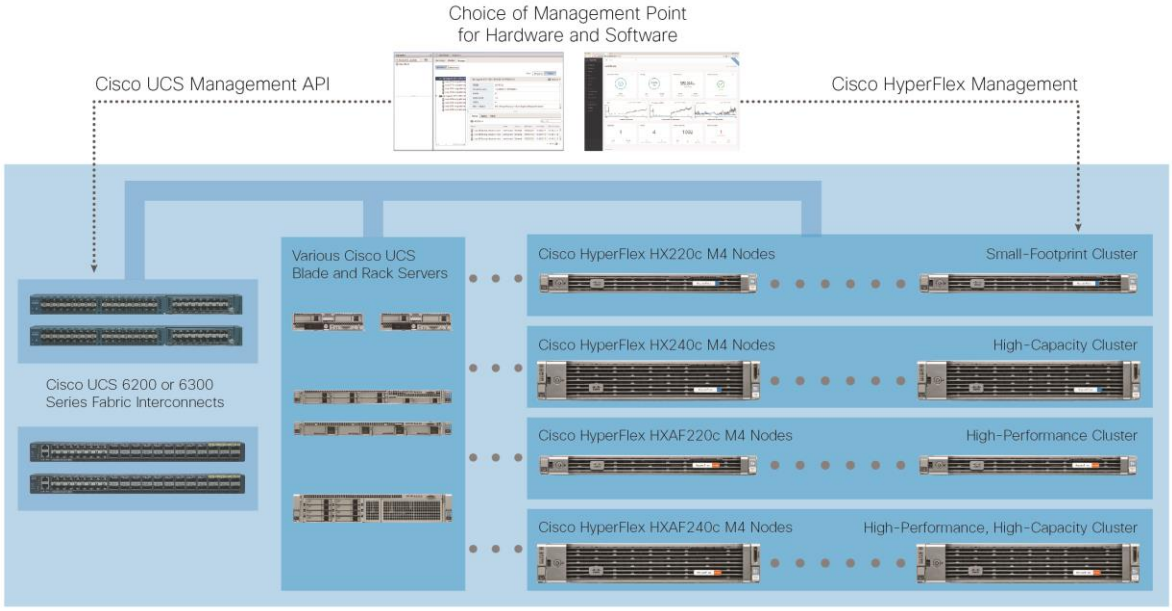
Cisco HyperFlex HX220c M4 and HX220c M4 All Flash Nodes

Fast and Flexible Hyperconverged Systems

You need systems that can adapt to match the speed of your business. Cisco HyperFlex™ Systems deliver complete hyperconvergence, combining 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 the operational requirements for agility, scalability, and pay-as-you-grow economics of the cloud—but with the benefits of on-premises infrastructure.

With hybrid or all-flash-memory storage configurations and a choice of management tools, Cisco HyperFlex Systems deliver a preintegrated cluster with a unified pool of resources that you can quickly deploy, adapt, scale, and manage to efficiently power your applications and your business (Figure 1).

Figure 1. Cisco HyperFlex Systems



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Cisco HyperFlex HX220c M4 and HX220c M4 All Flash Nodes

Physically, the system is delivered as a cluster of three or more Cisco HyperFlex HX220c M4 or HX220c M4 All Flash Nodes that are integrated into a single system by a pair of Cisco UCS 6200 or 6300 Series Fabric Interconnects.

Each node configuration includes the following (details in Table 1):

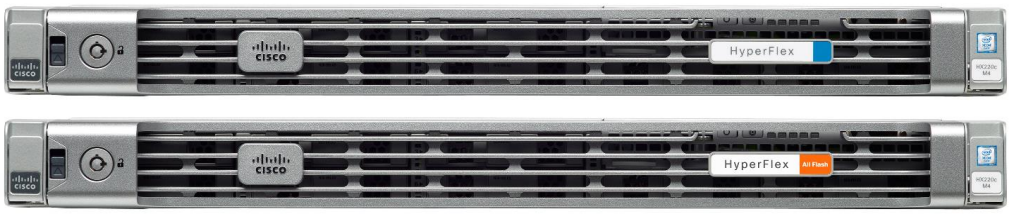
- HDDs for 7.2 TB or SSD drives for up to 23 TB of capacity-layer storage (self-encrypting drive options are available)Write logging SAS SSD or NVMe drive (self-encrypting drive options are available)
- Data platform logging drive
- Two Cisco Flexible Flash (FlexFlash) Secure Digital (SD) cards used 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

For remote- and branch-office locations, Cisco HyperFlex Edge is based on Cisco HyperFlex HX220c M4 Nodes in the following configurations:

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

All nodes use Intel® Xeon® processor E5-2600 v4 family 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 2).

Figure 2. Cisco HyperFlex HX220c M4 and HX220c M4 All Flash Nodes Contribute to a Small-Footprint Cluster



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Product Features and Benefits

Table 1 summarizes the features and benefits of the HX220c M4 and HX220c M4 All Flash Nodes.

Table 1. Features and Benefits

Feature	Benefit
Memory	• Up to 1.5 TB of memory • Capability to use 16-, 32-, or 64-GB DIMMs
2 Intel Xeon processor E5-2600 v4 family CPUs	The Intel Xeon processor E5-2600 v4 family is designed to deliver the best combination of performance, built-in capabilities, and cost effectiveness: • More than twice the performance and more cores (up to 16 cores per socket) than the previous generation Intel Xeon processor • 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 With the increased performance provided by the Intel Xeon processor E5-2600 v4 family, Cisco HyperFlex HX-Series nodes offer an improved price-to-performance ratio, making HX-Series systems among the best values in the industry.
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 1227 provides 2 x 10-Gbps network connectivity to Cisco UCS 6200 Series Fabric Interconnects • Cisco UCS VIC 1387 provides 2 x 40-Gbps network connectivity to Cisco UCS 6300 Series Fabric Interconnects • Cisco Data Center Virtual Machine Fabric Extender (VM-FEX), which supports dynamic I/O interfaces that connect directly to virtual machines for improved performance
Unified network fabric	• Low-latency, lossless, 2 x 10 Gigabit Ethernet and industry-standard Fibre Channel over Ethernet (FCoE) and native Fibre Channel fabric to each node, with 2 x 80-Gbps networking available • 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 processor E5-2600 v4 family 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 M4 or HX220c All Flash Node

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Feature	Benefit

Storage	• All-flash-memory or hybrid (hard-disk and solid-state-memory) storage configurations
	• High-capacity configurations for the HX Data Platform capacity layer
	  • HX220c M4 Node: 6 x 1.2-TB SAS HDDs
	  • HX220c M4 Node with self-encrypting drives: 6 x 1.2-TB self-encrypting SAS HDDs
	  • HX220c M4 All Flash Node: 6 x 3.8-TB or 960-GB SSD drives
	  • HX220c M4 All Flash Node with self-encrypting drives: 6 x 800-GB self-encrypting SSD drives
	• 1 x 120-GB SSD log drive
	• Caching or write log drive:
	  • HX220c M4 Node: SSD caching drive (self-encrypting drive option is available)
	  • HX220c M4 All Flash Node: SAS SSD (self-encrypting drive option is available) or NVMe write-logging drive
	• Cisco 12-Gbps Modular SAS host bus adapter (HBA) with internal SAS connectivity

Enterprise data protection	• Pointer-based snapshot capabilities • Near-instant cloning • Inline deduplication and compression • Native replication for disaster recovery • Data-at-rest encryption using self-encrypting drives and enterprise key management integration
Cisco® Integrated Management Controller (IMC)	Connection to Cisco UCS management or the Cisco HyperFlex dashboard for automated configuration through a unified interface
Advanced reliability, availability, and serviceability (RAS) features	• Highly available and self-healing architecture • Robust reporting and analytics • Hot-swappable, front-accessible drives • Redundant FlexFlash SD cards • 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 • Call-home and onsite 24 x 7 support options
Security features	• 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 • Locking bezel option to protect against unauthorized access to disk drives
FlexFlash SD cards	• 2 x 64-GB redundant internal FlexFlash SD cards, which are used as boot drives • Support for Utility mode with out-of-band updates of utility partitions
Software	Cisco HyperFlex HX Data Platform Software (software subscription)

Powering Next-Generation Applications

The HX220c M4 and HX220c All Flash Nodes with the Intel Xeon processor E5-2600 v4 family are excellent for a wide range of enterprise workloads, including virtdual desktop infrastructure (VDI) and server virtualization.

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Product Specifications

Table 2 lists specifications for the HX220c M4 and HX220c M4 All Flash Nodes.

Table 2. Product Specifications

Item	Specification
Chassis	1RU of rack space for the node
Processors	2 Intel Xeon processor E5-2600 v4 family CPUs (For a complete list of processor options, refer to the node's technical specifications documents.)
Interconnect	2 Intel Quick Path Interconnect (QPI) channels per processor, each capable of 8.0 and 9.6 gigatransfers per second (GTPS)
Chip set	Intel C610 series
Memory	• 24 DDR4 DIMM slots • Support for DDR4 registered DIMMs (RDIMMs) • Advanced error-correcting code (ECC) • Independent channel mode • Lockstep channel mode
PCIe slots	• 2 PCIe 3.0 slots: ◦ Riser 1: 1 full-height, 3/4-length slot with x24 connector and x16 lane ◦ Riser 2: 1 half-height, half-length slot with x24 connector and x16 lane
Embedded network interface card (NIC)	Dual 1-Gbps Intel i350 Ethernet ports
mLOM	Cisco UCS VIC 1227 or 1387
Power supplies	Hot-pluggable, redundant 770W power supplies
FlexFlash SD cards	• 2 internal 64-GB FlexFlash drives (SD cards) • Support for Utility mode with out-of-band updates of utility partitions
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 VGA video port, 2 USB 3.0 ports, an RJ45 serial port, a 1 Gigabit Ethernet management port, and dual 1 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 M4 and HX220c M4 All Flash specification sheets.

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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 deployment, 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.

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Printed in USA C78-736782-06 06/17

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