# Cisco HyperFlex HX240c M6, HX240c M6 All Flash, and HX240c M6 All NVMe Nodes

## High-capacity clusters for storage-intensive applications

October 2021

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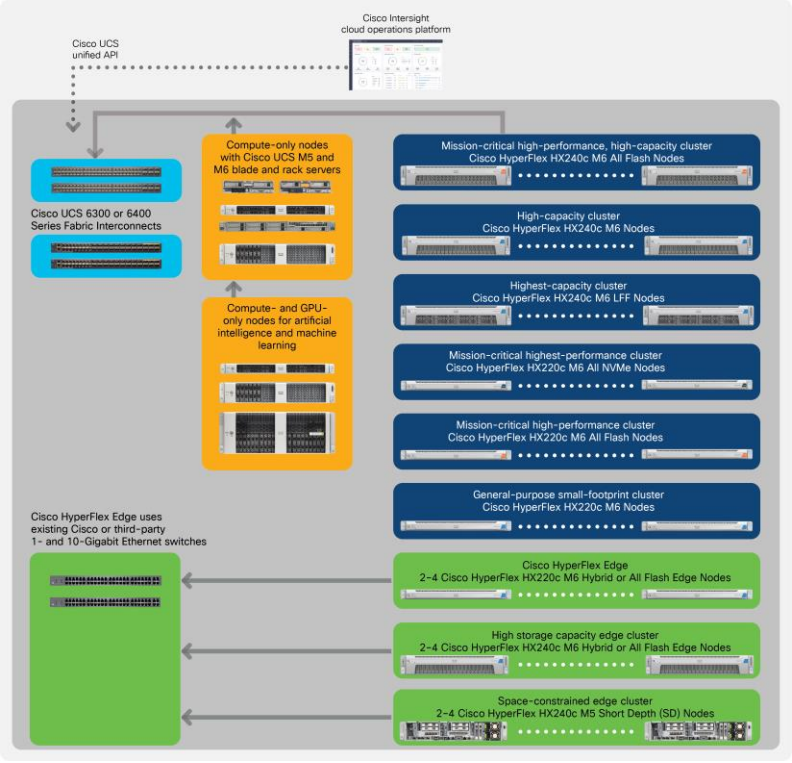
Today's applications live across a complex, multidomain world—from enterprise data centers and private and public clouds, to campus, branch, and edge locations. Cisco HyperFlex™ systems with Intel® Xeon® Scalable processors make it easy to modernize and simplify deployment and operation. Engineered with 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 small-form-factor (SFF) and large-form-factor (LFF), or all-flash-memory storage configurations and cloud-based management, Cisco HyperFlex HX240 M6 Nodes 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




## Cisco HyperFlex HX240 M6 Node family

The Cisco HyperFlex HX240 M6 Node family delivers high disk capacity (up to 28 drives) in a 2-socket, 2RU package ideal for storage-intensive applications. Physically, the system is delivered as a cluster of three or more Cisco HyperFlex HX240 M6 Nodes, HX240 M6 All NVMe Nodes, HX240 M6 All Flash Nodes, or HX240 M6

LFF Nodes. The nodes are integrated into a single system by a pair of Cisco UCS 6300 or 6400 Series Fabric Interconnects, creating clusters that deliver the performance and storage capacity needed by workloads. All nodes use Intel Xeon Scalable CPUs and next-generation DDR4 memory and offer 12-Gbps SAS throughput.

## Hybrid configurations

The HX240 M6 Node family can be deployed with various Cisco UCS B-Series Blade Servers and C-Series Rack Servers to create a hybrid cluster. Incorporating Intel® Xeon® Scalable processors, 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 the performance, bandwidth, and low latency that your users and applications need.

## Features and benefits

**Table 1.** Summary of features and benefits of Cisco HyperFlex HX240c M6, HX240c M6 All Flash, and HX240c M6 All NVMe Nodes.

| Feature | Benefit | | |
|---|---|---|---|
| **Memory** | • High memory capacity<br>• Up to 8 TB memory (32 x 256 GB DDR4 DIMMs1) or<br>• 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<br>• 10-nanometer (nm) processor technology<br>• Massive processing power<br>• Top-of-the-line memory-channel performance<br>• Improved scalability and intercore data flow<br>• Intel Automated Vector Extensions 2 (AVX2) | Agility<br>• Supports highly dense virtual machine deployments<br>• Offers flexible virtualization technology that optimizes performance for virtualized environments, including processor support for migration and direct I/O | Efficiency and security<br>• Low-power, high-speed DDR4 memory technology<br>• Automated energy efficiency reduces energy costs by automatically putting the processor and memory in the lowest available power state while delivering the performance required<br>• Hardware-assisted security advancements |
| **Unified network fabric** | • Low-latency, lossless, 2 x 100 Gigabit Ethernet connections<br>• Wire-once deployment model, eliminating the need to install adapters and re-cable racks and switches when changing I/O configurations<br>• Fewer interface cards, cables, and upstream network ports to purchase, power, configure, and maintain | | |
| **Expansion** | • Support for up to 8 PCI Express (PCIe) 3.0 slots<br>• Flexibility, increased performance, and compatibility with industry standards<br>• 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<br>• Consistent and scalable operational model<br>• Increased security and efficiency with reduced complexity<br>• Capability to move virtual machine security features and policies from rack to rack or rack to blade | | |
| **Cloud-based management** | Cisco Intersight™ simplifies operations across on-premises data centers, edge sites, and public clouds.<br>• Use a software-as-a-service platform that | Additional management capabilities include:<br>• Support for the VMware vSphere plug-in<br>• Support for the Cisco HyperFlex Connect | |

| Feature | Benefit | |
|---|---|---|
| | bridges applications with infrastructure<br>• Gain instant access to clusters regardless of where they are deployed<br>• Correlate visibility and management across bare-metal servers, hypervisors, Kubernetes, and serverless and application components<br>• Transform operations with artificial intelligence to reach needed scale and velocity<br>• Collaborate and work smarter and faster by automating lifecycle workflows<br>• Support compliance and governance with extensible, open capabilities that natively integrate with third-party platforms and tools<br>• Proactively respond to impending issues with a recommendation engine that determines when capacity needs to be scaled | interface with an HTML 5 presentation layer accessible on desktop and laptop computers and mobile devices |
| **Storage** | • Support for all-flash, hybrid (HDD and SSD memory), or all-NVMe devices<br>• Deliver high-capacity configurations for the HX Data Platform capacity layer | |
| **Enterprise data protection** | • Pointer-based snapshot capabilities<br>• 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<br>• Snapshot integration with MEDITECH-BridgeHead for electronic health records and databases<br>• Near-instant cloning<br>• Inline deduplication and compression<br>• Native replication for disaster recovery<br>• 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<br>• 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<br>• 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)<br>• Supports TPM 2.0 | |
| **Software** | • Cisco HyperFlex HX Data Platform Software (software subscription)<br>• VMware vSphere 6.7 or 7 software preinstalled | |

## Product specifications

**Table 2.** Common specifications for Cisco HyperFlex HX240c M6, HX240c M6 All Flash, and HX240c M6 All NVMe Nodes.

| Feature | Common specifications across the HX240 M6 Node family |
|---|---|
| **Chassis** | • 2RU of rack space per node |
| **Processors** | • One or two 3rd Gen Intel® Xeon® Scalable Processors (Ice Lake)<br>• A 2-CPU configuration is required when using NVMe caching drives or All NVMe systems |
| **Interconnect** | • 3 Intel UPI channels per processor, each capable of 11.2 gigatransfers per second (GTPS) |
| **Chip set** | • Intel C621A series |

| Feature | Common specifications across the HX240 M6 Node family | |
|---|---|---|
| **Memory** | • Capability to use 16-, 32-, 64-, 128-, or 256-G[1]B DIMMs<br>• 16 slots for RDIMMs, LRLDIMMs per node<br>• Advanced error-correcting code (ECC)<br>• Independent channel mode<br>• Lockstep channel mode | |
| **Storage** | • All-flash-memory, all-NVMe, or hybrid storage configurations (combination of hard-disk drives [HDDs], and solid-state-disks [SSDs])<br>• Cisco 12-Gbps Modular SAS host bus adapter (HBA) with internal SAS connectivity M.2 SATA SSD drive for boot | |
| **PCIe** | • Up to 8 PCIe slots | |
| **Exansion slots** | • Up to 6 full-height, full-length slots<br>• 2 slots capable of graphics processing unit (GPU) support for enhanced virtual desktop infrastructure (VDI) capabilities | • 3 full-height, full-length slots<br>• 3 full-height, 3/4-length slots |
| **Modular LAN on Motherboard (mLOM) slot** | • Up to 256 I/O devices programmable on demand for hypervisor and virtual machine support | |
| **Network** | • Dual 10-, 25- or 100-Gbps Ethernet ports per node | |
| **Cisco® Integrated Management Controller (IMC)** | • Integrated baseboard management controller (BMC)<br>• IPMI 2.0 compliant for management and control<br>• 1 x 10/100/1000 Ethernet out-of-band management interface<br>• Command-line interface (CLI) and web GUI management tool for automated, lights-out management<br>• Keyboard, video, and mouse (KVM) console | |
| **Advanced reliability, availability, and serviceability (RAS) features** | • Highly available and self-healing architecture<br>• Robust reporting and analytics<br>• Hot-swappable, front-accessible drives<br>• Dual-redundant fans and hot-swappable, redundant power supplies for enterprise-class reliability and uptime Convenient latching lid for easy access to internal server<br>• Tool-free CPU insertion, enabling processor upgrades and replacements with less risk of damage<br>• Tool-free access to all serviceable items, and color-coded indicators to guide users to hot-pluggable and serviceable items<br>• Nondisruptive rolling upgrades<br>• 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<br>• 2 x 10 Gigabit Ethernet ports<br>• 1 RS-232 serial port (RJ45 connector)<br>• 1 Video Graphics Array (VGA) video port (DB15 connector)<br>• 2 USB 3.0 ports | |

[1] 256 GB DIMMs will be available in Q4 2021

| Feature | Common specifications across the HX240 M6 Node family |
|---|---|
| **Power and cooling** | • One or two hot-pluggable power supplies<br>• Second power supply provides 1+1 redundancy<br>• 1050W, 1600W, or 2300W<br>• 6 hot-swappable fans |
| **Rail-kit options** | • Cisco ball-bearing rail kit with optional reversible cable-management arm<br>• Cisco friction rail kit with optional reversible cable-management arm |
| **Software** | • Cisco HyperFlex HX Data Platform Software (software subscription, Data Center license) |

**Table 3.** Individual model specifications for Cisco HyperFlex HX240c M6, HX240c M6 All Flash, and HX240c M6 All NVMe Nodes.

| Feature | Storage | Networking |
|---|---|---|
| **HX240 M6 All NVMe** | • 6 to 24 NVMe SSDs for the capacity layer per node<br>• 1 NVMe SSD log drive<br>• 1 NVMe SSD caching drive<br>• See specification sheet for more information | • Cisco UCS VIC 1467 Quad Port 25 Gigabit SFP 28<br>• Cisco UCS VIC 1477 Dual Port 100 Gigabit QSFP 28<br>• Cisco UCS VIC 1455 Quad Port 25 Gigabit Ethernet SFP 28<br>• Cisco UCS VIC 1495 Dual Port 100 Gigabit QSP 28<br>• Intel i350 quad-port 1 Gigabit Ethernet copper network interface card<br>• Intel X710-DA2 dual-port 10 Gigabit Ethernet SFP+<br>• Intel X710 Quad Port 10 Gigabit Ethernet SFP+<br>• Cisco-Intel X710-T2LG Dual Port 10 Gigabit Ethernet RJ45<br>• Cisco-Intel E810XXVDA2 Dual Port 25/10 Gigabit SFP 28<br>• Cisco-Intel E810XXVDA4L Quad Port 25/10 Gigabit SFP 28<br>• NVIDIA A10 TENSOR CORE GPU<br>• NVIDIA A100 TENSOR CORE GPU |
| **HX240 M6 All Flash** | • 6 to 28 drives for the capacity layer per node<br>• 1 SSD caching drive<br>• 1 SSD system drive<br>• 1 SATA M.2 boot drive<br>• Optional self-encrypting drives<br>• See specification sheet for more information | |
| **HX240 M6 Hybrid (SFF)** | • 6 to 28 HDDs for the capacity layer per node<br>• 1 SSD caching drive<br>• 1 SSD system drive<br>• 1 SATA M.2 boot drive<br>• Optional self-encrypting drives<br>• See specification sheet for more information | |
| **HX240 M6 Hybrid (LFF)** | • Front capacity layer drives:<br>  ○ Up to 12 LFF (3.5-inch) SAS HDDs and SSDs per node<br>  ○ 6-TB, 8-TB, and 12-TB drive options<br>• Mid-plane capacity layer drives:<br>  ○ Up to 4 LFF (3.5-inch) SAS HDDs and SSDs per node<br>  ○ 6-TB, 8-TB, and 12-TB drive options<br>• 1 NVMe SSD caching drive<br>• 1 NVMe SSD system drive<br>• See specification sheet for more information | • Cisco UCS VIC 1467 Quad Port 25 Gigabit SFP 28<br>• Cisco UCS VIC 1477 Dual Port 100 Gigabit QSFP 28<br>• Cisco UCS VIC 1455 Quad Port 25 Gigabit Ethernet SFP 28<br>• Cisco UCS VIC 1495 Dual Port 100 Gigabit QSP 28<br>• Intel i350 quad-port 1 Gigabit Ethernet copper network interface card<br>• Intel X710-DA2 dual-port 10 Gigabit Ethernet SFP+<br>• Intel X710 Quad Port 10 Gigabit Ethernet SFP+<br>• Cisco-Intel X710-T2LG Dual Port 10 Gigabit Ethernet RJ45<br>• Cisco-Intel E810XXVDA4L Quad Port 25/10 Gigabit SFP 28<br>• Mellanox MCX512A-ACAT Dual Port 10/25G SFP 28<br>• NVIDIA A10 TENSOR CORE GPU<br>• NVIDIA A100 TENSOR CORE GPU |

## Ordering information

For a complete list of part numbers, refer to the Cisco HyperFlex HX240C M6 All NVMe, All Flash, and Hybrid Server Nodes and Cisco HyperFlex HX240c M6 LFF Server Node 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 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

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments.

## Cisco environmental sustainability

Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environment Sustainability" section of Cisco's Corporate Social Responsibility (CSR) Report.

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 |

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

## 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

| New or revised topic | Described in | Date |
|---|---|---|
| Initial release | Spec sheet | September 27, 2021 |

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