Cisco Unified Computing System C-Series Rack Server for SAP HANA

Introduction

SAP HANA

The SAP High-Performance Analytic Appliance (HANA) is a new non-intrusive hardware and software solution that provides real-time access for SAP business applications and integration of analytics into business processes based on an innovative in-memory computing architecture. This in-memory technology enables the processing of massive quantities of real-time data in the main memory of a server to provide immediate results from analysis and transactions.

Cisco has developed a full portfolio of SAP HANA solutions based on the Cisco Unified Computing System™ (Cisco UCS®). The portfolio ranges from small-scale solutions supporting 128 GB of memory to large-scale solutions supporting up to 8 terabytes (TB) of usable memory with 16 nodes, validated as of March 2012. Depending on the compression factors, validated Cisco® appliance solutions can support databases of up to 56 TB. With a single Cisco UCS platform, a SAP HANA appliance can be scaled to 48 computing nodes, with 24 TB of memory or 192 TB of uncompressed data (validated on request).

Cisco Unified Computing System

Cisco UCS consists of a set of preintegrated data center components, including blade servers, adapters, fabric interconnects, and extenders, that are integrated under a common embedded management system. This approach results in far fewer system components and much better manageability, operation efficiency, and flexibility than comparable data center platforms.

Cisco UCS is designed from the foundation to be programmable and self-integrating. A server's entire hardware stack, ranging from server firmware and settings to network profiles, is configured through model-based management. With Cisco virtual interface cards, even the number and type of I/O interfaces is programmed dynamically, making every server ready to power any workload at any time.

With model-based management, administrators manipulate a model of a desired system configuration and associate a model's service profile with hardware resources, and the system configures itself to match the model. This automation accelerates provisioning and workload migration with accurate and rapid scalability. The result is increased IT staff productivity, improved compliance, and reduced risk of failure due to inconsistent configurations.

Cisco Fabric Extender Technology (FEX Technology) reduces the number of system components that need to be purchased, configured, managed, and maintained by condensing three network layers into one. It eliminates both blade server and hypervisor-based switches by connecting fabric interconnect ports directly to individual blade servers and virtual machines. Virtual networks are now managed exactly like physical networks, but with massive scalability. This approach represents a radical simplification compared to traditional systems, reducing capital expenditures (CapEx) and operating expenses (OpEx) while increasing business agility, simplifying and accelerating deployment, and improving performance.

Product Overview

Cisco Unified Computing System for SAP HANA is a defined set of hardware and software that serves as an integrated infrastructure stack. The solution supports only the SAP HANA application stack in a single package. Figures 1 and 2 show two models of the Cisco Unified Computing System for SAP HANA.

Figure 1. Cisco UCS C460 M2 for SAP HANA M-Size

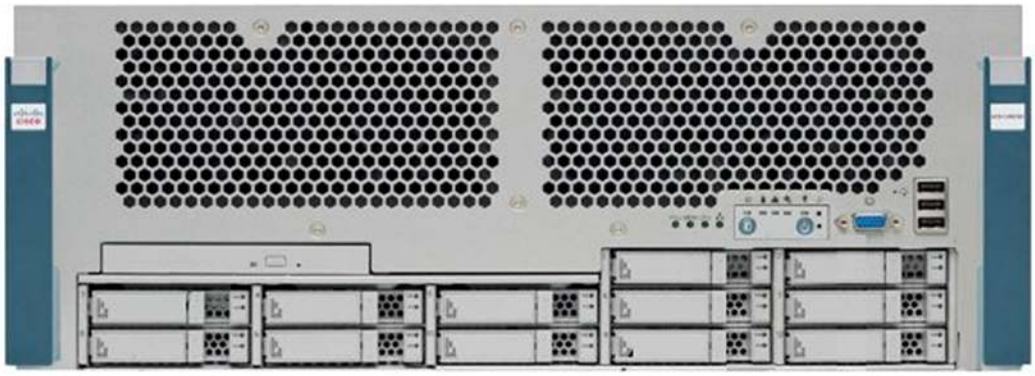

Figure 2. Cisco UCS C260 M2 for SAP HANA XS- and S-Size

System Specifications

Tables 1 and 2 list the specifications for the Cisco Unified Computing System for SAP HANA models. Table 3 presents environmental specifications.

Table 1. Cisco UCS C460 M2 for SAP HANA M-Size Specifications

Cisco UCS Component	Details
Cisco UCS C460 M2 High-Performance Rack Server	
Number of CPUs	4 Intel Xeon processor E7-4870 2.4-GHz CPUs
Total CPU cores	40
Total RAM	512 GB
Ethernet uplink bandwidth	22 Gbps: 2 x 10 Gigabit Ethernet and 2 x 1 Gigabit Ethernet
Internal data storage	12 x 300-GB SAS (6 Gbps)
Internal storage log	2 Fusion ioDrive2 365 GB

Table 2. Cisco UCS C260 M2 for SAP HANA XS- and S-Size Specifications

Cisco UCS Component	Details
Cisco UCS C260 M2 Rack Server	
Number of CPUs	2 Intel Xeon processor E7-2870 2.4-GHz CPUs
Total CPU cores	20
Total RAM	128 or 256 GB
Ethernet uplink bandwidth	22 Gbps: 2 x 10 Gigabit Ethernet and 2 x 1 Gigabit Ethernet
Internal data storage data	10 x 600-GB SAS (6 Gbps)
Internal storage log	6 x 100-GB SSD (6 Gbps)

Table 3. Environmental Specifications

Equipment	Rack Units (RUs)	Typical Watts	Typical BTUs	Maximum Watts	Maximum BTUs	Weight
Cisco UCS C460 M2	4	1405 (200 to 240 VAC)	3230	1916 (200 to 240 VAC)	4794	110 lb (50kg)
Cisco UCS C260 M2	2	684 (200 to 240 VAC)	1500	820 (200 to 240 VAC)	2211	92 lb (41 kg)

Required Software and Firmware Versions

SAP HANA has been tested with the Cisco UCS solution with the firmware and software releases listed in Tables 4 and 5. All major, minor, and patch releases from now on that are supported for the Cisco UCS C460 M2 server are automatically supported for SAP HANA.

Table 4. Cisco UCS C460 M2 for SAP HANA M-Size Software and Firmware Requirements

Name	Specified Version or Later
Cisco UCS C-Series Integrated Management Controller (IMC)	Cisco UCS C-Series IMC Firmware Release 1.3.2d
SUSE Linux Enterprise Server (SLES)	SLES Release 11 SP1
BIOS	Cisco UCS Release C460.1.3.2e.0
LSI MegaRAID controller firewall	Release 2.90.33-0978
Fusion ioDrive2 driver	Release 3.1.1
SLES kernel patch release	Release 2.6.32.48-0.3-default
Broadcom NetXtreme II 57711 driver	1.60.51 for SLES 11 SP1

Table 5. Cisco UCS C260 M2 for SAP HANA XS- and S-Size Software and Firmware Requirements

Name	Specified Version or Later
Cisco UCS C-Series IMC	Cisco UCS C-Series IMC Firmware Release 1.4(2)
SLES	SLES Release 11 SP1
BIOS	Cisco UCS Release C260.1.4.2a.0
LSI MegaRAID controller firewall	Release 2.120.133-1322
SLES kernel patch release	Release 2.6.32.48-0.3-default

Required Network Connections

The required network connections are the same for all servers (Table 6).

Table 6. Required Network Connections

Name	Specified Version or Later
Access network (production network)	2 x 10 Gigabit Ethernet connected to the 10 Gigabit Ethernet LAN on motherboard (LOM)
Management network	2 x 100/1000-Mbps connected to the Cisco UCS C-Series IMC 2 x 100/1000 Mbps connected to the LOMs
Storage network for backup	Optional connection: 2 x 10 Gigabit Ethernet connected to optional Cisco UCS P81E Virtual Interface Card

Support

All components in the solution must be covered by a support contract with each vendor in addition to Cisco Allied Support service covering the Cisco appliance.

Fusion ioDrive support must be purchased from the preferred supplier, and the support comes from Fusion-io or a Fusion-io partner.

Table 7 lists Cisco support.

Table 7. Support Contracts

Company	Support Contract
Cisco	**Servers:** Cisco Unified Computing Support Service 24 hours a day, 7 days a week, for 3 years (24x7x4) **Software:** ISV1 Support Service for SLES, for 3 years **Appliance:** Cisco Allied Service (CAS) for SAP Appliance, for 3 years

For More Information

Cisco UCS C260 M2 Rack Server:
http://www.cisco.com/en/US/partner/docs/unified_computing/ucs/c/hw/C260/install/C260.html

Cisco UCS C460 M2 Rack Server:
http://www.cisco.com/en/US/partner/docs/unified_computing/ucs/c/hw/C460/install/C460.html

SAP High-Performance Analytic Appliance on the Cisco Unified Computing System
http://www.cisco.com/en/US/solutions/collateral/ns340/ns517/ns224/ns944/solution_overview_c22-707642.html

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