Data Sheet

Cisco UCS E-Series Network Compute Engine (NCE) Servers

Contents

With powerful, data center–class servers that are virtualization-ready, you can host business applications and network services right in your branch-office router.

Product Overview

Cisco UCS® E-Series Servers bring data center-class blade servers to the branch office. These powerful, small form-factor, x86 64-bit blade servers reside in Cisco® branch-office routers: the Cisco 4000 Series Integrated Services Routers and Cisco Integrated Services Routers Generation 2 (ISR G2) networking platforms. The blades are virtualization ready and host essential infrastructure services and mission-critical business applications - all while you maintain a lean branch-office environment (Figure 1).

Figure 1.
Cisco UCS E NCE Series Servers

Product Details

Cisco UCS E-Series Network Compute Engines

The Cisco UCS E-Series NCEs are computing modules that are both price and power optimized. They come in three form factors: a single-wide Service Module (SM), a double-wide enhanced high-speed WAN interface card (EHWIC) for the ISR G2 platform, and a Network Interface Module (NIM) form factor for the 4000 Series ISR platform.

- The service module fits into the ISR G2 and 4000 Series ISR networking platforms. It delivers a high-performance, power-efficient Intel Pentium processor B925C (4-MB cache and 2.00 GHz) product family with two cores in combination with integrated remote lights-out management.
- The double-wide EHWIC fits in the ISR G2 networking platform only. It runs the Intel Atom processor C2358 (1-MB cache and 1.70 GHz) and is available in multiple versions with a variety of DRAM and hard-disk capacities.
- The NIM fits in the 4000 Series ISR only. It runs the Intel Atom processor C2518 (1-MB cache and 1.70 GHz) and is available in multiple versions with a variety of DRAM and hard-disk capacities.

The zero-footprint form factor of the NCEs make them excellent for hosting Cisco network applications and other lightweight applications in your branch offices.

Table 1 lists the top-level part numbers for the E-Series network compute engines.

Table 1. Cisco UCS E-Series Network Compute Engines

Cisco UCS E-Series Part Numbers	Picture
Cisco UCS E-Series Single-Wide NCE: • UCS-EN120S-M2/K9	
Cisco UCS E-Series NIM NCE: • UCS-EN140N-M2/K9 **Cisco 4000 Series ISR only**	
Cisco UCS E-Series EHWIC NCE: • UCS-EN120E-54/K9 • UCS-EN120E-58/K9 • UCS-EN120E-108/K9 • UCS-EN120E-208/K9 **Cisco 1900, 2900 & 3900 Series ISR only**	

Features and Benefits

The Cisco UCS E-Series Servers easily extend the Cisco Unified Computing System™ (Cisco UCS) data center portfolio to branch-office environments. By adding virtualization to the servers, you can deploy new services incrementally on a schedule that best meets your timing and budget. Meanwhile, you avoid service-call costs for onsite visits to deploy new hardware or software.

Cisco UCS E-Series Servers address your changing business needs in the following ways:

- **Reduced operational burden:** Through a consolidated, wire-free infrastructure, Cisco UCS E-Series Servers make the addition of new services and infrastructure quick and easy.
- **Simplified system maintenance:** Cisco UCS E-Series Servers ease physical server provisioning and system maintenance.
- **Enhanced server management:** Built-in lights-out server management through the Cisco® Integrated Management Controller (IMC) runs on the same dedicated baseboard management controller hardware found in all Cisco UCS products. This feature provides standalone management consistency with Cisco UCS C-Series Rack Servers for both local and remote server monitoring and configuration management.
- **Stronger physical security:** The blades require no external network cables or physical keyboard, video, or mouse (KVM). They can therefore be easily secured in a wiring closet or other secure location without compromising manageability - which is difficult to do with traditional tower and rack-mount servers.

- **Small footprint:** Cisco UCS E-Series Servers include multicore x86 64-bit Intel processors. You can reduce your branch-office server footprint by incorporating high-performance, power-optimized blade servers directly into Cisco ISR G2 and 4000 Series branch-office routers. All are integrated and housed in a single Cisco ISR chassis, delivering an excellent all-in-one platform for the lean branch office.

Table 2. Feature Summary: Cisco UCS E-Series NCE Service Module (EN120S)

Feature	Description
Integrated networking	• 2 internal Gigabit Ethernet interfaces
Virtualization optimization	• Intel Pentium processor B925C product families using Intel Hyper-Threading Technology as well as Intel Virtualization Technology (VT-x)
2-core Intel Pentium processors	• Energy-efficient, high-performance processors provide increased performance in a compact form factor
Hot-swappable SAS and SATA drives	• Up to 2 front-accessible, hot-swappable, internal 2.5-inch server-class SATA and SAS drives • Balanced performance and capacity to best meet application needs: ◦ 10,000-rpm SAS drives for high performance and value ◦ 7200-rpm SATA II drives for high capacity and value
Hardware RAID 0 and 1 support	• Hardware RAID 0 and 1 support on single-wide blades • LSI 2004 controller
Cisco IMC	• Web user interface for server management; remote KVM, virtual media, and administration • Virtual media support for remote CD and DVD drives • Local IPMI 2.0 support for out-of-band management through third-party enterprise management systems • CLI for server management Integration with Cisco IOS Software for optional management of the servers from within the router CLI and operating environment • One 10/100BASE-T out-of-band management interface
Integrated external Gigabit Ethernet ports	• Single-wide blades: 1 external Gigabit Ethernet port
Front-panel connectors	• Front-panel VGA, 2 USB, and serial console connectors

Table 3 summarizes the features of the Cisco UCS E-Series NCE double-wide EHWIC (EN120E) and NIM (EN140N).

Table 3. Features Summary: Cisco UCS E-Series NCE Double-Wide EHWIC and NIM

Feature	Benefit
Integrated networking	• 2 internal Gigabit Ethernet interfaces
4-core Intel Atom processor	• Energy-efficient, high-performance processors, providing increased performance in a compact form factor
SSD drives for high performance	• SSD storage in the mSATA form factor for high performance and reliability is available in three sizes: 50, 100, and 200 GB

Feature	Benefit
Cisco IMC	• Web user interface for server management, remote KVM, virtual media, and administration • Virtual media support for remote CD and DVD drives and local IPMI 2.0 support for out-of-band management through third-party enterprise management systems • CLI for server management Integration with Cisco IOS Software for optional management of the servers from within the router CLI and operating environment
Integrated external Gigabit Ethernet ports	• 1 external Gigabit Ethernet port
Front-panel connectors	• USB and a mini USB port
Secure Digital (SD) cards	• 1 SD card available for additional storage

Platform Support and Compatibility

Cisco UCS E-Series NCEs (service module and double-wide EHWIC) are designed to support a limited set of bare-metal operating systems and hypervisors:

- Operating systems
  - Microsoft Windows Server 2012 64-bit
  - Microsoft Windows Server 2012 R2 64-bit
  - Microsoft Windows Server 2016 64-bit (only UCS-EN140N-M2/K9 and UCS-EN120S-M2/K9)
  - Red Hat Enterprise Linux (RHEL) Release 6.5 and later
- Hypervisors
  - Microsoft Hyper-V 2012 R2
  - VMware vSphere 5.5, 6.0 and 6.5 (6.5 is only certified on UCS-EN140N-M2/K9 and UCS-EN120S-M2/K9)

Product Specifications

Table 4. Product Specifications for Cisco UCS E-Series NCEs

Feature	Cisco UCS EN120E (Double-Wide EHWIC)	Cisco UCS EN140N (NIM)	Cisco UCS EN120S (Single-Wide Blade)
CPU	• Intel Atom processor C2358 (1-MB cache and 1.70 GHz)	• Intel Atom processor C2518 (2-MB cache and 1.70 GHz)	• Intel Pentium processor B925C (4-MB cache and 2 GHz)
DRAM	• 8 GB (default) RAM DIMM on all except the UCS-EN120E-54/K9, which has 4 GB of RAM standard	• 8 GB (default) DIMM	• 4 GB (default: one 4-GB DIMM) and up to 16 GB (two 8-GB DIMMs)
HDD	• 1 mSATA SSD drive ◦ 50 GB ◦ 100 GB ◦ 200 GB	• 1 mSATA SSD drive ◦ 50 GB ◦ 100 GB ◦ 200 GB	• Up to 2, refer to the ordering and compatibility guide for more information
RAID options	• Not applicable	• Not applicable	• Hardware RAID 0 and 1 • LSI 2004 controller
NICs	• 2 internal and 1 external Gigabit Ethernet ports	• 2 internal and 1 external Gigabit Ethernet ports	• 2 internal and 1 external Gigabit Ethernet ports

Feature	Cisco UCS EN120E (Double-Wide EHWIC)	Cisco UCS EN140N (NIM)	Cisco UCS EN120S (Single-Wide Blade)
Cisco IMC	• Integrated Emulex Pilot-3 BMC • IPMI 2.0 compliant for management and control • CLI and WebGUI management tool for automated, lights-out management • KVM	• Integrated Emulex Pilot-3 BMC • IPMI 2.0 compliant for management and control • CLI and WebGUI management tool for automated, lights-out management • KVM	• Integrated Emulex Pilot-3 BMC • IPMI 2.0 compliant for management and control • One 10/100 Ethernet out-of-band management interface • CLI and WebGUI management tool for automated, lights-out management • KVM
SD cards	• 1 SD card: One 2-GB card for Cisco UCS • Cisco IMC and temporary storage of OS and hypervisor installation images • Optional 4- and 8-GB SD cards	• 1 SD card: One 2-GB card for Cisco UCS • Cisco IMC and temporary storage of OS and hypervisor installation images • Optional 4- and 8-GB SD cards	• 2 SD cards: ◦ 1 for Cisco IMC and temporary storage of OS and hypervisor installation images comes standard ◦ 1 for a blank virtual drive on which you can install an OS or a hypervisor (optional).
Front-panel connectors	• 1 USB and 1 mini USB port	• 1 KVM console connector (supplies 1 VGA, 1 serial, and 2 USB connectors) • 1 USB connector	• 1 KVM console connector (supplies 1 VGA, 1 serial, and 2 USB connectors)
Physical dimensions (H x W x D)	• 4.14 x 5.92 x 0.5 in. (10.35 x 14.8 x 1.25 cm)	• 1.25 x 3.5 x 6.787 in. (3.175 x 8.89 x 17.23 cm)	• 1.58 x 7.44 x 7.5 in. (4 x 18.9 x 19.1 cm)
Maximum weight	• 8.1 oz (230 g)	• 10.22 oz (290g)	• 2.5 lb (1.1 kg)
Temperature: Operating	• According to operating requirements of deployable platform: ◦ 32 to 104°F (0 to 40°C) normal	• According to operating requirements of deployable platform: ◦ 32 to 104°F (0 to 40°C) normal	• According to operating requirements of deployable platform: ◦ 32 to 104°F (0 to 40°C) normal
Temperature: Nonoperating	• -4 to 149°F (-20 to 65°C)	• -4 to 149°F (-20 to 65°C)	• -4 to 149°F (-20 to 65°C)
Humidity: Operating	• According to operating requirements of deployable platform: ◦ 10% to 85% operating	• According to operating requirements of deployable platform: ◦ 10% to 85% operating	• According to operating requirements of deployable platform: ◦ 10% to 85% operating
Humidity: Nonoperating	• 5% to 95%	• 5% to 95%	• 5% to 95%
Altitude: Operating	• 104°F (40°C) at sea level to 10,000 ft (0 to 3,000m); maximum ambient temperature decreases by 1°C per 300m	• 104°F (40°C) at sea level to 10,000 ft (0 to 3,000m); maximum ambient temperature decreases by 1°C per 300m	• 104°F (40°C) at sea level to 10,000 ft (0 to 3,000m); maximum ambient temperature decreases by 1°C per 300m
Altitude: Nonoperating	• 15,000 ft (4600m)	• 15,000 ft (4600m)	• 15,000 ft (4600m)

Table 5 lists the ISR platforms that support the Cisco UCS E-Series NCEs.

Table 5. Cisco ISR G2 and 4000 Series ISRs Support for Cisco UCS E-Series NCEs

ISR Platform	Cisco UCS EN120E	Cisco UCS EN140N	Cisco UCS EN120S
1921	1	No	No
1941	1	No	No
2901	2	No	No
2911	2	No	1
2921	2	No	1
2951	2	No	2
3925	2	No	2
3945	2	No	4
3925E	1	No	2
3945E	1	No	4
4321	No	2	No
4331	No	2*	1
4351	No	3*	2
4431	No	3	No
4451	No	3*	2

* The UCS-EN140N module is also supported on SM-X slots on the 4000 Series ISRs using the SM-X-NIM-ADPTR adaptor module. This information is not captured in the table above.

Table 6. Regulatory Standards Compliance: Safety and EMC

Specification	Description
Safety	• UL 60950-1 Second Edition • CAN/CSA-C22.2 No. 60950-1 • IEC 60950-1 Second Edition • EN 60950-1 Second Edition • AS/NZS 60950-1
EMC: Emissions	• 47CFR Part 15 (CFR 47) Class A • AS/NZS CISPR22 Class A • CISPR2 2 Class A • EN55022 Class A • ICES003 Class A

Specification	Description
	• VCCI V-3 Class I • EN61000-3-2 • EN61000-3-3 • EN300386 Class A • CNS13438, Class A
EMC: Immunity	• EN55024 • CISPR24 • EN300386 • EN50082-1 Part 1 • EN 61000 6-1

System Requirements

- For Cisco UCS E NCE SM, Cisco IOS Software Release 15.2(4)M is required for Cisco 2900 and 3900 Series ISR models and Cisco IOS XE Software Release 3.13 is required for the Cisco 4000 Series ISR platform.
- For Cisco UCS E NCE EHWIC, Cisco IOS Software Release 15.4(3)M is required for Cisco 1900, 2900, and 3900 Series ISR models.
- For the Cisco UCS E NCE NIM, Cisco IOS XE Release 3.15S is required for the Cisco 4000 Series ISR platform.

Warranty Information

Cisco UCS-E Series Servers are covered by a 90-day warranty. Find warranty information on Cisco.com on the Product Warranties page.

Ordering Information

Tables 1 contains the top-level part numbers for the Cisco UCS E-Series modules. Review the ordering guide for the complete list of part numbers and ordering examples.

To place an order, visit the Cisco Ordering homepage. To download software, visit the Cisco Software Center.

Cisco Services

Cisco UCS E-Series Servers hardware support is covered by the Cisco Smart Net Total Care™ contract for the router in which the module resides. Cisco Smart Net Total Care is available on a one-time or annual contract basis. Support options range from help-desk assistance to proactive, onsite consultation.

All support contracts include:

- Major Cisco IOS Software updates for protocol, security, bandwidth, and feature improvements
- Full access rights to Cisco.com technical libraries for technical assistance, electronic commerce, and product information
- Access to the industry's largest dedicated technical support staff 24 hours a day

For more information about Cisco services, refer to Cisco Technical Support Services or Cisco Advanced Services.

Cisco and Partner Services for the Branch Office

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For More Information

For more information about Cisco UCS E-Series Servers and Network Compute Engines, visit http://www.cisco.com/go/ucse/ or contact your local Cisco account representative.

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