash Node, and HX220c M5 All NVMe Node with Intel Xeon Scalable CPUs are excellent for a wide range of enterprise workloads, including cloud computing, virtual desktop infrastructure (VDI), databases including SQL, Oracle, and SAP, and server virtualization.

For remote-office and branch-office (ROBO) locations, you can use Cisco HyperFlex Edge, which is based on the HX220c M5 Node, in the following configurations:

- Three nodes connected directly to 1-Gbps switches
- Option for one CPU per node
- Three or more disk drives in each node

Product features and benefits

Table 1 summarizes the features and benefits of the HX220c M5 Node, HX220c M5 All Flash Node, and HX220c M5 All NVMe Node.

Table 1. Features and benefits

Feature	Benefit
Memory	Up to 3 TB of memory Capability to use 16-, 32-, 64-, or 128-GB DIMMs
1 or 2 Intel Xeon Scalable processors	<p>Built on 14-nanometer (nm) processor technology, Intel Xeon Scalable processors are designed to deliver highly robust capabilities with outstanding performance, security, and agility.</p> <ul style="list-style-type: none"> ▪ Up to 28 cores in 2-socket configurations ▪ Top-of-the-line memory-channel performance ▪ Three Intel Ultra Path Interconnect (UPI) links across sockets for improved scalability and interconnect data flow ▪ Hardware-assisted security advancements ▪ Low-power, high-speed DDR4 memory technology ▪ Increased performance with Intel Automated Vector Extensions 2 (AVX2) ▪ Increased virtual machine density ▪ Automated energy efficiency that reduces energy costs by automatically putting the processor and memory in the lowest available power state while still delivering the performance required ▪ Flexible virtualization technology that optimizes performance for virtualized environments, including processor support for migration and direct I/O ▪ Innovation with the latest processors, which increase processor frequency and improve security <p>With the increased performance provided by the Intel Xeon Scalable processors, Cisco HyperFlex HX-Series nodes offer an improved price-to-performance ratio, making HX-Series systems among the best values in the industry.</p> <p>Note: The 1-CPU configuration is not supported when choosing either NVMe Caching drives or All NVMe systems</p>
Support for up to 2 PCI Express (PCIe) 3.0 slots	Flexibility, increased performance, and compatibility with industry standards High I/O bandwidth, increased flexibility, and backward compatibility with support for PCIe 2.0
Modular LAN on motherboard (mLOM)	Cisco UCS VICs provide up to 256 I/O devices programmable on demand for hypervisor and virtual machine support. Cisco UCS VIC 1387 provides 2 x 40-Gbps network connectivity to Cisco UCS 6300 Series Fabric Interconnects.
Unified network fabric	Low-latency, lossless, 2 x 40 Gigabit Ethernet Wire-once deployment model, eliminating the need to install adapters and recable racks and switches when changing I/O configurations Fewer interface cards, cables, and upstream network ports to purchase, power, configure, and maintain
Virtualization optimization	I/O virtualization and Intel Xeon Scalable processor features, extending the network directly to virtual machines Consistent and scalable operational model Increased security and efficiency with reduced complexity Capability to move virtual machine security features and policies from rack to rack or rack to blade
Choice of management tools	Managed as a single entity through a vSphere web client plug-in or through the Cisco HyperFlex Connect HTML5 interface Built-in role- and policy-based management through service profiles and templates, enabling more effective use of skilled server, network, and storage administrators Automated provisioning and increased business agility, allowing data center managers to provision applications in minutes rather than days by associating a service profile with a new, added, or repurposed HX220c M5 Node or HX220c All Flash Node

Feature	Benefit
Storage	<p>All-flash-memory or hybrid (HDD and SSD memory) storage configurations</p> <p>High-capacity configurations for the HX Data Platform capacity layer</p> <ul style="list-style-type: none"> ▪ HX220c M5 Node: 8 x 1.2- or 1.8-TB SAS HDDs ▪ HX220c M5 Node with self-encrypting drives: 8 x 1.2-TB self-encrypting SAS HDDs ▪ HX220c M5 All Flash Node: 8 x 3.8-TB or 960-GB SSD drives ▪ HX220c M5 All Flash Node with self-encrypting drives: 8 x 800-GB, 8 x 960-GB, or 8 x 3.8-TB self-encrypting SSD drives ▪ HX220c M5 All NVMe Node: 8 x 1-TB or 4-TB NVMe SSD drives <p>1 x 240-GB SSD log drive</p> <p>Caching or write log drive:</p> <ul style="list-style-type: none"> ▪ HX220c M5 Node: SSD caching drive (self-encrypting drive option is available) ▪ HX220c M5 All Flash Node: SAS SSD (self-encrypting drive option is available) or NVMe write-logging drive ▪ HX220c M5 All NVMe Node: 1 NVMe SSD caching and 1 NVMe SSD write-logging drive <p>Cisco 12-Gbps Modular SAS host bus adapter (HBA) with internal SAS connectivity</p> <p>M.2 SATA SSD drive for boot</p>
Enterprise data protection	<p>Pointer-based snapshot capabilities</p> <p>Near-instant cloning</p> <p>Inline deduplication and compression</p> <p>Native replication for disaster recovery</p> <p>Data-at-rest encryption using self-encrypting drives and enterprise key management integration</p>
Cisco® Integrated Management Controller (IMC)	<p>Connection to Cisco UCS management or the Cisco HyperFlex dashboard for automated configuration through a unified interface</p>
Advanced reliability, availability, and serviceability (RAS) features	<p>Highly available and self-healing architecture</p> <p>Robust reporting and analytics</p> <p>Hot-swappable, front-accessible drives</p> <p>Dual-redundant fans and hot-swappable, redundant power supplies for enterprise-class reliability and uptime</p> <p>Convenient latching lid for easy access to internal server</p> <p>Tool-free CPU insertion, enabling processor upgrades and replacements with less risk of damage</p> <p>Tool-free access to all serviceable items, and color-coded indicators to guide users to hot-pluggable and serviceable items</p> <p>Nondisruptive rolling upgrades</p> <p>Cisco Call Home and onsite 24-hours-a-day, 7-days-a-week (24 x 7) support options</p>
Security features	<p>Trusted Platform Module (TPM), a chip (microcontroller) that can securely store artifacts, including passwords, certificates, and encryption keys, that are used to authenticate the platform (node); TPM 1.2 SPI is supported</p> <p>Locking bezel option to protect against unauthorized access to disk drives</p>
Software	<p>Cisco HyperFlex HX Data Platform Software (software subscription)</p>

Product specifications

Table 2 lists specifications for the HX220c M5 Node, HX220c M5 All Flash Node, and HX220c M5 All NVMe Node.

Table 2. Product specifications

Item	Specification
Chassis	1RU of rack space for the node
Processors	1 or 2 Intel Xeon Scalable CPUs (For a complete list of processor options, refer to the node's technical specifications documents.)
Interconnect	3 Intel UPI channels per processor, each capable of 10.4 gigatransfers per second (GTPS)
Chip set	Intel C620 series
Memory	24 DDR4 DIMM slots Support for DDR4 registered DIMMs (RDIMMs) Advanced error-correcting code (ECC) Independent channel mode Lockstep channel mode
Embedded network interface card (NIC)	Dual 10-Gbps Intel x550 Ethernet ports Support for the wake-on-LAN (WoL) standard
mLOM	Cisco UCS VIC 1387
Power supplies	Up to 2 hot-pluggable, redundant 770-watt (W) or 1050W power supplies
IMC	Integrated baseboard management controller (BMC) IPMI 2.0 compliant for management and control One 10/100/1000 Ethernet out-of-band management interface Command-line interface (CLI) and web GUI management tool for automated, lights-out management Keyboard, video, and mouse (KVM) console
Front-panel connector	One KVM console connector (supplies 2 USB connectors, 1 VGA connector, and 1 serial connector)
Front-panel locator LED	Indicator to help direct administrators to specific servers in large data center environments
Additional rear connectors	Additional interfaces including a Video Graphics Array (VGA) video port, 2 USB 3.0 ports, an RJ45 serial port, a 1 Gigabit Ethernet management port, and dual 10 Gigabit Ethernet ports
Rail-kit options	Cisco ball-bearing rail kit with optional reversible cable-management arm Cisco friction rail kit with optional reversible cable-management arm
Software support	ESX 6.5 ESX 6.0 Cisco UCS Manager 3.1

Ordering information

For a complete list of part numbers, refer to the [HX220c M5 Node](#) specification sheet.

Cisco Unified Computing Services

Cisco and our industry-leading partners deliver services that accelerate your transition to Cisco HyperFlex systems. Cisco Unified Computing Services can help you create an agile infrastructure, accelerate time-to-value, reduce costs and risks, and maintain availability during deployment and migration. After you have deployed your system, our services can help you improve performance, availability, and resiliency as your business needs evolve and help you further mitigate risk.

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For more information

For more information about Cisco HyperFlex systems, refer to <http://www.cisco.com/go/hyperflex>.

Cisco HyperFlex™ systems with Intel® Xeon® Scalable processors



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