HUAWEI E9000
Converged Infrastructure Blade Server

HUAWEI TECHNOLOGIES CO., LTD.

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The E9000 is a new-generation blade server that integrates computing, storage, switching, and management subsystems to form a powerful converged infrastructure platform. The E9000 is an industry-leading hardware computing platform that improves competitiveness based on its availability, computing density, energy consumption, low emissions, midplane bandwidth, intelligent management and services, elastic configuration, flexible computing and storage expansion capabilities, low network latency, and acceleration functions.

Chassis

E9000 chassis

Compute node

CH121 compute node

CH140 compute node

CH220 I/O expansion compute node

CH221 I/O expansion compute node

CH222 Storage expansion compute node

CH240 compute node

CH242 V3 compute node

Switch module

CX110 GE switch module

CX111 GE switch module

CX116 GE pass through module

CX210 8G FC Switch module

CX310 10GE/FCoE converged switch module

CX311 10GE/FCoE/FC converged switch module

CX317 10GE pass through module

CX611 InfiniBand QDR/FDR switch module

CX911/CX912 10GE/FC multi-plane switch module

CX915 GE/8G FC multi-plane switch module

Underpinned by leading technology and architecture, the E9000 applies Huawei's extensive technical experience in the ICT field coupled with Huawei's proprietary technologies and solutions to ensure industry-leading quality and distinctive functionality.

Highest computing density in a chassis

- Supports Intel® Xeon® E5, E5 v2, E5 v3, and E7 v2 series processors.
- Supports two small 2-socket compute nodes in a half-width slot.
- Supports large-capacity, cost-effective DIMMs at 1.5 times the usual height.

Best scalability

- Supports free combinations of 2-socket and 4-socket compute nodes.
- Supports standard PCIe card expansion on half-width compute nodes.
- Supports 4 standard PCIe card expansion or 2 full-height full-length dual slots GPGPU cards on full-width compute nodes
- Supports 3 standard PCIe card expansion on a 4-socket compute node.

Best internal storage capability

- Supports 2 x 2.5" hard disks on a half-width compute node.
- Supports 8 x 2.5" hard disks on a full-width, 4-socket compute node.
- Supports 15 x 2.5" hard disks on a full-width storage expansion compute node.

Highest switching and I/O capability

- Supports a midplane capable of 15.6Tbit/s.
- Provides 128 x 10GE ports on a chassis.
- Supports 10GE/FCoE/FC/InfiniBand switching and evolution to 100GE/ InfiniBand EDR.

Typical applications

The E9000 integrates computing, storage, and networking resources to meet carriers' and enterprises' requirements for high-end core applications such as private clouds and high-performance computing.

HUAWEI E9000 Chassis

(E9000 chassis)

Superb performance

- Supports evolution based on three generations of high-performance Intel processors.
- Supports 48 DIMMs in a full-width slot with up to 3.0 TB of highly cost-effective memory capacity.
- Supports 15 x 2.5" hard disks in a full-width slot.
- Supports I/O acceleration using GPUs, PCIe SSDs, and DSP.
- Supports half-width/700 W and full-width/1400 W for heat dissipation and power supply.
- Supports 40GE and InfiniBand FDR (56Gbps) and evolution to 100GE and InfiniBand EDR.

Converged architecture

- Adopts a modular design for computing, storage, switching, power supply, and cooling.
- Supports a dynamically scalable architecture by providing 2-socket and 4-socket compute nodes.
- Provides various switch modules (such as GE, 10GE, FC, FCoE, and InfiniBand) that can be flexibly configured based on service requirements.

Green and Reliable

- Adopts efficient Platinum AC PSMs with more than 95% power conversion efficiency.
- Implements dynamic energy saving management functions.
- Optimizes system air ducts to optimize heat dissipation.
- Supports fully redundant function modules to enable seamless switchover.
- Uses a passive midplane to prevent single point of failures.

The E9000 chassis is 12 U high and features an optimized layout structure to maximally use space. It provides 16 slots and redundant power supply modules (PSMs), heat dissipation modules, management modules, and switch modules. The E9000 chassis can be installed in a standard 19-inch rack at a depth of at least 1,000 mm. Two types of E9000 chassis are provided: AC and DC.

Technical Specifications

Form factor	12 U
Blade	16 half-width slots or 8 full-width slots; supports flexible configurations of single-slot, dual-slot, full-width, and half-width nodes and can accommodate up to 16 Huawei CH series half-width compute nodes
Switch module	4 slots for Huawei CX series switch modules provide a midplane switching capability of 15.6 Tbit/s. CX110 GE switch module: 12 x GE + 4 x 10GE uplink, 32 x GE downlink CX111 GE switch module: 12 x GE+4 x 10GE uplink, 32 x GE downlink CX116 GE pass through module: 32 x GE uplink, 32 x GE downlink CX210 8G FC switch module: 8 x 8G FC uplink, 16 x 8G FC downlink CX310 10GE switch module: 16 x 10GE uplink, 32 x 10GE downlink CX311 10GE/FCoE converged switch module: 16 x 10GE + 8 x 8G FC uplink, 32 x 10GE downlink CX317 10GE pass through module: 32 x 10GE uplink, 32 x 10GE downlink CX611 InfiniBand switch module (QDR 40Gbit/s, FDR 56Gbit/s): 18 x QDR/FDR uplink, 16 x QDR/FDR downlink CX911/CX912 multi-plane switch module; supports FC ports: 16 x 10GE + 8 x 8G FC uplink, 32 x 10GE/16 x 8G FC downlink CX915 multi-plane switch module: 4×10GE+12×GE+8×8G FC uplink, 32×GE+16×8G FC downlink
PSM	AC/DC PSM: Maximum six 3000W/2000W AC or six 2500W DC hot-swappable PSUs, N+N or N+M redundant
Fan module	Provides 14 hot-swappable fan modules in N+1 redundancy mode
Management	Complies with IPMI v2.0 and supports management functions such as remote startup, shutdown, reset, logging, hardware monitoring, SOL, KVM over IP, virtual media, fan module monitoring, and PSM monitoring Supports 1+1 redundancy Provides a local KVM port for server management
Power supply	110 V/220 V AC or –48 V DC
Operating temperature	5°C to 40°C
Dimensions	442mm(width) x 840mm(depth) x 530mm(height)

HUAWEI CH121 Compute Node

High density and large memory

- Supports the full series of Intel® Xeon® E5-2600 and E5-2600 v2 processors to deliver up to 2*twelve-core 2.7 GHz of computing power.
- Provides 24 DIMMs at 1.5 times the usual height. These apply mainstream granules and double the memory capacity to up to 768 GB DDR3 (providing the highest cost-efficiency for large-memory applications).
- Supports 2 x 2.5" SAS/SATA HDDs or SSDs.

Minimum energy for maximum efficiency

- Adopts the dynamic energy saving and power capping technologies to optimally manage and control power consumption with power remarkably reduced in low-load operating.
- Applies carrier-class design, manufacturing processes, and components to ensure high quality.

Intelligent platform for strong management

- Reduces O&M costs by supporting remote deployment and fault location technologies such as SOL, KVM over IP, virtual DVD-ROM drive, WebUI and IPMI 2.0-compliant.
- Provides efficient and secure power consumption analysis and control capabilities.
  - Complies with Intel® NM 2.0.
  - Provides a sub-3s power capping response on each compute node to optimize power consumption control.
  - Supports an intelligent and secure power-off mode for compute nodes.
- Supports the black box function to facilitate quick fault location and service recovery.

The CH121 combines dense computing capabilities with an ultra-large memory capacity. Optimized for enterprise service applications such as virtualization, cloud computing, and high-performance computing, the CH121 employs Intel® Xeon® E5-2600 and E5-2600 v2 series processors (up to 135 W) and supports up to 24 DIMM slots, 2 internal hard disks, and 1 standard PCI x8 full-height half-length card.

Technical Specifications

Form factor	Half-width 2-socket compute node
Number of processors	1 or 2
Processor model	Intel® Xeon® E5-2600 and E5-2600 v2 series
Number of DIMMs	24 DDR3 DIMMs, providing a maximum memory capacity of 768 GB
Number of hard disks	2 x 2.5" SAS/SATA HDDs or SSDs
RAID support	RAID 0 and 1
PCIe expansion	2 PCIe x16 mezz modules 1 standard PCIe x8 full-height half-length card
Operating systems supported	Microsoft Windows Server 2008/2012 Red Hat Enterprise Linux SUSE Linux Enterprise Server Oracle Linux Oracle Solaris CentOS Huawei Fusionsphere Citrix XenServer VMware
Operating temperature	5°C to 40°C
Dimensions	210mm(width) x 537.2mm(depth) x 60.46mm(height)

HUAWEI CH140 Compute Node

Outstanding computing performance based on ultra high density

- Supports Intel® Xeon® E5-2600(up to 130W) and E5-2600 v2 full series processors to deliver up to 4 x 12-core 2.7 GHz computing capabilities; a half-width slot supports two small slots in two layers for installing two independent 2-socket compute nodes.
- provides eight DIMM slots on a 2-socket compute node, supporting a DDR3 memory capacity of up to 256 GB on a 2-socket compute node.
- Supports one internal 2.5" SSD on a 2-socket compute node.

High efficiency and energy-saving

- Uses the dynamic energy saving and power capping technologies to optimally manage and control power consumption with power reduced in low-load operating.
- Adopts the carrier-class design, manufacturing process, and component selection to ensure high quality.

Easy management with the intelligent platform

- Reduces O&M costs by using remote deployment and fault locating methods including SOL, KVM over IP, virtual CD-ROM drive, and WebUIs in compliance with IPMI 2.0.
- Supports efficient and secure power consumption analysis and control capabilities.
  - Complies with Intel® NM 2.0.
  - Implements efficient power consumption control by supporting power capping operations within 3s on a compute node.
  - Supports an intelligent and secure power-on mode for compute nodes.
- Supports the black box function to facilitate fault location, quickly recovering services.

Optimized for HPC and computing-dense enterprise services, the CH140 provides ultra high computing capabilities. A half-width slot supports two 2-socket compute nodes. Each compute node can be maintained independently. The CH140 uses Intel® Xeon® E5-2600 and E5-2600 v2 series processors and supports eight DIMM slots and one hard disk.

Technical Specifications

Form factor	Two 2-socket twin compute nodes in a half-width slot
Number of processors	1 or 2 in each 2-socket compute node
Processor model	Intel® Xeon® E5-2600 and E5-2600 v2 series
Number of DIMMs	8 DDR3 DIMMs for each 2-socket compute node
Number of hard disks	One 2.5" SSD/SAS/SATA for each 2-socket compute node
PCIe expansion	2 twin nodes share 2 PCIe x8 MEZZ modules
Operating systems supported	Microsoft Windows Server 2008/2012 Red Hat Enterprise Linux SUSE Linux Enterprise Server Oracle Linux Oracle Solaris CentOS Huawei Fusionsphere Citrix XenServer VMware
Operating temperature	5°C to 35°C
Dimensions	210mm(width) x 537.2mm(depth) x 60.46mm(height)

HUAWEI CH220 I/O Expansion Compute Node

Large memory and outstanding expandability

- Supports the full series of Intel® Xeon® E5-2600 and E5-2600 v2 processors to deliver up to 2*twelve-core 2.7 GHz of computing power.
- Provides 24 DIMMs at 1.5 times the usual height. These apply mainstream granules and double the memory capacity to up to 768 GB DDR3 (providing the highest cost-efficiency for large-memory applications).
- Provides 4 PCIe x8 full-height half-length slots for installing 4 GPUs or PCIe SSDs, providing the best possible PCIe expansion capability on a single compute node. (Note: card quantity is determined by card's physical size and the signal bandwidth.)

Minimum energy for maximum efficiency

- Adopts the dynamic energy saving and power capping technologies to optimally manage and control power consumption with power remarkably reduced in low-load operating.
- Applies carrier-class design, manufacturing processes, and components to ensure high quality.

Intelligent platform for strong management

- Reduces O&M costs by supporting remote deployment and fault location technologies such as SOL, KVM over IP, virtual DVD-ROM drive, WebUI and IPMI 2.0-compliant.
- Provides efficient and secure power consumption analysis and control capabilities.
  - Complies with Intel® NM 2.0.
  - Provides a sub-3s power capping response on each compute node to optimize power consumption control.
  - Supports an intelligent and secure power-off mode for compute nodes.
- Supports the black box function to facilitate quick fault location and service recovery.

Designed for application acceleration scenarios, VDI, virtualization and databases, the CH220 provides superior scalability and a huge memory capacity. Featuring Intel® Xeon® E5-2600 and E5-2600 v2 series processors (up to 135 W) and support for up to 24 DIMM slots, 2 internal hard disks, and 4 standard PCI x8 full-height half-length cards, the CH220 can be expanded for I/O acceleration components such as PCIe SSDs and GPUs.

Technical Specifications

Form factor	Full-width 2-socket compute node
Number of processors	1 or 2
Processor model	Intel® Xeon® E5-2600 and E5-2600 v2 series
Number of DIMMs	24 DDR3 DIMMs, providing a maximum memory capacity of 768 GB
Number of hard disks	2 x 2.5" SAS/SATA HDDs or SSDs
RAID support	RAID 0 and 1
PCIe expansion	2 PCIe x16 mezz modules (Note: One module has been occupied) 4 standard PCIe x8 full-height half-length cards
Operating systems supported	Microsoft Windows Server 2008/2012 Red Hat Enterprise Linux SUSE Linux Enterprise Server Oracle Linux Oracle Solaris CentOS Huawei Fusionsphere Citrix XenServer VMware
Operating temperature	5°C to 40°C
Dimensions	423mm(width) x 537.2mm(depth) x 60.46mm(height)

HUAWEI CH221 I/O Expansion Compute Node

Large memory and outstanding expandability

- Supports the full series of Intel® Xeon® E5-2600 and E5-2600 v2 processors to deliver up to 2*twelve-core 2.7 GHz of computing power.
- Provides 24 DIMMs at 1.5 times the usual height. These apply mainstream granules and double the memory capacity to up to 768 GB DDR3 (providing the highest cost-efficiency for large-memory applications).
- Provides 2 PCIe x16 full-height full-length slots or 1 PCIe x16 full-height full-length dual-slot card expansion slot for installing 2 full-height full-length GPUs or PCIe SSDs or 1 full-height full-length dual-slot GPGPU card.

Minimum energy for maximum efficiency

- Adopts the dynamic energy saving and power capping technologies to optimally manage and control power consumption with power remarkably reduced in low-load operating.
- Applies carrier-class design, manufacturing processes, and components to ensure high quality.

Intelligent platform for strong management

- Reduces O&M costs by supporting remote deployment and fault location technologies such as SOL, KVM over IP, virtual DVD-ROM drive, WebUI and IPMI 2.0-compliant.
- Provides efficient and secure power consumption analysis and control capabilities.
  - Complies with Intel® NM 2.0.
  - Provides a sub-3s power capping response on each compute node to optimize power consumption control.
  - Supports an intelligent and secure power-off mode for compute nodes.
- Supports the black box function to facilitate quick fault location and service recovery.

The CH221 provides superior scalability and an outstanding memory capacity. Featuring Intel® Xeon® E5-2600 and E5-2600 v2 series processors (up to 135 W) and support for up to 24 DIMM slots, 2 internal hard disks, and 2 standard PCI x16 full-height full-length cards, the CH221 is suitable for high-performance computing applications that require graphics processing and application performance acceleration, such as oil exploration, animation rendering, scientific computing, and seismic processing.

Technical Specifications

Form factor	Full-width 2-socket compute node
Number of processors	1 or 2
Processor model	Intel® Xeon® E5-2600 and E5-2600 v2 series
Number of DIMMs	24 DDR3 DIMMs, providing a maximum memory capacity of 768 GB
Number of hard disks	2 x 2.5" SAS/SATA HDDs or SSDs
RAID support	RAID 0 and 1
PCIe expansion	2 PCIe x16 mezz modules (Note:One module has been occupied) 2 standard PCIe x16 full-height full-length cards
Operating systems supported	Microsoft Windows Server 2008/2012 Red Hat Enterprise Linux SUSE Linux Enterprise Server Oracle Linux Oracle Solaris CentOS Huawei Fusionsphere Citrix XenServer VMware
Operating temperature	5°C to 40°C
Dimensions	423mm(width) x 537.2mm(depth) x 60.46mm(height)

HUAWEI CH222 Storage Expansion Compute Node

Huge storage and computing capabilities

- Supports the full series of Intel® Xeon® E5-2600 and E5-2600 v2 processors to deliver up to 2*twelve-core 2.7 GHz of computing power.
- Provides 24 DIMMs at 1.5 times the usual height. These apply mainstream granules and double the memory capacity to up to 768 GB DDR3 (providing the highest cost-efficiency for large-memory applications).
- Supports 15 x 2.5" SAS/SATA HDDs or SSDs, which provide the highest storage capacity on a single node.

Minimum energy for maximum efficiency

- Adopts the dynamic energy saving and power capping technologies to optimally manage and control power consumption with power remarkably reduced in low-load operating.
- Applies carrier-class design, manufacturing processes, and components to ensure high quality.

Intelligent platform for strong management

- Reduces O&M costs by supporting remote deployment and fault location technologies such as SOL, KVM over IP, virtual DVD-ROM drive, WebUI and IPMI 2.0-compliant.
- Provides efficient and secure power consumption analysis and control capabilities.
  - Complies with Intel® NM 2.0.
  - Provides a sub-3s power capping response on each compute node to optimize power consumption control.
  - Supports an intelligent and secure power-off mode for compute nodes.
- Supports the black box function to facilitate quick fault location and service recovery.

The CH222 provides superior computing performance and a large storage capacity. Featuring Intel® Xeon® E5-2600 and E5-2600 v2 series processors (up to 135 W) and support for up to 24 DIMM slots, 15 x 2.5" hard disks, and a 1 GB RAID cache, the CH222 is suitable for big-data analysis and processing applications that require large storage capacity and high computing performance, such as videos, searches, and biological sciences.

Technical Specifications

Form factor	Full-width 2-socket compute node
Number of processors	1 or 2
Processor model	Intel® Xeon® E5-2600 and E5-2600 v2 series
Number of DIMMs	24 DDR3 DIMMs, providing a maximum memory capacity of 768 GB
Number of hard disks	15 x 2.5" SAS/SATA HDDs or SSDs
RAID support	RAID 0, 1, 10, 5, 50, 6, and 60 with a 512 MB/1 GB RAID cache
PCIe expansion	2 PCIe x16 mezz modules 1 standard PCIe x8 full-height half-length card
Operating systems supported	Microsoft Windows Server 2008/2012 Red Hat Enterprise Linux SUSE Linux Enterprise Server Oracle Linux Oracle Solaris CentOS Huawei Fusionsphere Citrix XenServer VMware
Operating temperature	5°C to 40°C
Dimensions	423mm(width) x 537.2mm(depth) x 60.46mm(height)

HUAWEI CH240 Compute Node

Super large memory and strong computing capabilities

- Supports Intel® Xeon® E5-4600 or E5-4600 v2 series processors, with up to 12 cores each, a 30 MB L3 cache, 8 GT/s QPI, hyper-threading, and Turbo acceleration technology.
- Provides 48 DIMMs at 1.5 times the usual height. These apply mainstream granules and provide the memory capacity of up to 1.5 TB DDR3 (providing the highest cost-efficiency for large-memory applications).
- Supports up to 8 x 2.5" SAS/SATA HDDs or SSDs, or SSDs (twice as many hard disks as competitors' 4-socket blade servers).

Minimum energy for maximum efficiency

- Adopts the dynamic energy saving and power capping technologies to optimally manage and control power consumption with power remarkably reduced in low-load operating.
- Applies carrier-class design, manufacturing processes, and components to ensure high quality.

Intelligent platform for strong management

- Reduces O&M costs by supporting remote deployment and fault location technologies such as SOL, KVM over IP, virtual DVD-ROM drive, WebUI and IPMI 2.0-compliant.
- Provides efficient and secure power consumption analysis and control capabilities.
  - Complies with Intel® NM 2.0.
  - Provides a sub-3s power capping response on each compute node to optimize power consumption control.
  - Supports an intelligent and secure power-off mode for compute nodes.
- Supports the black box function to facilitate quick fault location and service recovery.

The CH240 delivers outstanding computing performance and a large memory capacity. It adopts Intel® Xeon® E5-4600 or E5-4600 v2 series high-performance processors and supports 48 DDR3 DIMM slots, 8 hard disks, and RAID 0 1, 10, 5, 50, 6, and 60. The CH240 is designed for virtualization, cloud computing, high-performance computing, and cluster deployment to meet high-end enterprise service requirements. It is particularly suitable for applications with high performance requirements, such as image and signal processing, financial algorithms, scientific computing, and seismic processing.

Technical Specifications

Form factor	Full-width 4-socket compute node
Number of processors	2 or 4
Processor model	Intel® Xeon® E5-4600 or E5-4600 v2 series 4-core, 6-core, 8-core, 10-core and 12-core processors series Core options: 4, 6, 8, 10, 12
Number of DIMMs	48 DDR3 DIMMs, providing a maximum memory capacity of 1.5 TB
Number of hard disks	8 x 2.5" SAS/SATA HDDs or SSDs
RAID support	RAID 0, 1, 10, 5, 50, 6, and 60 with a 512 MB/1 GB RAID cache
PCIe expansion	2 PCIe x16 mezz modules
Operating systems supported	Microsoft Windows Server 2008/2012 Red Hat Enterprise Linux SUSE Linux Enterprise Server Oracle Linux Oracle Solaris CentOS Huawei Fusionsphere Citrix XenServer VMware
Operating temperature	5°C to 40°C
Dimensions	423mm(width) x 537.2mm(depth) x 60.46mm(height)

HUAWEI CH242 V3 Compute Node

High computing performance, scalability, and reliability

- Supports new-generation Intel® Xeon® E7-4800/8800 v2 series 8-core, 10-core, 12-core, and 15-core high-performance processors based on the Brickland platform, and provides outstanding computing performance with up to four 15-core 2.8 GHz processors.
- 4-socket compute node installed in a full-width slot, supports up to a maximum of 32 DDR3 DIMMs at 1.5 times the usual height that apply to mainstream granules, addressing large-memory-capacity applications at low cost.
- Supports a maximum of eight 2.5-inch SAS HDDs, SATA HDDs, or SSDs, and provides a maximum of 3 PCIe slots for standard PCIe cards.
- Uses a real-time, accurate error checking and fault tolerance mechanism, and supports WHEA and eMCA Gen1

Provides efficient, secure power consumption analysis and control capabilities

- Complies with Intel® NM 2.0 dynamic power capping specifications.
- Completes power capping operations within 3 seconds.
- Supports an intelligent, secure power-on mode.

Easy management with the intelligent platform

- Reduces O&M costs by using remote deployment and fault locating methods including SOL, KVM over IP, virtual CD-ROM drive, and WebUIs in compliance with IPMI 2.0.
- Supports the black box function to facilitate fault location, quickly recovering services.

The CH242 V3 based on E7 v2 processor provides high processing performance, scalability, and reliability to address computing-intensive applications and support efficient, flexible mission-critical enterprise services. The CH242 V3 applies to large data sets and transaction-intensive databases, ERP, BI platform, and can also apply to cloud computing and virtualization.

Technical Specifications

Number of Processors	2 or 4
Processor Model	Intel® Xeon® E7-4800/8800 v2 series 8-core, 10-core, 12-core and 15-core processors
Number of DIMMs	32 DDR3 DIMMs, 32 channels, 1600Hz
Number of hard disks	Eight(CH242 V3-8HDD) or 4(CH242 V3-4HDD) 2.5" SAS/SATA HDDs, or SSDs
RAID support	RAID0/1/10/5/50/6/60, 1GB RAID Cache
PCIe Expansion	4 PCIe x16 MEZZ modules CH242 V3-4HDD supports two FHHL PCIe cards, when the two built-in PCIe slots are used, some DIMM slots cannot be used. CH242 V3-4HDD version supports one more FH3/4L PCIe card
Operating System Supported	Microsoft Windows Server 2008/2012 Red Hat Enterprise Linux SUSE Linux Enterprise Server Oracle Linux Oracle Solaris CentOS Huawei Fusionsphere Citrix XenServer VMware
Operating Temperature	5°C to 40°C
Dimensions	423mm(width) x 537.2mm(depth) x 60.46mm(height)

HUAWEI E9000 Switch Module

The E9000 supports several types of switch modules: CX110 GE switch module, CX111 GE switch module,CX116 GE pass through module, CX210 8G FC switch module, CX310 10GE switch module, CX311 10GE/FCoE converged switch module, CX317 10GE pass through module, CX611 InfiniBand switch module, and CX911/CX912 10GE/FC multi-plane switch module, CX915 GE/FC multi-plane switch module. You can select the one that best suits your service requirements for network I/O. Their detailed specifications are described in the tables below:

CX110 GE switch module

Network ports	12 x GE +4 x 10GE SFP+ uplink 32 x GE downlink 2 x 40GE Interconnect(can be used as a stack)
Network features	L2: VLAN/MSTP/LACP/TRILL/Stack/IGMP L3: RIP/OSPF/ISIS/BGP/VRRP/BFD/PIM QoS: ACL/CAR/ DiffServ Security: IPSG/MFF/DAI /DHCP Snooping
Management port	2 x RS232 management serial ports (one each for services and management)
Dimensions	35.06mm(width) x 272.15mm(depth) x 388.55mm(height)

CX111 GE switch module

Network ports	4 x 10GE SFP+ and 12 x GE uplink 32 x GE downlink
Network features	L2: VLAN/MSTP/LACP/Stack/IGMP/Smart Link/Monitor Link L3: RIP/OSPF/ISIS/BGP/VRRP/BFD/PIM/IPV6 QoS: ACL/CAR/DiffServ Security: IPSG/MFF/FSB/DAI/DHCP Snooping/sFlow/Netstream
Management port	2 x RS232 management serial ports (one each for services and management)
Dimensions	35.06mm(width) x 272.15mm(depth) x 388.55mm(height)

CX116 GE pass through module

Network port	32 x GE uplink 32 x GE downlink
Dimensions	35.06mm(width) x 272.15mm(depth) x 388.55mm(height)

CX210 8G FC switch module

Network ports	8 x 8G FC SFP+ uplink 16 x 8G FC downlink
Network features	FC: Brocade FC switch integrated
Management port	2 x RS232 management serial ports (one each for services and management)
Dimensions	35.06mm(width) x 272.15mm(depth) x 388.55mm(height)

CX310 10GE converged switch module

Network port	16 x 10GE uplink 32 x 10GE downlink
Network features	L2: VLAN/MSTP/LACP/TRILL/Stack/IGMP/Smart Link/Monitor Link L3: RIP/OSPF/ISIS/BGP/VRRP/BFD/PIM/IPV6 QoS: DCBX/PFC/ETS/ACL/CAR/DiffServ Security: IPSG/MFF/FSB/DAI/DHCP Snooping/sFlow/Netstream
Management port	2 x RS232 management serial ports (one each for services and management)
Dimensions	35.06mm(width) x 272.15mm(depth) x 388.55mm(height)

CX311 10GE/FCoE converged switch module

Network port	16 x 10GE SFP+ and 8 x 8G FC SFP+ uplink; 32 x 10GE downlink
Network features	L2: VLAN/MSTP/LACP/TRILL/Stack/IGMP/Smart Link/Monitor Link L3: RIP/OSPF/ISIS/BGP/VRRP/BFD/PIM/IPV6 QoS: DCBX/PFC/ETS/ACL/CAR/DiffServ Security: IPSG/MFF/FSB/DAI/DHCP Snooping/sFlow/Netstream
Management port	2 x RS232 management serial ports (one each for services and management)
Dimensions	35.06mm(width) x 272.15mm(depth) x 388.55mm(height)

CX317 10GE pass through module

Network port	32 x 10GE uplink 32 x 10GE downlink
Dimensions	35.06mm(width) x 272.15mm(depth) x 388.55mm(height)

CX611 Infiniband QDR/ FDR switch module

Network port	18 QDR/FDR InfiniBand QSFP+ uplink 16 QDR/FDR InfiniBand downlink
Network features	multicast forwarding and replication/load balancing/re-route around failed link/VL/SL/SL to VL mapping/SM/SMA/Low latency forwarding/credit based flow control
Management port	In-band management
Dimensions	35.06mm(width) x 272.15mm(depth) x 388.55mm(height)

CX911/CX912 10GE/FC multi-plane switch module

Network port	16 x 10GE SFP+ and 8 x 8G FC SFP+ uplink 32 x 10GE/16 x 8G FC downlink
Network features	L2: VLAN/MSTP/LACP/TRILL/Stack/IGMP/Smart Link/Monitor Link L3: RIP/OSPF/ISIS/BGP/VRRP/BFD/PIM/IPV6 QoS: DCBX/PFC/ETS/ACL/CAR/DiffServ Security: IPSG/MFF/FSB/DAI/DHCP Snooping/sFlow/Netstream CX911: integrates a Qlogic FC switch; CX912: integrates a Brocade FC switch
Management port	2 x RS232 management serial ports (one each for services and management)
Dimensions	35.06mm(width) x 272.15mm(depth) x 388.55mm(height)

CX915 GE/FC multi-plane module

Network port	4 x 10GE SFP+ and 12 x GE and 8 x 8G FC SFP+ uplink 32 x GE and 16 x 8G FC downlink
Network features	L2: VLAN/MSTP/LACP/Stack/IGMP/Smart Link/Monitor Link L3: RIP/OSPF/ISIS/BGP/VRRP/BFD/PIM/IPV6 QoS: ACL/CAR/DiffServ Security: IPSG/MFF/FSB/DAI/DHCP Snooping/sFlow/Netstream FC: Qlogic FCoE_FC Gateway integrated
Management port	2 x RS232 management serial ports (one each for services and management)
Dimensions	35.06mm(width) x 272.15mm(depth) x 388.55mm(height)

Innovative • Reliable Future-oriented

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