Cisco HyperFlex HX220c M6, HX220c M6 All Flash, and HX220c M6 All NVMe Nodes

High-performance clusters in a small footprint

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# Contents

Today's applications live across a complex, multidomain world—from enterprise data centers and private and public clouds, to campus, branch, and edge locations. Cisco HyperFlex™ systems with Intel® Xeon® Scalable processors make it easy to modernize and simplify deployment and operation. Engineered with Cisco Unified Computing System™ (Cisco UCS®) technology, and managed through the Cisco Intersight™ cloud operations platform, Cisco HyperFlex systems deliver flexible scale-out infrastructure that can rapidly adapt to changing business demands.

Simplicity you can build on

With hybrid, all-flash-memory, or all-Non-Volatile Memory Express (NVMe) storage configurations and cloud-based management, 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). Based on Intel® Xeon® Scalable processors, these servers have faster processors, more cores, and faster and larger-capacity memory than previous-generation servers. In addition, they are ready for Intel® Optane™ Persistent Memory (PMem), which can be used as both storage and system memory, increasing your virtual server configuration options and flexibility for applications.

Figure 1.
Cisco HyperFlex systems product family
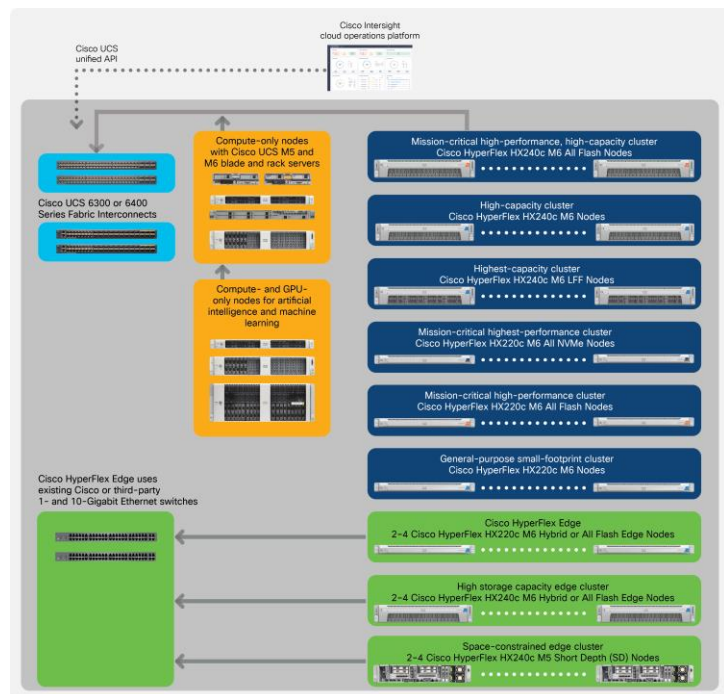
Cisco HyperFlex HX220c M6 Node family

The Cisco HyperFlex HX220c M6 Node family delivers mission-critical, high performance in a small footprint. Physically, the system is delivered as a cluster of three or more three or more Cisco HyperFlex HX220c M6 All NVMe, All Flash, and Hybrid Server Nodes The nodes are integrated into a single system by a pair of Cisco UCS 6300 or 6400 Series Fabric Interconnects, creating clusters that support general-purpose deployments

(HX220c M6) and mission-critical high-performance environments (HX220c M6 All NVMe and HX220c M6 All Flash).

Incorporating Intel® Xeon® Scalable processors and next-generation DDR4 memory, these HX-Series nodes offer an improved price-to-performance ratio that ranks them among the best values in the industry. Cloud-based management makes it easy for you to scale your cluster to support more workloads and deliver performance, efficiency, and adaptability in a 1-rack-unit (1RU) form factor.

Powering next-generation applications

Cisco HyperFlex HX220c M6 All NVMe, All Flash, and Hybrid Server Nodes 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. Cisco HyperFlex Edge configurations, based on the HX220c M6 Node and HX240c M6 Node, are available to support remote-office and branch-office (ROBO) locations.

Features and benefits

Table 1.   Summary of features and benefits of Cisco HyperFlex HX220c M6 Node, HX220c M6 All Flash Node, and HX220c M6 All NVMe Node.

Feature	Benefit		
Memory	• High memory capacity • Up to 8 TB memory (32 x 256 GB DDR4 DIMMs1) or • Up to 12 TB memory (16 x 256 GB DDR4 DIMMs) and 16 x 512 GB Intel® Optane™ Persistent Memory Modules (PMem)		
Intel Xeon Scalable CPUs	High performance • 10-nanometer (nm) processor technology • Massive processing power • Top-of-the-line memory-channel performance • Improved scalability and intercore data flow • Intel Automated Vector Extensions 2 (AVX2)	Agility • Supports highly dense virtual machine deployments • Offers flexible virtualization technology that optimizes performance for virtualized environments, including processor support for migration and direct I/O	Efficiency and security • Low-power, high-speed DDR4 memory technology • Automated energy efficiency reduces energy costs by automatically putting the processor and memory in the lowest available power state while delivering the performance required • Hardware-assisted security advancements
Unified network fabric	• Low-latency, lossless, 2 x 40 Gigabit Ethernet connections • Wire-once deployment model, eliminating the need to install adapters and re-cable racks and switches when changing I/O configurations • Fewer interface cards, cables, and upstream network ports to purchase, power, configure, and maintain		
Expansion	• Support for up to 3 half-height PCIe risers or 1 to 2 full height PCI risers • Flexibility, increased performance, and compatibility with industry standards • High I/O bandwidth, increased flexibility, and backward compatibility with support for PCIe 2.0		
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		

Feature	Benefit	
Cloud-based management	Cisco Intersight™ simplifies operations across on-premises data centers, edge sites, and public clouds. • Use a software-as-a-service platform that bridges applications with infrastructure • Gain instant access to clusters regardless of where they are deployed • Correlate visibility and management across bare-metal servers, hypervisors, Kubernetes, and serverless and application components • Transform operations with artificial intelligence to reach needed scale and velocity • Collaborate and work smarter and faster by automating lifecycle workflows • Support compliance and governance with extensible, open capabilities that natively integrate with third-party platforms and tools • Proactively respond to impending issues with a recommendation engine that determines when capacity needs to be scaled	Additional management capabilities include: • Support for the VMware vSphere plug-in • Support for the Cisco HyperFlex Connect interface with an HTML 5 presentation layer accessible on desktop and laptop computers and mobile devices
Storage	• Offer all-flash-memory, all-NVMe, or hybrid storage configurations (combination of hard-disk drives [HDDs], and solid-state-disks [SSDs]) • Deliver high-capacity configurations for the HX Data Platform capacity layer	
Enterprise data protection	• Pointer-based snapshot capabilities • Native snapshots for iSCSI LUNs, including a consistency group for snapshot operations, instantaneous snapshot creation, and RESTful APIs for snapshot creation and third-party backup use • Snapshot integration with MEDITECH-BridgeHead for electronic health records and databases • Near-instant cloning • Inline deduplication and compression • Native replication for disaster recovery • N:1 replication for data center clusters with fabric interconnects and more than 4 nodes, as well as a flexible retention policy for local and remote point-in-time copies • Data-at-rest encryption using self-encrypting drives and enterprise key management integration	
Security	• Locking bezel option to protect against unauthorized access to disk drives • 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) • Supports TPM 2.0	
Software	• Cisco HyperFlex HX Data Platform Software (software subscription, Data Center License)	

Product specifications

Table 2. Common specifications for Cisco HyperFlex HX220c M6 Node, HX220c M6 All Flash Node, and HX220c M6 All NVMe Node.

Feature	Common specifications across the HX220c M6 Node family
Chassis	• 1RU of rack space per node
Processors	• One or two 3rd Gen Intel Xeon Scalable CPUs (Ice Lake) • A 2-CPU configuration is required when using NVMe caching drives or All NVMe systems
Graphics Processing Units (GPUs)	• Up to 3 NVIDIA T4 Tensor Core cards per node (optional)
Interconnect	• 3 Intel UPI channels per processor, each capable of 10.4 gigatransfers per second (GTPS)
Chip set	• Intel C621A series
Memory	• Capability to use 256 or 512-GB DIMMs • 8 TB using 32 x 256-GB DDR4 DIMMS • 12 TB using 16 x 256-GB DDR DIMMS and 16 x 512-GB Intel PMem modules • Advanced error-correcting code (ECC) • Independent channel mode • Lockstep channel mode

Storage	• High-capacity configurations for the HX Data Platform capacity layer
	  o HX220c M6 Node: 3 to 8 capacity HDDs
	  o HX220c M6 Node with self-encrypting drives: 3 to 8 self-encrypting HDDs
	  o HX220c M6 All Flash Node: 3 to 8 SSD capacity drives
	  o HX220c M6 All Flash Node with self-encrypting drives: 3 to 8 self-encrypting SSD drives
	  o HX220c M6 All NVMe Node: 3 to 8 NVMe SSD capacity drives
	  o See the [specification sheet](#) for more information
	• Caching or write-log drive:
	  o HX220c M6 Node: 1 x SATA/SAS SSD caching drive (self-encrypting drive option available)
	  o HX220c M6 All Flash Node: 1 x SAS SSD caching drive (self-encrypting drive option available) or 1 x NVMe write-logging drive
	  o HX220c M6 All NVMe Node: 1 x NVMe SSD caching drive and 1 NVMe SSD write-logging drive
	• 1 x SATA/SAS SSD log drive
	• Cisco 12-Gbps Modular SAS host bus adapter (HBA) with internal SAS connectivity M.2 SATA SSD drive for boot

PCIe	• Support for up to **3 half-height PCIe risers or 1 to 2 full height PCI risers**
	• Support for the following NICs:
	  o Intel i350 quad-port 1 Gigabit Ethernet network interface card
	  o Intel X710-DA2 dual-port 10 Gigabit Ethernet network interface card
	  o Intel X710 quad-port 10 Gigabit Ethernet network interface card
	  o Intel X710-T2LG dual-port 10 Gigabit Ethernet network interface card
	  o Intel XXV810-DA2 dual-port 25 Gigabit Ethernet network interface card
	  o Intel XXV810-DA2 quad-port 25 Gigabit Ethernet network interface card

Exansion slots	• 2 full-height, ¾-length slots with x24 connector and x16 lane • 3 half-height, half-length slots with x24 connector and x16 lane

Feature	Common specifications across the HX220c M6 Node family
	• Dedicated SAS HBA slot, reserved for use by the Cisco 12G SAS HBA
Modular LAN on Motherboard (mLOM)	• Cisco UCS Virtual Interface Card 1467 • Cisco UCS Virtual Interface Card 1477 • Up to 256 I/O devices programmable on demand for hypervisor and virtual machine support • 2 x 100-Gbps network connectivity to Cisco UCS 6300 Series Fabric Interconnects through the Cisco UCS Virtual Interface Card 1477
Network	• Dual 10-Gbps Ethernet ports per node • Support for the wake-on-LAN (WoL) standard
Cisco® Integrated Management Controller (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
Advanced reliability, availability, and serviceability (RAS) features	• Highly available and self-healing architecture • Robust reporting and analytics • Hot-swappable, front-accessible drives • Dual-redundant fans and hot-swappable, redundant power supplies for enterprise-class reliability and uptime Convenient latching lid for easy access to internal server • Tool-free CPU insertion, enabling processor upgrades and replacements with less risk of damage • Tool-free access to all serviceable items, and color-coded indicators to guide users to hot-pluggable and serviceable items • Nondisruptive rolling upgrades • Cisco Call Home and onsite 24-hours-a-day, 7-days-a-week (24 x 7) support options
Front-panel connector	• 1 KVM console connector per node (supplies 2 USB connectors, 1 VGA connector, and 1 serial connector)
Front-panel locator LED	• Helps direct administrators to specific servers in large data center environments
Additional rear connectors	• 1 Gigabit Ethernet management port • 2 x 10 Gigabit Ethernet ports • 1 RS-232 serial port (RJ45 connector) • 1 Video Graphics Array (VGA) video port (DB15 connector) • 2 USB 3.0 ports
Power and cooling	• One or two hot-pluggable power supplies • Second power supply provides 1+1 redundancy • 1050W, 1600W, or 2300W • 8 hot-swappable fans
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	• Cisco HyperFlex HX Data Platform Software (software subscription, Data Center license)

Ordering information

For a complete list of part numbers, refer to the [Cisco HyperFlex HX220 M6 Edge All Flash and Hybrid Server Nodes](#) 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.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

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Cisco environmental sustainability

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Reference links to information about key environmental sustainability topics (mentioned in the "Environment Sustainability" section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	[Materials](#)
Information on electronic waste laws and regulations, including products, batteries, and packaging	[WEEE compliance](#)

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How to buy

To view buying options and speak with a Cisco sales representative, go to www.cisco.com/c/en/us/buy.

For more information

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

Document history

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