

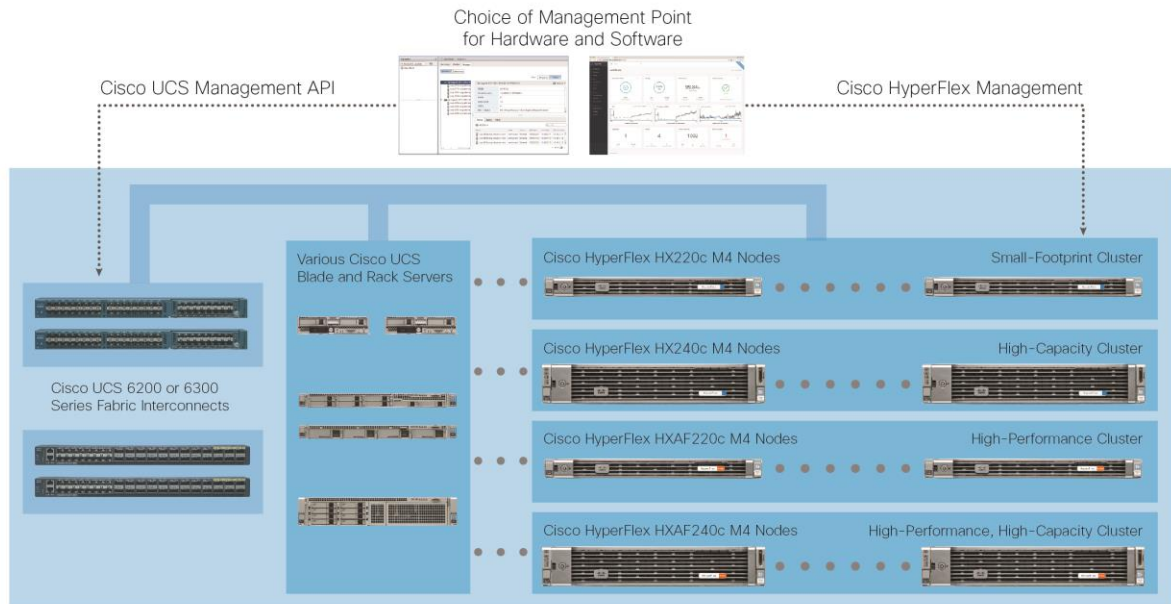
# Cisco HyperFlex HX240c M4 and HX240c M4 All Flash Nodes

## 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



## Cisco HyperFlex HX240c M4 and HX240c M4 All Flash Nodes

Physically, the system is delivered as a cluster of three or more Cisco HyperFlex HX240c M4 or HX240c M4 All Flash Nodes that are integrated into a single system by a pair of Cisco UCS 6200 or 6300 Series Fabric Interconnects. The nodes use Intel® Xeon® processor E5-2600 v4 family CPUs and large internal memory and storage capacities to deliver an outstanding combination of performance, flexibility, and efficiency in a 2-rack-unit (2RU) form factor (Figure 2).

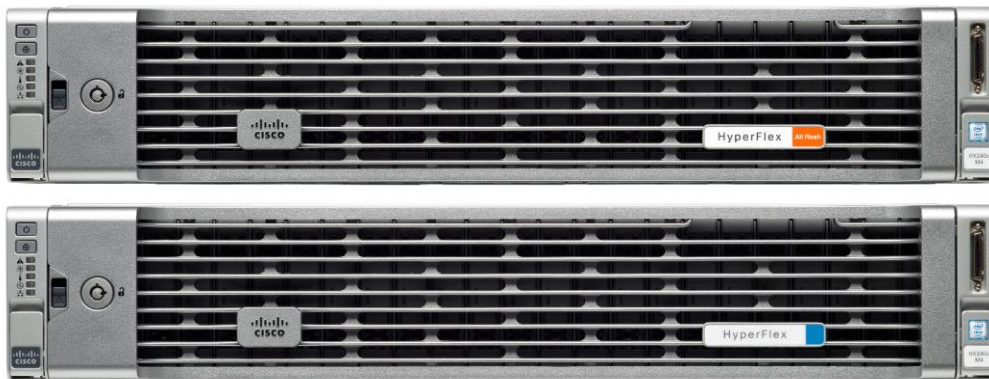
In addition:

- Each HX240c M4 Node includes two Cisco Flexible Flash (FlexFlash) Secure Digital (SD) cards, a single 120-GB solid-state disk (SSD) boot drive, a single 1.6-terabyte (TB) SSD caching drive, and up to twenty-three 1.2-TB SAS hard-disk drives (HDDs) to support the data platform capacity layer, for a contribution of up to 27.6 TB of storage capacity per node to the cluster.
- Each HX240c M4 All-Flash node includes two FlexFlash SD cards, a single 120-GB SSD boot drive, a single SSD for write logging, and up to ten 3.8-TB HDDs or ten 960-GB SSDs to support the data platform capacity layer, for a contribution of up to 38 TB of storage capacity per node to the cluster.

Each node configuration also includes:

- Two FlexFlash SD cards for boot drives and the hypervisor
- One Cisco UCS Virtual Interface Card (VIC) 1227
- VMware vSphere ESXi 6.0 software preinstalled (ESXi 5.5 is also supported but is not preinstalled)
- Cisco UCS service profile templates for automated cluster configuration

**Figure 2.** Cisco HyperFlex HX240c M4 and HX240c M4 All Flash Nodes



## Hybrid Configurations

The HX240c M4 and HX240c M4 All Flash Nodes can be deployed with various Cisco UCS B-Series Blade Servers and C-Series Rack Servers to create a hybrid cluster. With a single point of connectivity and management, you can easily scale your cluster to support more workloads and deliver the performance, bandwidth, and low latency that your users and applications need.

## Product Features and Benefits

Table 1 lists the main features and benefits of the HX240c M4 and HX240c M4 All Flash Nodes.

**Table 1.** Features and Benefits

Feature	Benefit
<b>Memory</b>	<ul style="list-style-type: none"> <li>Up to 1.5 TB of memory</li> <li>Capability to use 16-, 32-, or 64-GB DIMMs</li> </ul>
<b>1 or 2 Intel Xeon processor E5-2600 v3 or v4 family CPUs</b>	<p>The Intel Xeon processor E5-2600 v4 family is designed to deliver the best combination of performance, built-in capabilities, and cost effectiveness:</p> <ul style="list-style-type: none"> <li>More than twice the performance and more cores (up to 16 cores per socket) than the previous-generation Intel Xeon processor</li> <li>Low-power, high-speed DDR4 memory technology</li> <li>Increased performance with Intel Automated Vector Extensions 2 (AVX2)</li> <li>Increased virtual machine density</li> <li>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</li> <li>Flexible virtualization technology that optimizes performance for virtualized environments, including processor support for migration and direct I/O</li> <li>Innovations with the latest processors that increase processor frequency and improve security</li> </ul> <p>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.</p>
<b>Support for up to 6 PCI Express (PCIe) 3.0 slots, 4 of which are full-height, full-length</b>	<ul style="list-style-type: none"> <li>Flexibility, increased performance, and compatibility with industry standards</li> <li>High I/O bandwidth, increased flexibility, and backward compatibility with support for PCIe 2.0</li> <li>1 slot capable of graphics processing unit (GPU) support for enhanced virtual desktop infrastructure (VDI) capabilities (future support)</li> </ul>
<b>Modular LAN-on-motherboard (mLOM)</b>	<ul style="list-style-type: none"> <li>Cisco UCS VIC 1227, which provides up to 256 I/O devices programmable on demand for hypervisor and virtual machine support</li> <li>Cisco Data Center Virtual Machine Fabric Extender (VM-FEX), which supports dynamic I/O interfaces that connect directly to virtual machines for improved performance</li> </ul>
<b>Unified network fabric</b>	<ul style="list-style-type: none"> <li>Low-latency, lossless, 20 Gigabit Ethernet and industry-standard Fibre Channel over Ethernet (FCoE) and native Fibre Channel fabric to each node at first customer shipment, upgradeable to 40-Gbps</li> <li>Wire-once deployment model, eliminating the need to install adapters and recable racks and switches when changing I/O configurations</li> <li>Fewer interface cards, cables, and upstream network ports to purchase, power, configure, and maintain</li> </ul>
<b>Virtualization optimization</b>	<ul style="list-style-type: none"> <li>I/O virtualization and Intel Xeon processor E5-2600 v4 family features, extending the network directly to virtual machines</li> <li>Consistent and scalable operational model</li> <li>Increased security and efficiency with reduced complexity</li> <li>Capability to move virtual machine security features and policies from rack to rack or rack to blade</li> </ul>
<b>Choice of management tools</b>	<ul style="list-style-type: none"> <li>Managed as a single entity through a vSphere client plug-in to Cisco UCS management capabilities, or through the Cisco HyperFlex HTML5 dashboard</li> <li>Built-in role- and policy-based management through service profiles and templates, enabling more effective use of skilled server, network, and storage administrators</li> <li>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 HX240c M4 or HX240c M4 All Flash Node</li> </ul>
<b>Storage</b>	<ul style="list-style-type: none"> <li>All-flash-memory or hybrid (hard-disk and solid-state-memory) storage configurations</li> <li>High-capacity configurations for the HX Data Platform capacity layer</li> <li>HX240c M4 All Flash Node: Up to 10 x 3.8-TB or 10 x 960-GB SATA SSDs for the capacity tier</li> <li>HX240c M4 Node: Up to 23 x 1.2-TB, 10,000-rpm SAS HDDs for the capacity tier</li> <li>1 x 120-GB SSD boot drive</li> <li>1 x SSD caching drive (hybrid configurations) or write-log drive (all-flash configurations)</li> <li>Cisco 12-Gbps Modular SAS host bus adapter (HBA) with internal SAS connectivity</li> </ul>

Feature	Benefit
<b>Enterprise data protection</b>	<ul style="list-style-type: none"> <li>• Pointer-based snapshot capabilities</li> <li>• Near-instant cloning</li> <li>• Inline deduplication and compression</li> </ul>
<b>Cisco® Integrated Management Controller (IMC)</b>	Connection to Cisco UCS management or the Cisco HyperFlex dashboard for automated configuration through a unified interface
<b>Advanced reliability, availability, and serviceability (RAS) features</b>	<ul style="list-style-type: none"> <li>• Highly available and self-healing architecture</li> <li>• Robust reporting and analytics</li> <li>• Hot-swappable, front-accessible drives</li> <li>• Redundant FlexFlash SD cards</li> <li>• Dual-redundant fans and hot-swappable, redundant power supplies for enterprise-class reliability and uptime</li> <li>• Convenient latching lid for easy access</li> <li>• Tool-free CPU insertion, enabling processor upgrades and replacements with less risk of damage</li> <li>• Tool-free access to all serviceable items, and color-coded indicators to guide users to hot-pluggable and serviceable items</li> <li>• Nondisruptive rolling upgrades</li> <li>• Call-home and onsite 24 x 7 support options</li> </ul>
<b>Security features</b>	<ul style="list-style-type: none"> <li>• 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</li> <li>• Locking bezel option to protect against unauthorized access to disk drives</li> </ul>
<b>FlexFlash SD cards</b>	<ul style="list-style-type: none"> <li>• 2 x 64-GB redundant internal FlexFlash SD cards, which are used as boot drives</li> <li>• Support for the Utility mode with out-of-band updates of utility partitions</li> </ul>
<b>Software</b>	Cisco HyperFlex HX Data Platform Software (1- or 3-year software subscription)

## Product Specifications

Table 2 lists the specifications for the HX240c M4 and HX240c M4 All Flash Nodes.

**Table 2.** Product Specifications

Item	Specification
<b>Chassis</b>	2RU of rack space for the node
<b>Processors</b>	1 or 2 Intel Xeon processor E5-2600 v4 family CPUs (For a complete list of processor options, refer to the node's technical specifications documents.)
<b>Interconnect</b>	2 Intel Quick Path Interconnect (QPI) channels per processor, each capable of 8.0 and 9.6 gigatransfers per second (GTPS)
<b>Chip set</b>	Intel C610 series
<b>Memory</b>	<ul style="list-style-type: none"> <li>• 24 DDR4 DIMM slots</li> <li>• Support for DDR4 registered DIMMs (RDIMMs) and load-reduction DIMMs (LRDIMMs)</li> <li>• Advanced error-correcting code (ECC)</li> <li>• Independent channel mode</li> <li>• Mirrored channel mode</li> <li>• Lockstep channel mode</li> </ul>
<b>PCIe slots</b>	Up to 6 PCIe 3.0 slots
<b>Embedded network interface card (NIC)</b>	Dual 1-Gbps Intel i350 Ethernet ports
<b>mLOM</b>	Cisco UCS VIC 1227
<b>Power supplies</b>	Hot-pluggable, redundant 650W, 930W, 1200W, or 1400W DC power supplies
<b>FlexFlash</b>	<ul style="list-style-type: none"> <li>• 2 internal 64-GB FlexFlash drives (SD cards)</li> <li>• Support for Utility mode with out-of-band updates of utility partitions</li> </ul>

<b>IMC</b>	<ul style="list-style-type: none"> <li>• Integrated baseboard management controller (BMC)</li> <li>• IPMI 2.0 compliant for management and control</li> <li>• One 10/100/1000 Ethernet out-of-band management interface</li> <li>• Command-line interface (CLI) and web GUI management tool for automated, lights-out management</li> <li>• Keyboard, video, and mouse (KVM) console</li> </ul>
<b>Front-panel connector</b>	One KVM console connector (supplies 2 USB connectors, 1 VGA connector, and 1 serial connector)
<b>Front-panel locator LED</b>	Indicator to help direct administrators to specific nodes in large data center environments
<b>Additional rear connectors</b>	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
<b>Rail-kit options</b>	Cisco ball-bearing rail kit with optional reversible cable-management arm
<b>Software support</b>	<ul style="list-style-type: none"> <li>• vSphere Enterprise and vSphere Enterprise Plus</li> <li>• ESX 5.5 U3 patch 1</li> <li>• ESX 6.0 U1 patch 1</li> <li>• Cisco UCS Manager 2.2</li> </ul>

## Ordering Information

For a complete list of part numbers, refer to the node's [HX240c M4](#) and [HX240c M4 All Flash](#) specification sheets.

## 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 adaptive 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. For more information, visit <http://www.cisco.com/go/unifiedcomputingservices>.

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