

Unified Computing

The Cisco Unified Computing System™ is a next-generation data center platform that unites computing, networking, storage access, and virtualization into a cohesive system designed to reduce total cost of ownership (TCO) and increase business agility. The system integrates a low-latency, lossless 10 Gigabit Ethernet unified network fabric with enterprise-class, x86-architecture servers. The system is an integrated, scalable, multichassis platform in which all resources participate in a unified management domain.

Radically Simplified Server Management

Traditional blade servers add to data center complexity, with each chassis and chassis-resident switch acting as an independent point of management. Scaling out IT infrastructure using these systems is costly in terms of the number of I/O interfaces that each chassis must support, the power and cooling they require, the administrative and management overhead of individual blade servers, and the business agility lost due to delayed deployment times.

The Cisco Unified Computing System represents a radical simplification of the traditional blade server deployment model, with simplified, stateless blades and a blade server chassis that is centrally provisioned, configured, and managed by Cisco® UCS Manager. The result is a unified system that significantly reduces the number of components while offering a just-in-time provisioning model that allows systems to be deployed or redeployed in minutes rather than hours or days.

Performance, Reliability, and Scalability

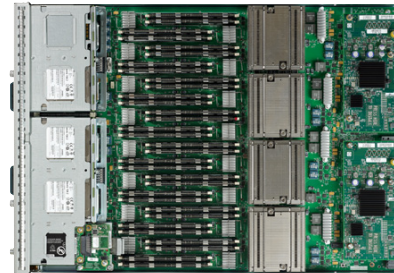
The Cisco UCS B440 M2 High-Performance Blade Server (Figure 1) delivers outstanding processing performance, scalability, and mission-critical reliability in a high-density blade form factor. This powerful blade server further extends the capability of the Cisco Unified Computing System to help IT architects deliver enterprise-critical services with higher levels of efficiency, agility, and control than ever before possible.

Figure 1. Cisco UCS B440 M2 High-Performance Blade Server



The Cisco UCS B440 M2 includes two or four Intel® Xeon® processor E7-4800 product family, 32 dual in-line module (DIMM) slots, up to 512 GB of Samsung 40-nanometer (nm) DDR3 memory, two mezzanine adapter slots, and four Small Form Factor (SFF) hard drive bays (Figure 2).

Figure 2. Cisco UCS B440 M2 with Four Intel® Xeon® Processor E7-4800 product family and 40 Processing Cores

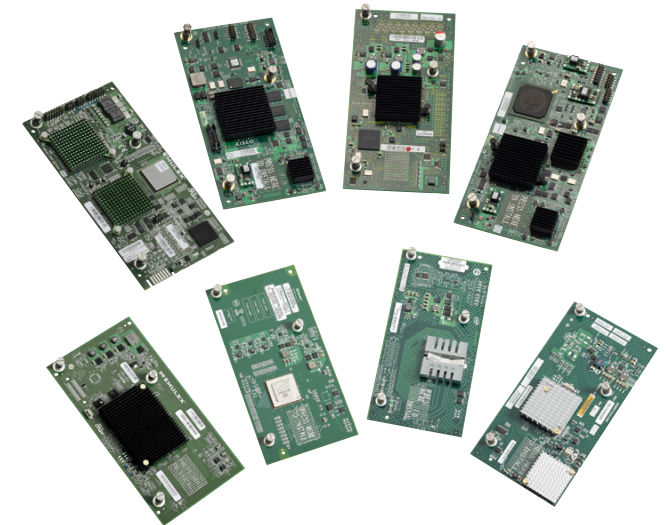


The Cisco UCS B440 M2 blade server is designed to power the most demanding enterprise applications such as large-data-set and transaction-intensive databases, enterprise resource planning (ERP) applications, and decision-support systems (DSSs). Powered by the scalable performance and new reliability and security features of the Intel® Xeon® processor E7-4800 product family, the Cisco UCS B440 M2 helps widen the scope of workload virtualization and unifies performance-intensive standalone applications within an integrated, simplified infrastructure. Advanced silicon-level reliability and security features automatically manage hardware errors and protect against malicious software attacks, maintaining data integrity and increasing the availability of mission-critical services. These Intel innovations in combination with the simplicity, agility, and TCO benefits of the Cisco Unified Computing System present

customers with an exceptional opportunity to migrate applications from costly, proprietary RISC systems.

The Cisco UCS B440 M2 uses converged network adapters (CNAs) for consolidated access to the unified fabric. This design reduces the number of adapters, cables, and access-layer switches needed for LAN and SAN connectivity. This Cisco innovation can significantly reduce capital and operating expenses, including administrative overhead, power, and cooling costs. Network adapter choices (Figure 3) include adapters optimized for virtualization, compatibility, and efficient, high-performance Ethernet.

Figure 3. Cisco UCS Network Adapters



Cisco's innovative service profile technology embedded in Cisco UCS Manager provisions Cisco UCS B-Series Blade Servers and their I/O properties. Infrastructure policies needed to provision servers and deploy applications, such as policies for power and cooling, security, identity, hardware health, and Ethernet and storage networking, are encapsulated in the service profiles. Use of service profiles helps reduce the number

of manual steps needed for provisioning, the opportunities for human error, and server and network deployment times. In addition, service profiles improve policy consistency and coherency across the entire Cisco Unified Computing System.

Features of the Cisco UCS B440 M2

- Up to four Intel® Xeon® processor E7-4800 product family with outstanding performance, scalability and reliability to meet the needs of computation-intensive and enterprise-critical applications
- Silicon- and system-level reliability, availability, and serviceability (RAS) features for mission-critical reliability
- Up to 512 GB of memory with 32 dual in-line memory module (DIMM) slots based on Samsung 40-nm DDR3 memory technology (Figure 4)
- Four optional front-accessible, hot-swappable hard drives
- Two dual-port mezzanine cards for up to 160 Gbps of I/O per blade
- Mezzanine-card options include the Cisco UCS Virtual Interface Card (VIC) 1280 and CNAs

Figure 4. Samsung 40-nm 1.35V High-Efficiency Green DDR3 Memory



Simple, Centrally Managed Chassis

The Cisco UCS 5100 Series Blade Server Chassis is logically part of the Cisco Unified Computing System fabric interconnects, adding no management complexity to the system. The chassis is so simple that it consists of only five basic components with all but its midplane hot pluggable and user serviceable. The unified fabric is brought into each chassis by up to two Cisco UCS 2100 Series Fabric Extenders that pass all I/O traffic to parent fabric interconnects. This interface to the unified fabric reduces the number of adapters, cables, chassis-resident LAN and SAN switches, and upstream ports that must be purchased, managed, powered, and cooled.

The Cisco UCS 5108 Blade Server Chassis physically houses blade servers and up to two Cisco UCS 2100 Series Fabric Extenders. Compared to complex traditional blade server chassis, the Cisco UCS 5108 is dramatically simple, with removable partitions that allow it to support any combination of up to eight half-width and up to four full-width blade servers (Figure 5).

Figure 5. Cisco UCS B440 M2 Blade Servers Installed in Cisco UCS 5108 Blade Server Chassis



The Cisco UCS 5108 chassis accepts between one and four 92 percent-efficient, 2500W hot-swappable power supplies that can be configured in a nonredundant, N+1 redundant,

or grid-redundant design. Designed for efficiency at low utilization levels, the chassis power configuration provides sufficient headroom to support blade servers hosting processors using up to 130W each.

The chassis and blade servers are cooled by eight redundant, hot-swappable fans.

The chassis midplane supports two 10-Gbps unified fabric connections per half slot to support today's server blades, with the capability to scale to up to two 40-Gbps connections using future blades and fabric extenders. The chassis is managed by Cisco UCS Manager software, providing autodiscovery, environmental monitoring, identity, and configuration management for all components of the chassis.

Cisco Unified Computing Services

Using a unified view of data center resources, Cisco and our industry-leading partners deliver services that accelerate your transition to a unified computing architecture. Cisco Unified Computing Services helps you quickly deploy your data center resources, simplify ongoing operations, and optimize your infrastructure to better meet your business needs. For more information about these and other Cisco Data Center Services offerings, visit <http://www.cisco.com/go/unifiedcomputingservices>.

For More Information

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