Cisco UCS B250 M2 Extended Memory Blade Server

Cisco Innovation for the Most Demanding Virtualization Workloads

At-A-Glance

Unified Computing Through Virtualization

The Cisco® Unified Computing System is a next-generation data center platform that unites compute, network, 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 Deployment

Traditional blade servers add to data center complexity, with each chassis and chassis-resident switches acting as independent points 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.

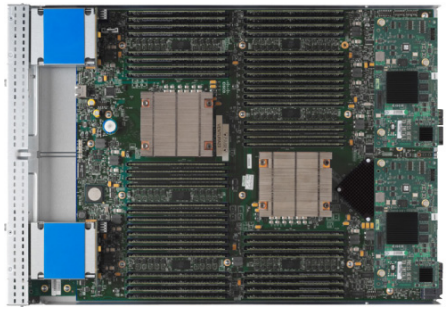
Extended Memory for Demanding Workloads

The Cisco UCS B250 M2 Extended Memory Blade Server (Figure 1) increases performance and capacity for demanding virtualization and large-data-set workloads. The server is a full-width, two-socket blade server with substantial throughput and more than twice the memory capacity of other Intel Xeon 5600 series–based two-socket servers. It takes advantage of the most advanced Samsung 40 nm DDR3 ultra low power memory technology. A Cisco UCS 5108 Blade Server Chassis can house up to four Cisco UCS B250 M2 Extended Memory Blade Servers, with a maximum of 160 per Cisco Unified Computing System.

Figure 1. Cisco UCS B250 M2 Extended Memory Blade Server

The Cisco UCS B250 M2 features Cisco's patented Extended Memory Technology. This Cisco technology provides more than twice as much energy-efficient, high performance memory (384 GB) as traditional two-socket servers, increasing performance and capacity for demanding virtualization and large-data-set workloads (Figure 2). Alternatively, this technology offers a more cost-effective memory footprint for less-demanding workloads through the use of industry-leading Samsung 40 nm DDR3 memory.

Figure 2. Cisco UCS B250 M2 with 48 DIMM Slots for Up to 384 GB of Industry-Standard DDR3 Memory in a Single Server

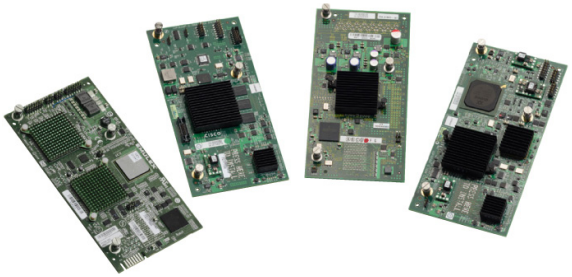


The Cisco UCS B250 M2 is designed to increase performance, energy efficiency, and flexibility for demanding virtualized and nonvirtualized applications. Based on Intel Xeon 5600 series processors (Figure 3), Cisco UCS B-Series Blade Servers adapt processor performance to application demands and intelligently scale energy use based on utilization.

Figure 3. Intel Xeon 5600 Series Processor

Each Cisco UCS B250 M2 uses network adapters 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 4) include adapters optimized for virtualization, compatibility, and efficient, high-performance Ethernet.

Figure 4. Cisco UCS Network Adapters



Cisco's innovative service profile technology embedded in the Cisco UCS Manager provisions Cisco UCS

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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 B250 M2

- Up to two Intel Xeon 5600 series processors, which automatically and intelligently adjust server performance according to application needs, increasing performance when needed and achieving substantial energy savings when not
- Up to 384 GB of Samsung's 40 nm class DDR3 memory technology for demanding virtualization and large dataset applications, or to serve as a more cost-effective memory footprint for demanding workloads (Figure 5)
- Two optional front-accessible, hot-swappable SAS hard drives
- Two dual-port mezzanine cards for up to 40 Gbps of I/O per blade; mezzanine card options include a virtual interface card, converged network adapter, and 10 Gigabit Ethernet adapter.

Figure 5. Samsung 40 nm Class, 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's 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 Blade Server Chassis 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 6).

Figure 6. Cisco UCS B250 M2 Blade Servers Installed in Cisco UCS 5108 Blade Server Chassis

The Cisco UCS 5108 Blade Server 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 future blade servers hosting processors using up to 130W each.

In addition, the chassis and blade servers are cooled by eight redundant, hot-swappable fans to allow for efficient cooling.

The chassis midplane supports two 10-Gbps unified fabric connections per half slot to support today's server blades, with the ability 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

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