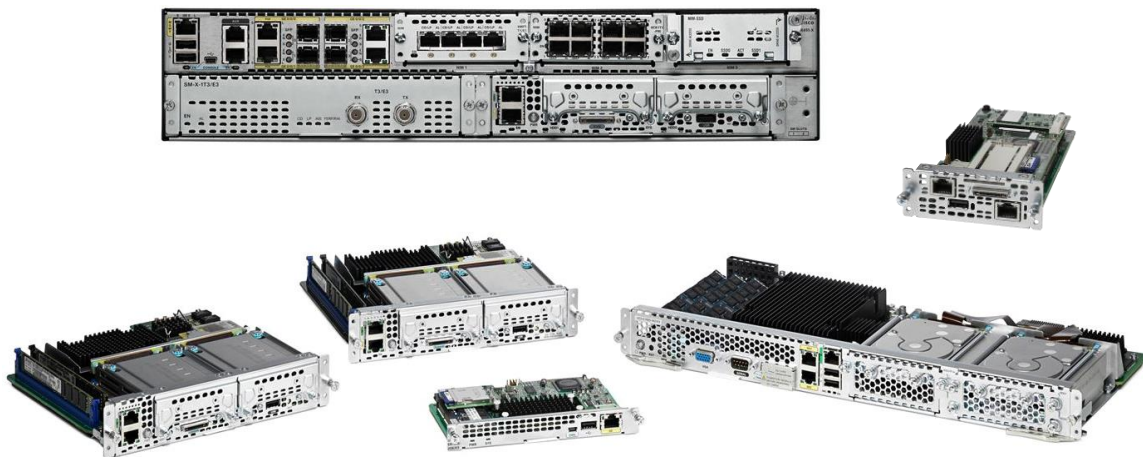# Cisco UCS E-Series Servers and Network Compute Engines

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 and Cisco UCS E-Series Network Compute Engines (NCEs) 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-Series Servers with Cisco 4451 ISR

Product Details

Cisco UCS E-Series Servers

Cisco UCS E-Series Servers are available in two form factors: a single-wide module and a double-wide module. The single-wide version includes a four-core Intel® Xeon® processor E3-1105Cv2 and occupies a single service-module slot in the Cisco 4000 Series ISR and Cisco ISR G2 platforms. The double-wide module occupies two service-module slots side by side and includes a four-, six-, or eight-core Intel Xeon processor E5-2400v2 with more RAM and storage capacity than the single-wide module. The four- and six-core Cisco UCS E-Series M1 double-wide version also has a PCI Express (PCIe) card option for expanding external network and storage I/O.

All the servers are high-density, single-socket blade servers. They balance simplicity, performance, and application density while operating in an energy-efficient environment. The servers deliver next-generation Intel Xeon processor E5-2400 and E3-1100 product family technology in combination with integrated remote lights-out management. They support multiple cores and threads in a reduced-power envelope, providing improved performance and better energy efficiency than preceding models.

They thus provide an excellent platform for introducing virtualization into the branch office and supporting mission-critical business applications. The innovative, zero-footprint form factor of the Cisco UCS E- Series Servers in conjunction with the Intel Xeon processor E5-2400 and E3-1100 product families lower total cost of ownership (TCO), increase business agility, and enhance reliability when compared to standalone rack-mount and tower servers.

Eight Cisco UCS E-Series Server models are available, with support for different amounts of CPU, memory, and storage capacity. Their part numbers follow:

- UCS-E140S M2
- UCS-E160D M2
- UCS-E180D M2
- UCS-E140S M1
- UCS-E140D M1
- UCS-E140DP M1
- UCS-E160D M1
- UCS-E-160DP M1

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, 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.

Six Cisco UCS E-Series NCE blades are available, with different amounts of CPU, memory, and storage capacity. Their part numbers follow:

- UCS-EN120S M2
- UCS-EN140N M2
- UCS-EN120E-54
- UCS EN120E-58
- UCS EN120E-108
- UCS EN120E-208

Applications for Cisco UCS E-Series Servers and NCEs

Cisco UCS E-Series Servers and NCEs provide excellent performance and value for these and other types of workloads:

- Network applications: Cisco Virtual Wide Area Application Services (vWAAS), Cisco Virtual Wireless LAN Controller (vWLC), Cisco Unity® Connection, Cisco ISR with FirePOWER™ Services, Cisco Energy Management and other Cisco applications
- Mission-critical business applications: Point-of-sale (POS) systems, bank teller in-office control points (IOCPs), electronic-medical-record (EMR) systems, inventory management systems, and cloud connectors
- Core Microsoft Windows services: Microsoft Active Directory Domain Services (AD DS), Microsoft Windows print services, Dynamic Host Configuration Protocol (DHCP) server services, Domain Name System (DNS) server services, and file services
- Client-management services: Configuration and operations management, monitoring services, update and patching services, backup and recovery services, and terminal server gateways

Whereas the Cisco UCS E-Series Servers can virtualize multiple applications of higher workloads, the NCEs are most suited to host network applications and other lightweight applications at your branch-office location.

Features and Benefits

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

- **Reduced operational burden:** Through a consolidated, wire-free infrastructure, Cisco UCS E-Series Servers and NCEs 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 Xeon 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 1 summarizes the features of the Cisco UCS E-Series Servers.

Table 1.   Feature Summary: Cisco UCS E-Series Servers

Feature	Description
Integrated networking	● 2 internal Gigabit Ethernet interfaces
Virtualization optimization	● Intel Xeon processor E3-1100 and E5-2400 product families using Intel Hyper-Threading Technology and Intel Virtualization Technology (VT-x)
4-, 6-, or 8-core Intel Xeon processors	● Energy-efficient, high-performance processors provide increased performance in a compact form factor
Hot-swappable SAS drives, SAS self-encrypting drives (SEDs), and SATA solid-state drives (SSDs)	● Up to 3 front-accessible, hot-swappable, internal 2.5-inch server-class SATA, SAS drives, SAS SEDs, or SAS SSDs ● Balanced performance and capacity to best meet application needs ● SAS single-level cell (SLC) and enterprise multilevel cell (eMLC) SSDs ● 10,000-rpm SAS drives for high performance and value with SED option for security for data at rest
Hardware RAID 0, 1, and 5 support	● Hardware RAID 0 and 1 support on single-wide blades and double-wide blades with the PCIe card option ● Hardware RAID 0, 1, and 5 support on double-wide blades without the PCIe card option ● 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 and local Intelligent Platform Management Interface (IPMI) 2.0 support for out-of-band management through third-party enterprise management systems ● Command-line interface (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
PCIe card support for additional network and storage I/O	● Additional I/O performance and flexibility with four 1 Gigabit Ethernet or one 10 Gigabit Ethernet and Fibre Channel over Ethernet (FCoE) options (available in double-wide servers only)
Integrated external Gigabit Ethernet ports	● Single-wide servers: 1 external Gigabit Ethernet port ● Double-wide servers: 2 external Gigabit Ethernet ports
Front-panel connectors	● Front-panel VGA, 2 USB, and serial console connectors

Table 2 summarizes the features of the Cisco UCS E-Series NCE service module (EN120S).

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

Feature	Description
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
2-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
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 Servers are designed to support multiple bare-metal operating systems and hypervisors, including:

- Operating systems
  - Microsoft Windows Server
    - Windows Server 2008 R2 Standard 64-bit
    - Windows Server 2008 R2 Enterprise 64-bit
    - Windows Server 2012 Standard 64-bit
    - Windows Server 2012 R2 Standard 64-bit
  - Red Hat Enterprise Linux (RHEL) Release 6.2 and later
  - SuSE Linux 11, Service Pack 2 and later
  - Oracle Enterprise Linux 6.0, Update 2 and later

- Hypervisors
  - Microsoft Hyper-V 2008 R2, 2012, and 2012 R2
  - VMware vSphere 5.0, Update 1, and Releases 5.1, 5.5 and 6.0
  - Citrix XenServer Release 6.0

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 R2 Standard 64-bit
  - Red Hat Enterprise Linux (RHEL) Release 6.5 and later
- Hypervisors
  - Microsoft Hyper-V 2012 R2
  - VMware vSphere 5.5 and 6.0

Product Specifications

Table 4 lists the specifications for the Cisco UCS E-Series M2 servers.

Table 4.   Product Specifications for Single-Wide and Double-Wide M2 Servers

Feature	Cisco UCS E140S M2 (Single-Wide)	Cisco UCS E160D and E180D M2 (Double-Wide)
CPU	● Intel Xeon processor E3-1105C v2 (6-MB cache, 1.8 GHz, and 4 cores)	● 160D: Intel Xeon processor E5-2418Lv2 (10-MB cache, 2.0 GHz, and 6 cores) ● 180D: Intel Xeon processor E5-2428Lv2 (15-MB cache, 1.8 GHz, and 8 cores)
DRAM	● 8 GB (default: one 8-GB DIMM) and up to 16 GB (two 8-GB DIMMs)	● 8 GB (default) and up to 96 GB (three 32-GB DIMMs)
HDD	Up to 2: ● 10,000-rpm SAS: 1.8 TB ● 7200-rpm SATA: 1 TB ● 10,000-rpm SAS: 900 GB ● 10,000-rpm SAS SED: 600 GB ● SAS SSD SLC: 200 GB ● SAS SSD eMLC: 200 and 400 GB	Up to 3: ● 10,000-rpm SAS: 1.8 TB ● 7200-rpm SATA: 1 TB ● 10,000-rpm SAS: 900 GB ● 10,000-rpm SAS SED: 600 GB ● SAS SSD SLC: 200 GB ● SAS SSD eMLC: 200 and 400 GB
RAID options	● Hardware RAID 0 and 1 ● LSI 2004 controller	● Hardware RAID 0, 1, and 5 ● LSI 2004 controller
NICs	● 2 internal and 1 external Gigabit Ethernet ports	● 2 internal and 2 external Gigabit Ethernet ports
PCIe	● None	● None
Cisco IMC	● 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	● 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	● 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).
		● 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).

Feature	Cisco UCS E140S M2 (Single-Wide)	Cisco UCS E160D and E180D M2 (Double-Wide)
Front-panel connectors	● 1 KVM console connector (supplies 1 VGA, 1 serial, and 1 USB connectors) ● 1 Onboard USB Connector	● Front-panel VGA, 2 USB, and serial console connectors
Physical dimensions (H x W x D)	● 1.58 x 7.44 x 7.5 in. (4 x 18.9 x 19.1 cm)	● 1.58 x 16.23 x 7.5 in. (4 x 41.2 x 19.1 cm)
Maximum weight	● 2.5 lb (1.1 kg)	● 7 lb (3.2 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
Temperature: Nonoperating	● -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
Humidity: Nonoperating	● 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
Altitude: Nonoperating	● 15,000 ft (4600m)	● 15,000 ft (4600m)

Table 5 lists the specifications for the Cisco UCS E-Series M1 servers.

Table 5.　　Product Specifications for Single-Wide and Double-Wide M1 Servers

Feature	Cisco UCS E140S M1 Software (Single-Wide)	Cisco UCS E140D, E140DP, E160D, and E160DP M1 Software (Double-Wide)
CPU	● Intel Xeon processor E3-1105C (6-MB cache, 1.00 GHz, and 4 cores) for M1 models	● Intel Xeon processor E5-2418L (10-MB cache, 2.0 GHz, and 4 cores) ● Intel Xeon processor E5-2428L (15-MB cache, 1.8 GHz, and 6 cores)
DRAM	● 8 GB (default: one 8-GB dual in-line memory module [DIMM]) and up to 16 GB (two 8-GB DIMMs)	● 8 GB (default) and up to 48 GB (three 16-GB DIMMs)
Hard-disk drive (HDD)	● Up to 2: 　○ 7200-rpm SATA: 1 TB 　○ 10,000-rpm SAS: 900 GB 　○ 10,000-rpm SAS SED: 600 GB 　○ SAS SSD SLC: 200 GB 　○ SAS SSD eMLC: 200 and 400 GB	● Up to 3 (Cisco UCS E140D or E160D) or 2 (Cisco UCS E140DP or E160DP): 　○ 7200-rpm SATA: 1 TB 　○ 10,000-rpm SAS: 900 GB 　○ 10,000-rpm SAS SED: 600 GB 　○ SAS SSD SLC: 200 GB 　○ SAS SSD eMLC: 200 and 400 GB
RAID options	● Hardware RAID 0 and 1 ● LSI 2004 controller	● Cisco UCS E140D and E160D: 　○ Hardware RAID 0, 1, and 5 ● Cisco UCS E140DP and E160DP: 　○ Hardware RAID 0 and 1 　○ LSI 2004 controller
Network interface cards (NICs)	● 2 internal and 1 external Gigabit Ethernet ports	● 2 internal and 2 external Gigabit Ethernet ports
PCIe	● None	● Cisco UCS E140DP and E160DP: Four 1 Gigabit Ethernet or one 10 Gigabit Ethernet and FCoE

Feature	Cisco UCS E140S M1 Software (Single-Wide)	Cisco UCS E140D, E140DP, E160D, and E160DP M1 Software (Double-Wide)
Cisco IMC	● 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	● 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	● 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).
		● 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 KVM console connector (supplies 1 VGA, 1 serial, and 1 USB connectors) ● 1 Onboard USB Connector	● Front-panel VGA, 2 USB, and serial console connectors
Physical dimensions (H x W x D)	● 1.58 x 7.44 x 7.5 in. (4 x 18.9 x 19.1 cm)	● 1.58 x 16.23 x 7.5 in. (4 x 41.2 x 19.1 cm)
Maximum weight	● 2.5 lb (1.1 kg)	● 7 lb (3.2 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

Temperature: Nonoperating	● -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

Humidity: Nonoperating	● 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
Altitude: Nonoperating	● 15,000 ft (4600m)	● 15,000 ft (4600m)

Table 6 lists the specifications for the Cisco UCS E-Series NCEs.

Table 6. 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 Cisco UCS E-Series NCE double-wise EHWIC (part number 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:
			  ◦ 7200-rpm SATA: 500 GB
			  ◦ 7200-rpm SATA: 1 TB
			  ◦ 10,000-rpm SAS: 900 GB

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

Table 7.　　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 and E140S	Cisco UCS E140D and E160D-M2	Cisco UCS E160D-M1 and E180D
1921	1	No	No	No	No
1941	1	No	No	No	No
2901	2	No	No	No	No
2911	2	No	1	No	No
2921	2	No	1	1	No
2951	2	No	2	1	No
3925	2	No	2	1	1

ISR Platform	Cisco UCS EN120E	Cisco UCS EN140N	Cisco UCS EN120S and E140S	Cisco UCS E140D and E160D-M2	Cisco UCS E160D-M1 and E180D
3945	2	No	4	1	1
3925E	1	No	2	1	1
3945E	1	No	4	1	1
4321	No	2	No	No	No
4331	No	2*	1	No	No
4351	No	3*	2	1	1
4431	No	3	No	No	No
4451	No	3*	2	1	1

* 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 8 lists regulatory standards compliance information.

Table 8.　　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 - 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-Series Servers and NCEs, Cisco IOS Software Release 15.2(4)M is required for Cisco 2900 and 3900 Series ISR models.

- For Cisco UCS E-Series NCE (double-wide EHWIC), Cisco IOS Software Release 15.4(3)M is required for Cisco 1900, 2900, and 3900 Series ISR models.

- For all Cisco UCS E-Series Servers and the Cisco UCS E-Series NCE service module, Cisco IOS XE Software Release 3.13 is required for the Cisco 4000 Series ISR platform.

- For the Cisco UCS E-Series 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

To place an order, refer to Table 9 and visit the Cisco Ordering homepage. To download software, visit the Cisco Software Center.

Table 9.   Ordering Information

Part Number	Product Description
UCS-EN120E-54/K9	Cisco UCS E-Series NCE DW-EHWIC, 2C Atom, 4GB RAM, 50GB HDD, 2GB SD card
UCS-EN120E-58/K9	Cisco UCS E-Series NCE DW-EHWIC, 2C Atom, 8GB RAM, 50GB HDD, 2GB SD card
UCS-EN120E-108/K9	Cisco UCS E-Series NCE DW-EHWIC, 2C Atom, 8GB RAM, 100GB HDD, 2GB SD card
UCS-EN120E-208/K9	Cisco UCS E-Series NCE DW-EHWIC, 2C Atom, 8GB RAM, 200GB HDD, 2GB SD card
UCS-EN140N-M2/K9	Cisco UCS E-Series NCE NIM, 4C Atom, 8GB RAM, 2GB SD card
UCS-EN120S-M2/K9	Cisco UCS E-Series NCE Single-Wide Blade, Intel Pentium B925C Dual Core processor, 8GB RAM, 2 SD cards
UCS-E140S-M2/K9	Cisco UCS E-Series Single-Wide Server Blades, Intel Xeon E3 1100 v2 Quad Core processor, 8GB RAM, 2 SD cards
UCS-E160D-M2/K9	Cisco UCS E-Series Double-Wide Server Blades, Intel Xeon E5-2400 v2 Six Core processor, 8GB RAM, 2 SD cards
UCS-E180D-M2/K9	Cisco UCS E-Series Double-Wide Server Blades, Intel Xeon E5-2400 v2 Eight Core processor, 8GB RAM, 2 SD cards
UCS-E140S-M1/K9	Cisco UCS E-Series Single-Wide Server Blades, Intel Xeon E3 1100 v1 Quad Core processor, 8GB RAM, 2 SD cards
UCS-E140D-M1/K9	Cisco UCS E-Series Double-Wide Server Blades, Intel Xeon E5-2400 Quad Core processor, 8GB RAM, 2 SD cards
UCS-E140DP-M1/K9	Cisco UCS E-Series Double-Wide Server Blades, Intel Xeon E5-2400 Quad Core processor, 8GB RAM, 2 SD cards, PCIe card
UCS-E160D-M1/K9	Cisco UCS E-Series Double-Wide Server Blades, Intel Xeon E5-2400 Six Core processor, 8GB RAM, 2 SD cards
UCS-E160DP-M1/K9	Cisco UCS E-Series Double-Wide Server Blades, Intel Xeon E5-2400 Six Core processor, 8GB RAM, 2 SD cards, PCIe card
E100S-MEM-UDIMM8G	8GB 1333MHz VLP UDIMM/PC3-10600 2R for SingleWide UCS-E
E100S-MEM-UDIMM8G=	8GB 1333MHz VLP UDIMM/PC3-10600 2R for SingleWide UCS-E, Spare
E100S-HDD-SAS18T	1.8TB, 10k RPM SAS hard disk drive for SingleWide UCS-E
E100S-HDD-SATA18T=	1.8TB, 10k RPM SAS hard disk drive for SingleWide UCS-E, Spare
E100S-HDD-SAS900G	900 GB, 10k RPM SAS hard disk drive for SingleWide UCS-E
E100S-HDD-SAS900G=	900 GB, 10k RPM SAS hard disk drive for SingleWide UCS-E, Spare
E100S-HDD-SSD200G	200 GB, SAS SLC SSD hard disk drive for SingleWide UCS-E
E100S-HDD-SSD200G=	200 GB, SAS SLC SSD hard disk drive for SingleWide UCS-E, Spare
E100S-SSD200-EMLC	200 GB, SAS eMLC SSD hard disk drive for SingleWide UCS-E
E100S-SSD200-EMLC=	200 GB, SAS eMLC SSD hard disk drive for SingleWide UCS-E, Spare
E100S-SSD400-EMLC	400 GB, SAS eMLC SSD hard disk drive for SingleWide UCS-E
E100S-SSD400-EMLC=	400 GB, SAS eMLC SSD hard disk drive for SingleWide UCS-E, Spare
E100S-HDD-SATA1T	1 TB, 7200 RPM SATA hard disk drive for SingleWide UCS-E
E100S-HDD-SATA1T=	1 TB, 7200 RPM SATA hard disk drive for SingleWide UCS-E, Spare
E100S-HDSASED600G	600 GB, SAS SED hard disk drive, for SingleWide UCS-E
E100S-HDSASED600G=	600 GB, SAS SED hard disk drive, for SingleWide UCS-E, Spare

Part Number	Product Description
E100D-MEM-RDIMM4G	4GB 1333MHz RDIMM/PC3-10600 2R for DoubleWide UCS-E
E100D-MEM-RDIMM4G=	4GB 1333MHz RDIMM/PC3-10600 2R for DoubleWide UCS-E, Spare
E100D-MEM-RDIMM8G	8GB 1333MHz RDIMM/PC3-10600 2R for DoubleWide UCS-E
E100D-MEM-RDIMM8G=	8GB 1333MHz RDIMM/PC3-10600 2R for DoubleWide UCS-E, Spare
E100D-MEM-RDIM16G	16GB 1333MHz RDIMM/PC3-10600 2R for DoubleWide UCS-E
E100D-MEM-RDIM16G=	16GB 1333MHz RDIMM/PC3-10600 2R for DoubleWide UCS-E, Spare
E100D-MEM-RDIM32G	32GB 1333MHz RDIMM/PC3-10600 2R for DoubleWide UCS-E
E100D-MEM-RDIM32G=	32GB 1333MHz RDIMM/PC3-10600 2R for DoubleWide UCS-E, Spare
E100D-HDD-SAS18T	1 8 TB, SAS HDD for DoubleWide UCS-E
E100D-HDD-SAS18T=	1 8 TB, SAS HDD for DoubleWide UCS-E, Spare
E100D-HDD-SAS900G	900 GB, 10k RPM SAS hard disk drive for DoubleWide UCS-E
E100D-HDD-SAS900G=	900 GB, 10k RPM SAS hard disk drive for DoubleWide UCS-E, Spare
E100D-HDD-SSD200G	200 GB, SAS SLC SSD hard disk drive for DoubleWide UCS-E
E100D-HDD-SSD200G=	200 GB, SAS SLC SSD hard disk drive for DoubleWide UCS-E, Spare
E100D-SSD200-EMLC	200 GB, SAS eMLC SSD hard disk drive for DoubleWide UCS-E
E100D-SSD200-EMLC=	200 GB, SAS eMLC SSD hard disk drive for DoubleWide UCS-E, Spare
E100D-SSD400-EMLC	400 GB, SAS eMLC SSD hard disk drive for DoubleWide UCS-E
E100D-SSD400-EMLC=	400 GB, SAS eMLC SSD hard disk drive for DoubleWide UCS-E, Spare
E100D-HDD-SATA1T	1 TB, 7200 RPM SATA hard disk drive for DoubleWide UCS-E
E100D-HDD-SATA1T=	1 TB, 7200 RPM SATA hard disk drive for DoubleWide UCS-E, Spare
E100D-HDSASED600G	600 GB, SAS SED hard disk drive for DoubleWide UCS-E
E100D-HDSASED600G=	600 GB, SAS SED hard disk drive for DoubleWide UCS-E, Spare
E100-SD-2G=	2 GB SD Card for UCS-EN only, Spare
E100-SD-4G=	4 GB SD Card for UCS-EN only, Spare
E100-SD-8G=	8 GB SD Card for UCS-E, Spare

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.

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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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