

Huawei FusionServer RH5885 V3

Technical White Paper

Issue **03**
Date **2016-01-04**



Copyright © Huawei Technologies Co., Ltd. 2016. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

Trademarks and Permissions



and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.

All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base
Bantian, Longgang
Shenzhen 518129
People's Republic of China

Website: <http://e.huawei.com>

Contents

| | |
|------------------------------------------------------|-----------|
| 1 Overview | 1 |
| 1.1 Functions | 1 |
| 1.2 Appearance..... | 3 |
| 1.3 Ports..... | 6 |
| 1.4 Indicators and Buttons | 7 |
| 1.5 Physical Structure..... | 9 |
| 1.6 Logical Structure | 15 |
| 1.7 RAS Features | 16 |
| 1.8 Technical Specifications | 20 |
| 1.9 Advantages..... | 22 |
| 2 Features..... | 23 |
| 3 Product Specifications | 26 |
| 4 Component Compatibility | 30 |
| 4.1 Processor..... | 30 |
| 4.2 Memory | 32 |
| 4.3 Storage..... | 35 |
| 4.4 I/O Expansion | 36 |
| 4.5 PSU | 37 |
| 4.6 OSs, Virtualization Software and Databases | 37 |
| 5 Management | 38 |
| 5.1 iMana 200..... | 38 |
| 5.2 iBMC..... | 40 |
| 6 Warranty | 43 |
| 7 Certifications..... | 46 |

Figures

| | |
|--------------------------------------------------------------------------|----|
| Figure 1-1 RH5885 V3 appearance | 3 |
| Figure 1-2 RH5885 V3 front panel..... | 3 |
| Figure 1-3 RH5885 V3 rear panel | 5 |
| Figure 1-4 PCIe slot layout | 5 |
| Figure 1-5 Components of the RH5885 V3 | 10 |
| Figure 1-6 Positions of the connectors and other components | 13 |
| Figure 1-7 RH5885 V3 logical structure..... | 15 |
| Figure 4-1 DIMM silk screen meaning..... | 35 |

Tables

| | |
|---------------------------------------------------------------------------|----|
| Table 1-1 Hardware configurations supported by the RH5885 V3 | 2 |
| Table 1-2 Hard disk layout for the RH5885 V3 (8 hard disks) | 4 |
| Table 1-3 Hard disk layout for the RH5885 V3 (23 hard disks) | 4 |
| Table 1-4 PCIe slot description..... | 5 |
| Table 1-5 Ports on the front panel..... | 6 |
| Table 1-6 Ports on the rear panel | 6 |
| Table 1-7 Indicators on the front panel | 7 |
| Table 1-8 Indicators and buttons on the rear panel | 8 |
| Table 1-9 Component description..... | 11 |
| Table 1-10 RAS features | 16 |
| Table 1-11 Technical specifications | 20 |
| Table 3-1 RH5885 V3 product specifications..... | 26 |
| Table 4-1 Compatible processors..... | 30 |
| Table 4-2 Compatible DIMMs..... | 32 |
| Table 4-3 Maximum memory speed (E7 v2 + DDR3) | 33 |
| Table 4-4 Maximum memory speed (E7 v3 + DDR3) | 34 |
| Table 4-5 Maximum memory speed (E7 v3 + DDR4) | 34 |
| Table 4-6 RAID level comparison | 36 |
| Table 5-1 iMana 200 specifications | 39 |
| Table 5-2 iBMC management product specifications | 41 |
| Table 6-1 Warranty services | 43 |
| Table 6-2 Response time | 44 |
| Table 7-1 Certifications and standards | 46 |

1 Overview

About This Chapter

- 1.1 [Functions](#)
- 1.2 [Appearance](#)
- 1.3 [Ports](#)
- 1.4 [Indicators and Buttons](#)
- 1.5 [Physical Structure](#)
- 1.6 [Logical Structure](#)
- 1.7 [RAS Features](#)
- 1.8 [Technical Specifications](#)
- 1.9 [Advantages](#)

1.1 Functions

As customer applications develop rapidly, customers have higher requirements for server reliability, performance, maintainability, and cost. Building on extensive experience in servers, Huawei has developed the FusionServer RH5885 V3, a high-performance, highly reliable 4U 4-socket rack server that uses the latest Intel processors.

The RH5885 V3 provides higher reliability, flexibility, scalability, and performance than Huawei's previous servers. To address applications such as databases, virtualization, and in-memory computing, the RH5885 V3 provides various processing capabilities, memory capacity, and I/O capabilities.

The RH5885 V3 supports three combinations of processor and DIMM configurations:

- E7 v2 + DDR3: E7-4800 v2 or E7-8800 v2 processors and DDR3 DIMMs
- E7 v3 + DDR3: E7-4800 v3 or E7-8800 v3 processors and DDR3 DIMMs
- E7 v3 + DDR4: E7-4800 v3 or E7-8800 v3 processors and DDR4 DIMMs

[Table 1-1](#) lists the hardware configurations supported by the RH5885 V3.

Table 1-1 Hardware configurations supported by the RH5885 V3

| Model | Processor | DIMM | RAID Controller Card | Hard Disk |
|--------------------------------------------|-----------|-----------|----------------------------------------------------------------------------------------------------------|-----------|
| E7 v2 + DDR3 + 8 disks | 4 x E7 v2 | 48 x DDR3 | 1 x RAID controller card on the mainboard | 8 |
| E7 v2 + DDR3 + 23 disks | 4 x E7 v2 | 48 x DDR3 | 1 x RAID controller card on the mainboard | 23 |
| E7 v3 + DDR3 + 8 disks | 4 x E7 v3 | 48 x DDR3 | 1 x RAID controller card on the mainboard | 8 |
| E7 v3 + DDR3 + 23 disks | 4 x E7 v3 | 48 x DDR3 | 1 x RAID controller card on the mainboard | 23 |
| E7 v3 + DDR3 + 23 directly connected disks | 4 x E7 v3 | 48 x DDR3 | 1 x LSISAS2208 controller card on the mainboard + 2 x LSISAS2208 controller cards in standard PCIe slots | 23 |
| E7 v3 + DDR4 + 8 disks | 4 x E7 v3 | 48 x DDR4 | 1 x RAID controller card on the mainboard | 8 |
| E7 v3 + DDR4 + 23 disks | 4 x E7 v3 | 48 x DDR4 | 1 x RAID controller card on the mainboard | 23 |
| E7 v3 + DDR4 + 23 disks | 4 x E7 v3 | 48 x DDR4 | 1 x LSISAS2208 controller card on the mainboard + 2 x LSISAS2208 controller cards in standard PCIe slots | 23 |

1.2 Appearance

This topic describes the RH5885 V3 in terms of its appearance and panel.

Appearance

Figure 1-1 shows the appearance of the RH5885 V3.

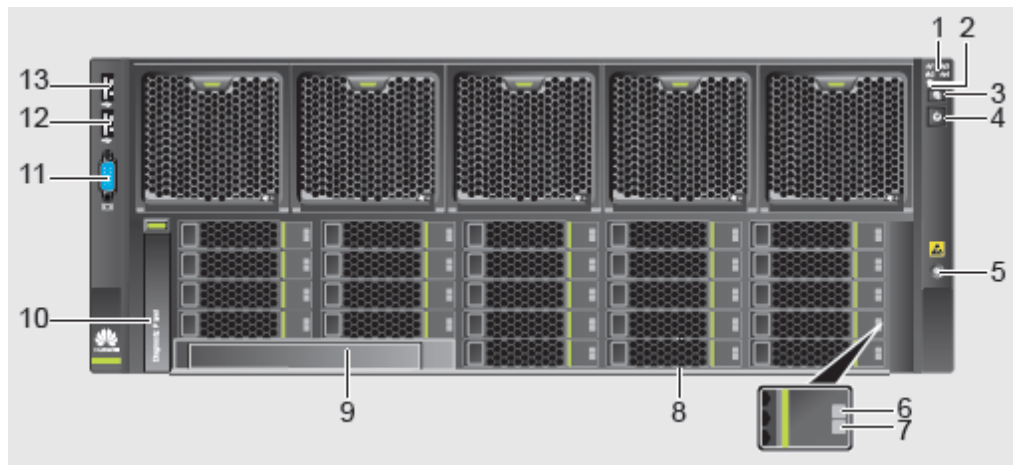
Figure 1-1 RH5885 V3 appearance



Front panel

Figure 1-2 shows the RH5885 V3 front panel after the front bezel is removed.

Figure 1-2 RH5885 V3 front panel



| | | | |
|---|------------------------------------|---|---------------|
| 1 | Network port link status indicator | 8 | Hard disk |
| 2 | Health indicator | 9 | DVD-ROM drive |

| | | | |
|---|-------------------------------|----|---------------------------|
| 3 | UID button/indicator | 10 | Indicator diagnosis panel |
| 4 | Power button/indicator | 11 | VGA port |
| 5 | ESD jack | 12 | USB port 2 |
| 6 | Hard disk fault indicator | 13 | USB port 1 |
| 7 | Hard disk operating indicator | | |

Table 1-2 Hard disk layout for the RH5885 V3 (8 hard disks)

| | | | | |
|------|------|---|---|---|
| HDD0 | HDD4 | - | - | - |
| HDD1 | HDD5 | - | - | - |
| HDD2 | HDD6 | - | - | - |
| HDD3 | HDD7 | - | - | - |
| - | - | - | - | - |

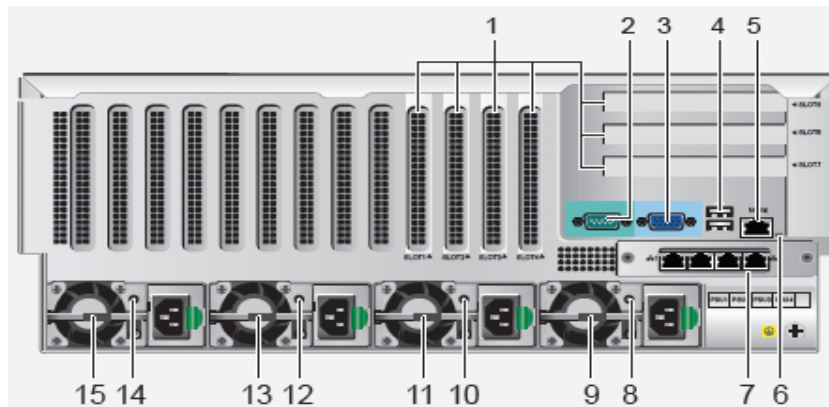
Table 1-3 Hard disk layout for the RH5885 V3 (23 hard disks)

| | | | | |
|------|------|-------|-------|-------|
| HDD0 | HDD4 | HDD8 | HDD13 | HDD18 |
| HDD1 | HDD5 | HDD9 | HDD14 | HDD19 |
| HDD2 | HDD6 | HDD10 | HDD15 | HDD20 |
| HDD3 | HDD7 | HDD11 | HDD16 | HDD21 |
| - | - | HDD12 | HDD17 | HDD22 |

Rear panel

Figure 1-3 shows the RH5885 V3 rear panel.

Figure 1-3 RH5885 V3 rear panel



| | | | | | |
|---|----------------------------------------------------------------|----|--------------------------------------|----|-----------------|
| 1 | Standard Peripheral Component Interconnect Express (PCIe) card | 6 | UID indicator | 11 | PSU 3 |
| 2 | Serial port | 7 | Onboard network interface card (NIC) | 12 | PSU 2 indicator |
| 3 | VGA port | 8 | Power supply unit (PSU) 4 indicator | 13 | PSU 2 |
| 4 | USB port | 9 | PSU 4 | 14 | PSU 1 indicator |
| 5 | Management network port | 10 | PSU 3 indicator | 15 | PSU 1 |

Figure 1-4 shows the PCIe slot layout of the RH5885 V3.

Figure 1-4 PCIe slot layout

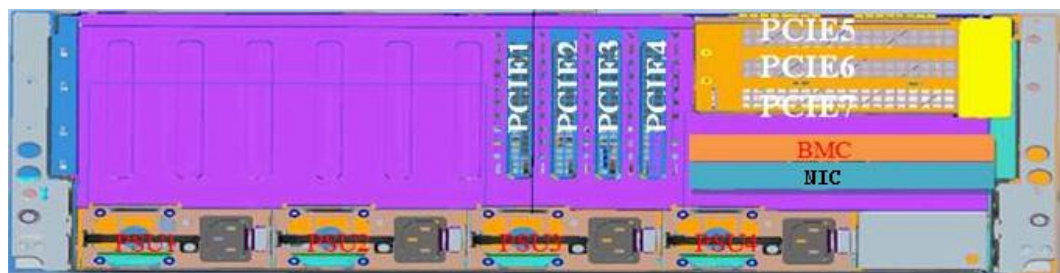


Table 1-4 describes the mapping between PCIe slots and processors and the compliant PCIe standards.

Table 1-4 PCIe slot description

| No. | PCIe Slot | Processor | PCIe Standard | PCIe Card Size |
|-----|-----------|-----------|---------------|----------------|
|-----|-----------|-----------|---------------|----------------|

| No. | PCIe Slot | Processor | PCIe Standard | PCIe Card Size |
|-----|-----------|-----------|---------------|------------------------------------------|
| 1 | PCIe 1 | CPU2 | PCIe 3.0 x 8 | Full-height half-length |
| 2 | PCIe 2 | CPU2 | PCIe 3.0 x 8 | Full-height half-length |
| 3 | PCIe 3 | CPU2 | PCIe 3.0 x 8 | Full-height half-length |
| 4 | PCIe 4 | PCH | PCIe 2.0 x 4 | Full-height half-length |
| 5 | PCIe 5 | CPU1 | PCIe 3.0 x 16 | On a riser card: full-height full-length |
| 6 | PCIe 6 | CPU2 | PCIe 3.0 x 4 | On a riser card: full-height 3/4-length |
| 7 | PCIe 7 | CPU2 | PCIe 3.0 x 4 | On a riser card: full-height half-length |

1.3 Ports

This topic describes the ports on the RH5885 V3.

[Table 1-5](#) and [Table 1-6](#) describe the external ports on the RH5885 V3.

Table 1-5 Ports on the front panel

| Port | Type | Quantity | Description |
|---------------------------------|---------|----------|---------------------------------------------------------------------------------------------|
| Video graphics array (VGA) port | DB15 | 1 | The port is connected to a terminal, such as a monitor or keyboard, video, and mouse (KVM). |
| USB port | USB 2.0 | 2 | The USB port is connected to a USB device. |

Table 1-6 Ports on the rear panel

| Port | Type | Quantity | Description |
|-----------------------------|---------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VGA port | DB15 | 1 | The port is connected to a terminal, such as a monitor or KVM. |
| USB port | USB 2.0 | 2 | The USB port is connected to a USB device. |
| BMC management network port | Ethernet port | 1 | The external Ethernet port is used to manage devices. NOTE The type of the baseboard management controller (BMC) management network port varies depending on the combination of |

| Port | Type | Quantity | Description |
|--------------|------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | processor and DIMM configurations: <ul style="list-style-type: none"> E7 v2 or v3 processors and DDR3 DIMMs: 100 Mbit/s network port E7 v3 processors and DDR4 DIMMs: 1000 Mbit/s network port |
| Serial port | DB9 | 1 | The port is used as the system serial port by default. You can set it to the BMC serial port by using the command. The port is used for debugging. |
| Network Port | - | - | The port types and quantity vary according to the configured NIC. |




1.4 Indicators and Buttons

This topic describes the indicators and buttons on the RH5885 V3.

You can observe the indicators to determine the status of the RH5885 V3.

[Table 1-7](#) describes the indicators and buttons on the RH5885 V3 front panel.

Table 1-7 Indicators on the front panel

| Indicator Symbol | Meaning | Color | State Description |
|-------------------------------------------------------------------------------------|------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Power button/indicator | Yellow and green | <ul style="list-style-type: none"> Off: The server is not powered on. Blinking yellow: The management system is being started. Steady yellow: The server is to be powered on. Steady green: The server is properly powered on. <p>NOTE You can hold down the power button for 6 seconds to power off the server.</p> |
|  | UID button/indicator | Blue | <ul style="list-style-type: none"> Off: The server is not being located. On: The server is being located. <p>NOTE You can hold down the UID button for 6 seconds to reset the BMC.</p> |
|  | Health indicator | Red and green | <ul style="list-style-type: none"> Steady green: The server is operating properly. Blinking red at 1 Hz: A major |



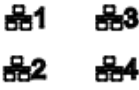
| Indicator Symbol | Meaning | Color | State Description |
|-------------------------------------------------------------------------------------|---------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | alarm is generated. <ul style="list-style-type: none"> Blinking red at 2 Hz: A critical alarm is generated. |
|  | Hard disk active indicator | Green | <ul style="list-style-type: none"> Off: The hard disk is not detected or is faulty. Blinking green: Data is being read from, written to the hard disk, or synchronized between hard disks. Steady green: The hard disk is inactive. <p>NOTE Only a SAS or SATA disk has this indicator.</p> |
|  | Hard disk fault indicator | Yellow | <ul style="list-style-type: none"> Off: The hard disk is operating properly or hard disks cannot be detected in the RAID. Blinking yellow: The hard disk is being located, or the RAID is being reconstructed. Steady yellow: The hard disk is not detected or is faulty. <p>NOTE Only a SAS or SATA disk has this indicator.</p> |
|  | Network port link status indicator (right mounting ear) | Green | The indicator shows the status of the Ethernet port on the NIC. <ul style="list-style-type: none"> Steady green: The port is properly connected. Off: The port is not in use. <p>NOTE If the NIC provides only two network ports, they correspond to network port indicators 1 and 2 on the front panel.</p> |

Table 1-8 describes the indicators and buttons on the RH5885 V3 rear panel.

Table 1-8 Indicators and buttons on the rear panel

| Indicator Symbol | Meaning | Color | State Description |
|------------------|--------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------|
| UID | Location indicator | Blue | <ul style="list-style-type: none"> Off: The server is not being located. On: The server is being located. |

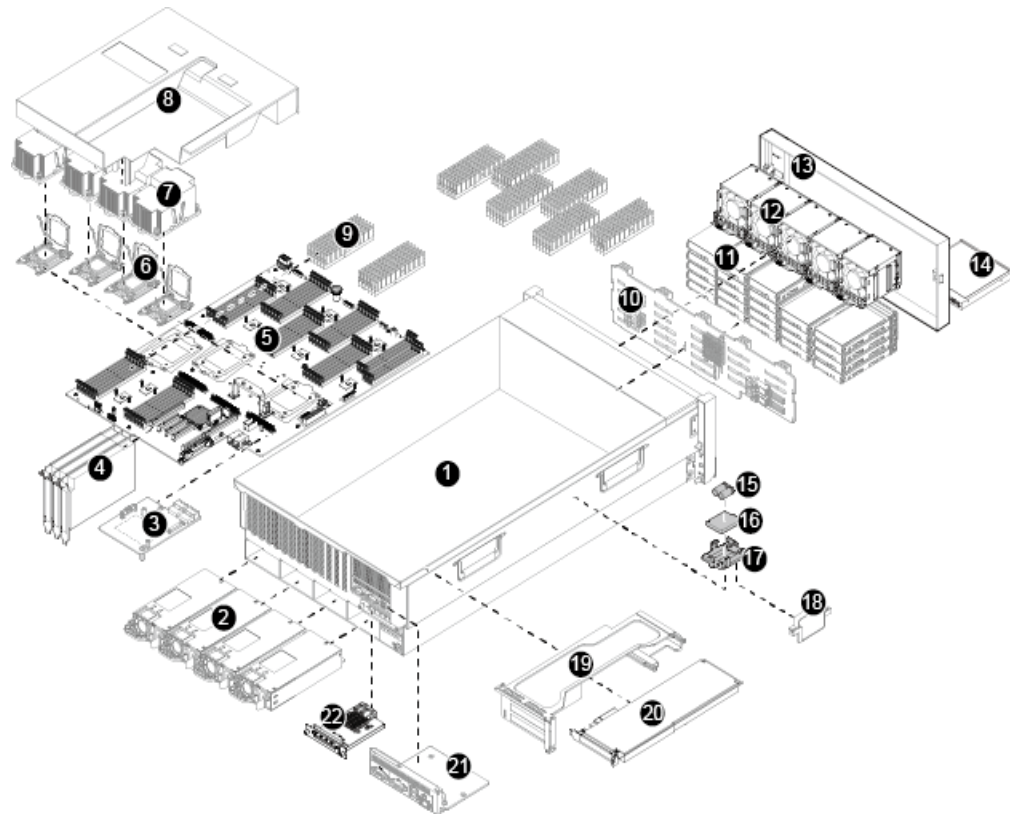
| Indicator Symbol | Meaning | Color | State Description |
|------------------|-----------------------------------------------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| - | Data transmission status indicator on the management port | Orange | <ul style="list-style-type: none">• Off: No data is being transmitted.• Blinking: Data is being transmitted. |
| - | Connection status indicator on the management port | Green | <ul style="list-style-type: none">• Steady on: The network connection is normal.• Off: The network port is not connected. |
| - | PSU indicator | Green | <ul style="list-style-type: none">• Steady on: The power is supplied properly.• Off: No AC power is supplied. |

1.5 Physical Structure

This topic describes the RH5885 V3 in terms of its components, mainboard layout, and connectors.

[Figure 1-5](#) shows the components of the RH5885 V3-23S.

Figure 1-5 Components of the RH5885 V3



| | | | |
|----|-----------------------------------|----|-----------------------------|
| 1 | Chassis | 2 | PSU |
| 3 | RAID controller card | 4 | PCIe cards on the mainboard |
| 5 | Mainboard | 6 | Processor |
| 7 | Heat sink | 8 | Air duct |
| 9 | Dual in-line memory module (DIMM) | 10 | Hard disk backplane |
| 11 | Hard disk | 12 | Fan module |
| 13 | Front bezel | 14 | DVD-ROM drive |
| 15 | Supercapacitor (optional) | 16 | iBBU (optional) |
| 17 | Battery tray | 18 | Battery case |
| 19 | PCIe riser card | 20 | PCIe cards on a riser card |
| 21 | BMC card | 18 | NIC |

Table 1-9 describes the components of the RH5885 V3.

Table 1-9 Component description

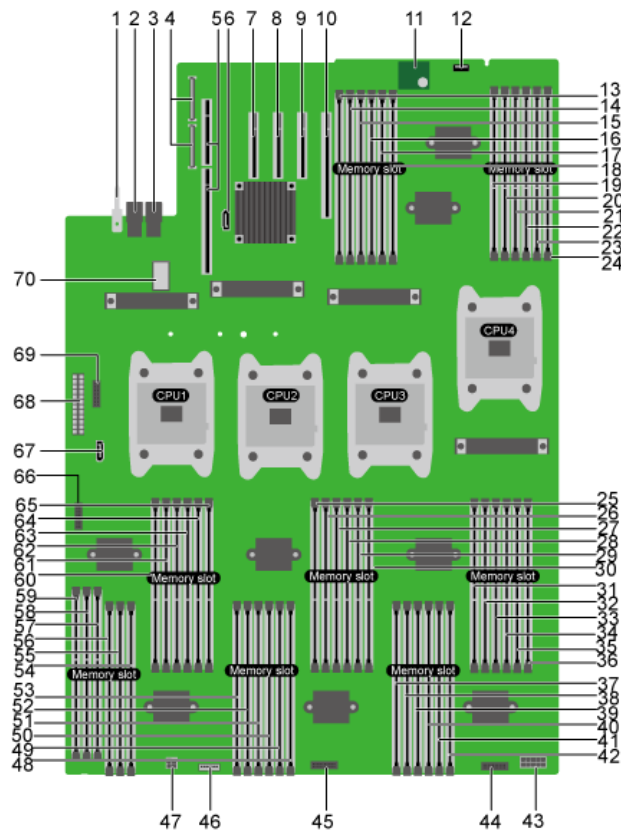
| No. | Component | Description |
|-----|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Chassis | A chassis houses and protects all components. |
| 2 | PSU | <p>The server provides four PSUs in 2+2 redundancy mode. You can use two types of PSUs based on the input power:</p> <ul style="list-style-type: none"> AC PSUs: convert AC power into 12 V DC power for the RH5885 V3. DC PSUs: convert DC power into 12 V DC power for the RH5885 V3. <p>NOTE The PSUs support double-pole/neutral fusing.</p> |
| 3 | RAID controller card on the mainboard | <p>The RH5885 V3 supports four types of RAID controller cards on the mainboard:</p> <ul style="list-style-type: none"> LSISAS2308 <ul style="list-style-type: none"> Supports RAID 0, 1, 1E, and 10. Does not provide cache data protection upon power failures. LSISAS2208 <ul style="list-style-type: none"> Supports RAID 0, 1, 10, 5, 50, 6, and 60. Provides an iBBU or a supercapacitor to protect cache data from power failures. LSISAS3008 <ul style="list-style-type: none"> Supports RAID 0, 1, 1E, and 10. Does not provide cache data protection upon power failures. LSISAS3108 <ul style="list-style-type: none"> Supports RAID 0, 1, 10, 5, 50, 6, and 60. Provides a supercapacitor to protect cache data from power failures. <p>These RAID controller cards support RAID level migration, and RAID configuration memory.</p> |
| 4 | PCIe cards on the mainboard | The RH5885 V3 supports four standard PCIe cards on the mainboard by providing three PCIe 3.0 x8 slots and one PCIe 2.0 x4 slot. |
| 5 | Mainboard | The mainboard integrates and interconnects components. |
| 6 | Processor | <p>The RH5885 V3 supports Intel® Xeon® E7-4800 v2/v3 or E7-8800 v2/v3 series processors.</p> <p>Each processor connects to the other three processors through two-way 20-lane QuickPath Interconnects (QPIs).</p> |
| 7 | Heat sink | A heat sink cools a processor and is designed with fool-proofing. Each processor is configured with one heat sink. |
| 8 | Air duct | An air duct supports the chassis cover and provides ventilation channels. |

| No. | Component | Description |
|-----|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9 | DIMM | <p>The RH5885 V3 supports a maximum of 48 DIMMs.</p> <ul style="list-style-type: none"> • E7 v2 processors and DDR3 DIMMs, or E7 v3 processors and DDR3 DIMMs: <ul style="list-style-type: none"> – Maximum capacity per DIMM: 32 GB – Maximum capacity of the server: 1.5 TB – Memory bus speed: 1066 MT/s, 1333 MT/s, or 1600 MT/s • E7 v3 processors and DDR4 DIMMs: <ul style="list-style-type: none"> – Maximum capacity per DIMM: 32 GB – Maximum capacity of the server: 1.5 TB – Memory bus speed: 1333 MT/s, 1600 MT/s, 1866 MT/s |
| 10 | Hard disk backplane | The backplane provides power supply to hard disks and data transmission channels. The server supports three types of hard disk backplanes for connecting to 8 or 23 hard disks, or 23 directly connected hard disks, respectively. |
| 11 | Hard disk | Hard disks are hot-swappable and store data for the RH5885 V3. |
| 12 | Fan module | Fan modules dissipate heat for the RH5885 V3, and support hot swap. When one fan fails, the other fans run at full speed to ensure optimal heat dissipation. |
| 13 | Front bezel | The front bezel protects the server front panel. |
| 14 | DVD-ROM drive | A DVD-ROM drive is used to install operating systems (OSs). |
| 15 | Supercapacitor | A supercapacitor protects data in the RAID controller card cache from power failures. Both the LSI SAS2208 and LSI SAS3108 controller cards support a supercapacitor. |
| 16 | iBBU | <p>An iBBU protects data in the RAID controller card cache from power failures. Only the LSI SAS2208 controller card supports an iBBU.</p> <p>NOTE You can use either an iBBU or a supercapacitor to provide power-off protection for the data in the RAID controller card cache.</p> |
| 17 | Battery tray | A battery tray supports an iBBU or a supercapacitor. |
| 18 | Battery case | A battery case fastens a battery tray to the chassis. |
| 19 | PCIe riser card | The RH5885 V3 comes with one standard PCIe riser card to provide one PCIe 3.0 x16 slot and two PCIe 3.0 x4 slots. |
| 20 | PCIe cards on a riser card | The RH5885 V3 supports three types of PCIe cards on a riser card: PCIe 3.0 x4, PCIe 3.0 x8, and PCIe 3.0 x16. |
| 21 | BMC card | The RH5885 V3 provides a BMC module for management. |
| 22 | NIC | The RH5885 V3 supports one GE NIC with two or four GE ports or supports one 10GE NIC with two 10GE ports. Both |

| No. | Component | Description |
|-----|-----------|-------------------------------------------------------------|
| | | NICs support Network Controller Sideband Interface (NC-SI). |

Figure 1-6 shows the positions of connectors and other components on the RH5885 V3 mainboard.

Figure 1-6 Positions of the connectors and other components



| | | | |
|----|------------------------------------------------|----|-------------------------------------|
| 1 | NIC guide pin | 2 | NIC connector (J217) |
| 3 | NIC connector (J216) | 4 | BMC card connector (J214/J215) |
| 5 | Standard PCIe riser card connector (J204/J205) | 6 | - |
| 7 | Standard PCIe card connector (J185) | 8 | Standard PCIe card connector (J186) |
| 9 | Standard PCIe card connector (J187) | 10 | Standard PCIe card connector (J181) |
| 11 | TPM connector (J178) | 12 | USB connector (J167) |
| 13 | DIMM610 (J149) | 14 | DIMM611 (J150) |
| 15 | DIMM612 (J151) | 16 | DIMM600 (J146) |

| | | | |
|----|--------------------------------------|----|--------------------------------------------|
| 17 | DIMM601 (J147) | 18 | DIMM602 (J148) |
| 19 | DIMM622 (J154) | 20 | DIMM621 (J153) |
| 21 | DIMM620 (J152) | 22 | DIMM632 (J157) |
| 23 | DIMM631 (J156) | 24 | DIMM630 (J155) |
| 25 | DIMM222 (J130) | 26 | DIMM221 (J129) |
| 27 | DIMM220 (J128) | 28 | DIMM232 (J133) |
| 29 | DIMM231 (J132) | 30 | DIMM230 (J131) |
| 31 | DIMM422 (J142) | 32 | DIMM421 (J141) |
| 33 | DIMM420 (J140) | 34 | DIMM432 (J145) |
| 35 | DIMM431 (J144) | 36 | DIMM430 (J143) |
| 37 | DIMM410 (J137) | 38 | DIMM411 (J138) |
| 39 | DIMM412 (J139) | 40 | DIMM400 (J134) |
| 41 | DIMM401 (J135) | 42 | DIMM402 (J136) |
| 43 | Power connector (J179) | 44 | Right mounting ear connector (J173) |
| 45 | Hard disk backplane connector (J172) | 46 | Indicator diagnosis panel connector (J164) |
| 47 | ODD power connector (J202) | 48 | DIMM202 (J124) |
| 49 | DIMM201 (J123) | 50 | DIMM200 (J122) |
| 51 | DIMM212 (J127) | 52 | DIMM211 (J126) |
| 53 | DIMM210 (J125) | 54 | DIMM002 (J112) |
| 55 | DIMM001 (J111) | 56 | DIMM000 (J110) |
| 57 | DIMM012 (J115) | 58 | DIMM011 (J114) |
| 59 | DIMM010 (J113) | 60 | DIMM022 (J118) |
| 61 | DIMM021 (J117) | 62 | DIMM020 (J116) |
| 63 | DIMM032 (J121) | 64 | DIMM031 (J120) |
| 65 | DIMM030 (J119) | 66 | Power backplane signal connector (J184) |
| 67 | SATA DOM/ODD connector (J169) | 68 | Power connector (J183) |
| 69 | Left mounting ear connector (J174) | 70 | RAID controller card connector (J203) |

1.6 Logical Structure

This topic describes the RH5885 V3 logical structure.

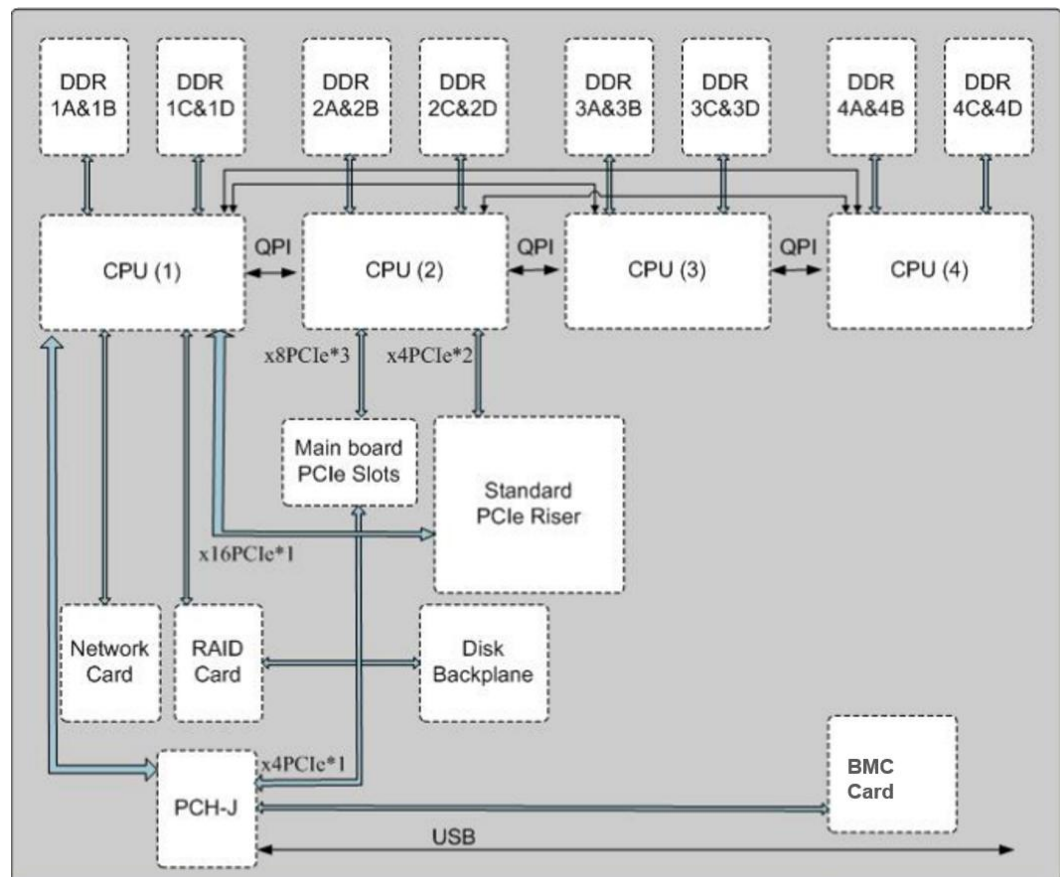
The RH5885 V3 is a high-performance rack server that uses new-generation Intel® Xeon® processors. It provides excellent performance and reliability by improving the number of processor cores, memory capacity, I/O expandability, and RAS features.

The RH5885 V3 provides the following features to offer customized configurations and maximize customers' return on investment (ROI):

- Supports various memory configurations with different capacity and bandwidth, and memory upgrades.
- Uses an onboard NIC in the plug-in card form factor, providing GE or 10GE ports to meet diversified configuration and upgrade requirements.
- Adopts an independent PCIe box design, meeting requirements on PCIe expansion and upgrades.

Figure 1-7 shows the RH5885 V3 logical structure.

Figure 1-7 RH5885 V3 logical structure



1.7 RAS Features

This topic describes the Reliability, Availability, and Serviceability (RAS) features supported by the RH5885 V3.

[Table 1-10](#) describes the RAS features supported by the RH5885 V3. You can configure these features to improve server RAS.



NOTE

For details about how to configure the RAS features, see the *HUAWEI Server Brickland Platform BIOS Parameter Reference*.

Table 1-10 RAS features

| No. | Module | Feature Name | Description |
|-----|-----------|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Processor | Corrected Machine Check Interrupt (CMCI) | This feature corrects error-triggered interrupts for Predictive Failure Analysis (PFA) and error log recording, facilitating further analysis. |
| 2 | Processor | Link level 8-bit, and rolling 16-bit CRC and retry | This feature provides cyclic redundancy check (CRC) protection and a retry mechanism upon errors to improve QPI link reliability. |
| 3 | Processor | Intel QPI error detection and logging | This feature detects errors on QPI links to improve QPI link reliability. |
| 4 | Processor | Dynamic link retraining and recovery on link failure | This feature improves QPI link reliability. |
| 5 | Processor | Intel QPI viral mode | This feature provides a QPI viral mode to prevent the spreading of error data and improve system security. |
| 6 | Processor | Intel QPI clock failover | This feature provides a QPI clock link self-recovery mechanism to improve system reliability. |
| 7 | Processor | Intel QPI data lane failover (self-healing) | This feature supports QPI data lane failover to improve QPI link reliability. |
| 8 | DIMM | Memory temperature adjustment | This feature automatically adjusts the DIMM temperature to avoid DIMM damage due to overheat. |
| 9 | DIMM | Memory ECC-DIMM | This feature provides memory error checking and correcting (ECC). |
| 10 | DIMM | Memory sparing (rank) | This feature uses some memory ranks as backup ranks to prevent the system from crashing due to uncorrectable errors. |
| 11 | DIMM | Memory address | This feature detects memory commands |

| No. | Module | Feature Name | Description |
|-----|--------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | parity protection | and address errors. |
| 12 | DIMM | Memory demand/patrol scrubbing | This feature provides the memory patrol function for promptly correcting correctable errors upon detection. If these errors are not corrected promptly, uncorrectable errors may occur. |
| 13 | DIMM | Memory mirroring: intra-socket, including mirroring for some addresses | This feature improves system reliability. |
| 14 | DIMM | SMI2-retry Intel SMI2 commands with parity errors and reads & writes with Intel SMI2 data bus errors | These features provide a System Management Interrupt (SMI) retry mechanism. |
| 15 | DIMM | DRAM Single Device Data Correction (SDDC) and SDDC+1 | This feature enables the memory to correct 1-bit errors after one SDDC to improve memory reliability and availability. |
| 16 | DIMM | DRAM Double Device Data Correction (DDDC) and DDDC+1 | This feature enables the memory to correct 1-bit errors after one DDDC to improve memory reliability and availability. |
| 17 | DIMM | Data scrambling | This feature optimizes data stream distribution and reduces the error possibility to improve the reliability of data streams in the memory and the capability to detect address errors. |
| 18 | DIMM | Device tagging | This feature degrades and rectifies DIMM device faults to improve DIMM availability. |
| 19 | I/O | PCIe advanced error reporting | This feature improves server serviceability. |
| 20 | System | Core disable for Fault Resilient Boot (FRB) | This feature isolates a faulty processor core during startup to improve system reliability and availability. |
| 21 | System | Socket disable for FRB | This feature isolates a faulty processor during startup to improve system reliability and availability. |
| 22 | System | Corrupt data containment mode (You can set this mode in the BIOS.) | This feature identifies the memory storage unit that contains corrupted data to minimize the impact on the running programs and improve system reliability. |

| No. | Module | Feature Name | Description |
|-----|---------------|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 23 | System | Architected error records | With the Enhanced Machine Check Architecture (eMCA) feature, the basic input/output system (BIOS) collects error information recorded in hardware registers in compliance with Unified Extensible Firmware Interface (UEFI) specifications, sends the error information to the operating system (OS) over the APEI of the Advanced Configuration and Power Interface (ACPI), and locates the error unit, which improves system availability. |
| 24 | System | Machine Check Architecture (MCA) recovery - Non-execution path | This feature provides the MAC error processing mechanism. |
| 25 | System | <ul style="list-style-type: none"> • E7 v2 processors: eMCA Gen1 • E7 v3 processors: eMCA Gen2 | This feature triggers SMI before machine check exception (MCE), allowing software to process errors. This feature minimizes the impact of faults. |
| 26 | System | MCA recovery - IO | This feature reports I/O errors to the MCA. |
| 27 | System | Error injection support | This feature injects errors to verify various RAS features. |
| 28 | System | MCA recovery - execution path | This feature provides the error handling method for the BIOS or OS when MCE is caused by errors on the execution path, which protects the system from breakdown. |
| 29 | System | OOB access to MCA registers | This feature enables an out-of-band system to access an MCA register over the Platform Environment Control Interface (PECI). |
| 30 | Redundancy | PSUs in N+N hot backup | This feature supports hot backup for PSUs. |
| 31 | Redundancy | Fan modules in N+1 backup | This feature supports hot backup for fan modules. |
| 32 | Redundancy | Out-of-band management software with dual images | This feature provides dual images to improve system reliability. |
| 33 | Fault warning | Memory PFA | This feature provides precaution for memory faults. |
| 34 | Fault warning | Hard disk PFA | This feature provides precaution for hard disk faults. |

| No. | Module | Feature Name | Description |
|-----|--------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 35 | Fault warning | PCIe SSD fault warning | This feature provides precaution for PCIe solid-state drive (SSD) faults. |
| 36 | Fault diagnosis | Faulty processor location | This feature provides fault information in the power-on self-test (POST) phase. |
| 37 | Fault diagnosis | Faulty hard disk location | This feature provides location to a faulty hard disk by indicator observation and information displayed on the web page. |
| 38 | Fault diagnosis | Faulty PSU location | This feature uses a fault indicator to show PSU operating status and allows you to locate faulty PSUs by following the fault information on the iMana web page. |
| 39 | Fault diagnosis | Faulty fan module location | This feature enables you to check the fan module running status by using indicators on the fan modules. |
| 40 | Fault diagnosis | Faulty DIMM location | This feature enables faulty DIMM location after the server is powered off. |
| 40 | Fault diagnosis | Fault location with the black box function provided by the BMC | |
| 41 | Fault diagnosis | Last screen function provided by the BMC | |
| 42 | Fault diagnosis | Video recording provided by the BMC | |
| 43 | Device maintenance | Hard disk hot swap | |
| 44 | Device maintenance | PSU hot swap | |
| 45 | Device maintenance | Hot-swappable fan modules with maintenance without the need for opening the chassis cover | |
| 46 | Device maintenance | Indicators for onsite maintenance | |
| 47 | Device maintenance | Platform Controller Hub (PCH) faults reported by the BIOS to the BMC | |
| 48 | Device maintenance | Jordan Creek faults reported by the BIOS | |

| No. | Module | Feature Name | Description |
|-----|--------------------|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| | | to the BMC | |
| 49 | Device maintenance | Holding rails | This feature facilitates device maintenance. |
| 50 | Device maintenance | Mail sending supported on the BMC | |
| 51 | Device maintenance | Electronic labels for key components | |
| 52 | Device maintenance | Power capping for the entire system | This feature reduces the power consumption density while increasing the device density in an equipment room. |
| 53 | Device maintenance | Intelligent fan speed adjustment and zone-based heat dissipation | |

1.8 Technical Specifications

This topic describes the technical specifications for the RH5885 V3.

[Table 1-11](#) describes the technical specifications for the RH5885 V3.

Table 1-11 Technical specifications

| Category | Item | Specifications |
|------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mechanical specifications | Chassis dimensions (H x W x D) | 175 mm x 447 mm x 790 mm (6.89 in. x 17.60 in. x 31.10 in.) |
| | Weight | Net weight: 45 kg (99.21 lb) |
| | | Packaging material: 3.6 kg (7.94 lb) |
| Environmental specifications | Temperature | <ul style="list-style-type: none"> Operating temperature: 5 °C to 40 °C (41 °F to 104 °F) Storage temperature: -40 °C to +65 °C (-40 °F to +149 °F) <p>NOTE The RH5885 V3 supports the maximum operating temperature of 35 °C (95 °F) when it is configured with standard PCIe SSD cards or 32 GB or larger-capacity DIMMs.</p> |
| | Humidity | <ul style="list-style-type: none"> Operating humidity: 8% RH to 80% RH (non-condensing) Storage humidity: 5% RH to 95% RH |

| Category | Item | Specifications |
|---------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | (non-condensing) |
| | Altitude | ≤ 3000 m (9842.40 ft) The operating temperature decreases by 1 °C (1.8 °F) as the altitude increases by 300 m (984.24 ft). |
| PSU input specifications | Input voltage | <ul style="list-style-type: none"> DC PSU: -36 V DC to -75 V DC AC PSU: <ul style="list-style-type: none"> AC: 90 V to 264 V High-voltage DC: 192 V DC to 288 V DC <p>NOTE</p> <ul style="list-style-type: none"> The AC module LITEON 750 W-AC (PS-2751-7H) supports high-voltage 240 V DC with the voltage range of 192 V DC to 288 V DC. The AC module LITEON 1200 W-AC (PS-2122-3H) supports high-voltage 240 V DC with the voltage range of 192 V DC to 288 V DC. The DC module Emerson-800 W-DC (TPS800-12D) supports -48 V DC with the voltage range of -36 V DC to -75 V DC. |
| | Input current | 10 A |
| PSU output specifications | Rated output voltage | 12 V DC |
| | Rated output current | <ul style="list-style-type: none"> 1200 W AC PSU: 96 A 750 W AC PSU: 62.5 A 800 W DC PSU: 66.7 A |
| Power specifications | PSU rated power | The RH5885 V3 supports four PSUs. The following lists the rated power for each type of PSU: <ul style="list-style-type: none"> 1200 W AC PSU: <ul style="list-style-type: none"> 800 W (input voltage: 100 V AC at 50 Hz to 60 Hz) 900 W (input voltage: 100 V AC to 139 V AC at 50 Hz to 60 Hz) 1200 W (input voltage: 180 V AC to 364 V AC at 50 Hz to 60 Hz) 750 W AC PSU: <ul style="list-style-type: none"> 750 W (input voltage: 90 V AC to 264 V AC at 50 Hz to 60 Hz) 800 W DC PSU: <ul style="list-style-type: none"> 800 W (input voltage: -36 V DC to -75 V DC) |

1.9 Advantages

The RH5885 V3 provides the following advantages:

Leading Computing Performance

- The RH5885 V3 uses the latest Intel® Xeon® E7-4800 v2/v3 or E7-8800 v2/v3 processors. Each E7 v2 or v3 processor provides a maximum of 18 cores and 45 MB L3 cache, whereas each Westmere-EX (E7 v1) processor provides a maximum of 10 cores and 30 MB L3 cache.
- The RH5885 V3 supports a maximum of 48 DIMMs. Both the number of DIMMs and the memory capacity increase by 50% compared with the Westmere-EX processor, enabling the RH5885 V3 to support large databases and more VMs.
- Compared with an E7 v1 processor, an E7 v2 or v3 processor increases the overall performance by 200% and offers 340% higher performance for certain applications.

High RAS to Improve Stability and Enable Quick Recovery

- The RH5885 V3 transplants advanced RAS features from Intel Itanium (midrange computers) and implements 53 RAS features.
- The fan modules of the RH5885 V3 are hot-swappable and can be maintained without opening the chassis cover.
- The indicator diagnosis panel provides comprehensive and precise information to facilitate onsite fault rectification.
- The RH5885 V3 can operate stably at 40 °C (104 °F) for a long term. When it is configured with high-power components such as PCIe SSD cards or 32 GB or larger-capacity DIMMs, the RH5885 V3 supports the maximum operating temperature of 35 °C (95 °F).

2 Features

RAS Features

The RH5885 V3 provides the following RAS features to ensure stable system operation, simplify serviceability, and prolong the system operation time:

- The eMCA mechanism automatically rectifies correctable errors to ensure normal system operation. For uncorrectable errors, you can isolate or replace the faulty component online, and configure the new component without a system restart. The BIOS preferentially deals with correctable memory errors and locates the faulty DIMM.
- The RH5885 V3 provides chip-level fault tolerance (such as automatic recovery from processor, chip, and link hardware faults), minimizing system breakdown caused by hardware faults.
- The RH5885 V3 supports SDDC and DDDC to rectify memory soft errors.
- The RH5885 V3 provides memory mirroring and memory sparing functions to eliminate system downtime caused by uncorrectable memory hardware errors.
- The RH5885 V3 supports faulty DIMM indication on an offline memory riser by using indicators on the memory riser.
- The RH5885 V3 supports full redundancy and hot-swap maintenance without opening the chassis cover for key components, such as PSUs, fan modules, and hard disks. These features enable quick replacement of faulty components without interrupting normal system operation.
- The RH5885 V3 supports automatic disconnection from a faulty I/O device. When a fatal I/O device fault is detected, the system enters virus mode and disconnects the link to the faulty I/O device to prevent other devices from being affected.
- The RH5885 V3 supports hot-swappable drives to protect data and prolong normal system running time using RAID.
- The BMC monitors system operating, triggers alarms, and performs recovery actions. This helps minimize system downtime.
- Inband and out-of-band fault management software implements PFA and fault management. The software traces components, sends a precaution before a system breakdown caused by a faulty component, runs self-diagnosis, self-correction, self-recovery, and provides maintenance tips about faulty components for maintenance personnel, including offline and online operations and component replacement. PFA can be performed on components, such as processors, DIMMs, fan modules, PSUs, and hard disks.
- The RH5885 V3 provides an indicator diagnosis panel to facilitate fault location, which shortens the system recovery time.

- The optimized heat dissipation system supports long-term stable operation at an ambient temperature of 40 °C (104 °F) in most cases, and at 35 °C (95 °F) when standard PCIe SSD cards or 32 GB or larger-capacity DIMMs are configured.
- The advanced fault tolerance, fault recovery, and key component redundancy enable system availability of 99.999%.
- In regions in China, Huawei provides three-year customer replaceable unit and onsite limited warranty 9x5 next business day (NBD). Optional service upgrades are available.

Performance and Scalability

The RH5885 V3 supports the following features to ensure high performance and scalability while reducing the total cost of ownership (TCO):

- An Intel® Xeon® E7 v2 processor used by the RH5885 V3 supports a maximum of 15 cores, 37.5 MB L3 cache, and three QPI links. An Intel® Xeon® E7 v3 processor supports a maximum of 18 cores, 45 MB L3 cache, and three QPI links. These features provide outstanding system performance.
- The RH5885 V3 supports a maximum of four processors and 60 physical cores (E7 v2 processors) or 72 physical cores (E7 v3 processors), which maximizes concurrent execution of multithreaded applications.
- Intel® Turbo Boost Technology allows processor cores to run faster than the Thermal Design Power (TDP) configuration specified frequency if the processor cores are operating below power, current, and temperature specification limits.
- Intel Hyper-Threading Technology enables each processor core to run up to two threads, improving parallel computation capability.
- The hardware-assisted Intel® Virtualization Technology (Intel® VT) allows OS vendors to better use hardware to address virtualization workloads.
- The RH5885 V3 can be configured with a maximum of 48 DIMMs.
- The RH5885 V3 provides seven standard PCIe slots and one plug-in NIC without occupying a standard PCIe slot, allowing flexible configurations of four GE ports or two 10GE ports.
- The RH5885 V3 supports PCIe 3.0, which increases the maximum I/O bandwidth by 60% (8 GT/s per link) compared with PCIe 2.0.

Availability and Serviceability

The RH5885 V3 provides the following features to improve availability and serviceability:

- The RH5885 V3 provides chip-level fault tolerance (such as automatic recovery from processor, chip, and link hardware faults), minimizing system breakdown caused by hardware faults.
- The RH5885 V3 supports SDDC and DDDC to rectify memory soft errors.
- The RH5885 V3 provides memory mirroring and memory sparing functions to eliminate system downtime caused by uncorrectable memory hardware errors.
- The RH5885 V3 supports full redundancy and hot-swap maintenance without opening the chassis cover for key components, such as PSUs, fan modules, and hard disks. These features enable quick replacement of faulty components without interrupting normal system operation.
- The RH5885 V3 supports hot-swappable drives to protect data and prolong normal system running time using RAID.

- The BMC monitors system operating, triggers alarms, and performs recovery actions. This helps minimize system downtime.
- The RH5885 V3 provides an indicator diagnosis panel to facilitate fault location, which shortens the system recovery time.
- In regions in China, Huawei provides three-year customer replaceable unit and onsite limited warranty 9x5 next business day (NBD). Optional service upgrades are available.

Manageability and Security

The RH5885 V3 provides the following features to simplify local and remote server management:

- The RH5885 V3 supports Intelligent Platform Management Interface (IPMI) 2.0. The integrated management module monitors server operating status and implements remote management.
- An integrated industry-standard Unified Extensible Firmware Interface (UEFI) increases setup, configuration, and update efficiency, and simplifies fault handling.
- The Intel Advanced Encryption Standard New Instructions (AES NI) implement faster and stronger encryption.
- The Intel Execute Disable Bit (EDB) function works with the supported OS to prevent certain types of malicious buffer overflow attacks.
- The Intel Trusted Execution technology provides enhanced security by using hardware-based defense against malicious software attacks, allowing an application to run in an isolated space from all other applications running on the OS.

Energy Efficiency

The RH5885 V3 provides the following features to reduce energy consumption and operating expense (OPEX) and increase energy efficiency:

- The latest Intel® Xeon® E7 v2/v3 series processors provide better performance than the previous-generation processors while fitting into the same TDP limits.
- The Intel Intelligent Power Capability enables processors to automatically adjust their operating voltage based on their loads.
- Low-voltage Intel® Xeon® E7 v2/v3 series processors consume less energy and apply to data centers and telecommunication environments that have power and thermal limitations.
- SSDs consume 80% less power than traditional 2.5-inch hard disk drives (HDDs).

3 Product Specifications

Table 3-1 describes the RH5885 V3 product specifications.

Table 3-1 RH5885 V3 product specifications

| Item | Specifications |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Form factor/height | 4U rack server, supporting holding rails and cable management assemblies |
| Processor | <ul style="list-style-type: none"> A maximum of four Intel® Xeon® E7-4800 v2 or E7-8800 v2 (Ivy Bridge-EX) processors, with up to 15 cores and 37.5 MB L3 cache per processor A maximum of four Intel® Xeon® E7-4800 v3 or E7-8800 v3 (Haswell-EX) processors, with up to 18 cores and 45 MB L3 cache per processor |
| Chipset | Intel Patsburg PCH-J (Intel C602J) |
| DIMM slots | 48 slots for installing DDR3 or DDR4 DIMMs |
| Maximum memory capacity | 1.5 TB (32 GB DIMMs) |
| Number of hard disks | <p>Eight or twenty-three 2.5-inch SAS HDDs, SATA HDDs, or SSDs.</p> <p>For details about the maximum local storage capacity, see the compatibility list at the following URL:</p> <p>http://e.huawei.com/en/marketing-material/download_access?MaterialID={0E522AAE-BEF9-41F4-9601-FA010A9C03E0}</p> |
| RAID support | <p>When the server is equipped with eight or twenty-three disks, it supports only one RAID controller card on the mainboard. The RAID controller card supports either of the following:</p> <ul style="list-style-type: none"> RAID 0, 1, 10, and 1E RAID 0, 1, 10, 5, 50, 6, and 60, a 2 GB cache, and a supercapacitor for power-off protection <p>When the server is equipped with twenty-three directly connected disks, it supports a maximum of one RAID</p> |

| Item | Specifications |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | controller card on the mainboard and two standard RAID controller cards in PCIe slots. |
| Network port | The LOM can be flexibly configured to provide the following ports: <ul style="list-style-type: none"> • Four GE 1000BASE-T ports • Two GE 1000BASE-T ports • Two 10GE optical ports • Two 10GE electrical ports |
| Expansion slot | The server provides eight standard PCIe slots: <ul style="list-style-type: none"> • One PCIe 3.0 x16 slot • Three PCIe 3.0 x8 slots • Two PCIe 3.0 x4 slots • One PCIe 2.0 x4 slot • One PCIe 3.0 x8 slot, dedicated for a RAID controller card |
| External port | <ul style="list-style-type: none"> • Front panel: two USB 2.0 ports, one power button, one UID button, one video graphics array (VGA) port, and one indicator panel • Rear panel: two USB 2.0 ports, one VGA port, one serial port, one management port, and one UID indicator |
| DVD-ROM drive (optional) | One |
| PSU | The PSUs can be configured as follows: <ul style="list-style-type: none"> • 1200 W AC PSUs in 1+1 or 2+2 redundancy mode (240 V HVDC) • 750 W AC PSUs in 1+1 or 2+2 redundancy mode (240 V HVDC) • 800 W DC PSUs in 1+1 or 2+2 redundancy mode |
| System management | IPMI 2.0 |
| Security feature | Power-on password and administrator password. Support for a security panel. |
| Video card | <ul style="list-style-type: none"> • E7 v2/v3 processors and DDR3 DIMMs: uses an onboard display chip SM750. The display chip provides 16 MB display memory. The maximum resolution is 1024 x 768. • E7 v3 processors and DDR4 DIMMs: uses an onboard display chip that is integrated into the management chip Hi1710 and uses the IP core of the SM750. The display chip provides 32 MB display memory. The maximum resolution is 1280 x 1024. |
| OSs supported | Check the latest compatibility list. |

| Item | Specifications |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Warranty | Three-year customer replaceable unit and onsite limited warranty, 9 x 5 NBD, and optional service upgrades. |
| Dimensions (H x W x D) | 175 mm x 447 mm x 790 mm (6.89 in. x 17.60 in. x 31.10 in.) |
| Maximum weight | <ul style="list-style-type: none"> • Packaging materials: 7 kg (15.44 lb) • Server with 23 disks (excluding the package): 41 kg (90.41 lb) • Server with 8 disks (excluding the package): 37 kg (81.59 lb) <p>NOTE When four processors are installed and DIMMs and hard disks are fully configured, the server is highest in weight. The weight of PCIe cards is not included and can be calculated as follows:</p> <ul style="list-style-type: none"> • HHL PCIe card: 0.3 kg (0.66 lb) • FHL PCIe card: 0.4 kg (0.88 lb) |
| Physical environment | <p>Operating environment</p> <ul style="list-style-type: none"> • Ambient temperature: 5 °C to 40 °C (41 °F to 104 °F) The operating temperature decreases by 1 °C (1.8 °F) as the altitude increases by 300 m (984.25 ft). Maximum altitude: 3000 m (9842.52 ft) • Ambient humidity: 8% RH to 80% RH (twmax = 29 °C) <p>NOTE The RH5885 V3 supports the maximum operating temperature of 35 °C (95 °F) when it is configured with standard PCIe SSD cards or 32 GB or larger-capacity DIMMs.</p> <p>Storage environment</p> <ul style="list-style-type: none"> • Ambient temperature: -40 °C to +65 °C (-40 °F to +149 °F) • Ambient humidity: 5% RH to 95% RH (twmax = 38 °C) |
| Acoustic noise | <p>The data listed in the following is the declared A-weighted sound power levels (LWAd) and declared average bystander position A-weighted sound pressure levels (LpAm) when the server is operating in a 23 °C (73.4 °F) ambient environment. Noise emissions are measured in accordance with ISO 7999 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).</p> <ul style="list-style-type: none"> • Idle: <ul style="list-style-type: none"> – LWAd: 7.1 Bels – LpAm: 58.8 dBA • Operating: <ul style="list-style-type: none"> – LWAd: 7.1 Bels |

| Item | Specifications |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <ul style="list-style-type: none">- LpAm: 58.8 dBA <p>NOTE The actual sound levels generated during server operating vary depending on the server configuration, load, and ambient temperature.</p> |

4 Component Compatibility

About This Chapter

- 4.1 Processor
- 4.2 Memory
- 4.3 Storage
- 4.4 I/O Expansion
- 4.5 PSU
- 4.6 OSs, Virtualization Software and Databases

4.1 Processor

The RH5885 V3 supports Intel® Xeon® E7-4800 v2/v3 or E7-8800 v2/v3 series processors. Observe the following rules when configuring processors:

- The RH5885 V3 supports two or four processors. If only two processors are to be configured, install them in sockets CPU1 and CPU2.
- A server must use the same model of processors.

Table 4-1 lists the compatible processors.

Table 4-1 Compatible processors

| Processor | Core | HT | GHz | Turbo Boost | L3 Cache (MB) | QPI | SMI2 (MT/s) |
|-------------|------|-----|-----|-------------|---------------|--------|-------------|
| E7-8891 v2 | 10 | Yes | 3.2 | Yes-3.7 GHz | 37.5 | 8 GT/s | 2667 |
| E7-8893 v2 | 6 | Yes | 3.4 | Yes-3.7 GHz | 37.5 | 8 GT/s | 2667 |
| E7-8890 v2 | 15 | Yes | 2.8 | Yes-3.4 GHz | 37.5 | 8 GT/s | 2667 |
| E7-8880 v2 | 15 | Yes | 2.5 | Yes-3.1 GHz | 37.5 | 8 GT/s | 2667 |
| E7-8880L v2 | 15 | Yes | 2.2 | Yes-2.8 GHz | 37.5 | 8 GT/s | 2667 |

| Processor | Core | HT | GHz | Turbo Boost | L3 Cache (MB) | QPI | SMI2 (MT/s) |
|-------------|------|-----|-----|-------------|---------------|----------|-------------|
| E7-8870 v2 | 15 | Yes | 2.3 | Yes-2.9 GHz | 30 | 8 GT/s | 2667 |
| E7-8857 v2 | 12 | Yes | 3.0 | Yes-3.6 GHz | 30 | 8 GT/s | 2667 |
| E7-8850 v2 | 12 | Yes | 2.3 | Yes-2.8 GHz | 24 | 7.2 GT/s | 2132 |
| E7-4890 v2 | 15 | Yes | 2.8 | Yes-3.4 GHz | 37.5 | 8 GT/s | 2667 |
| E7-4880 v2 | 15 | Yes | 2.5 | Yes-3.1 GHz | 37.5 | 8 GT/s | 2667 |
| E7-4870 v2 | 15 | Yes | 2.3 | Yes-2.9 GHz | 30 | 8 GT/s | 2667 |
| E7-4860 v2 | 12 | Yes | 2.6 | Yes-3.2 GHz | 30 | 8 GT/s | 2667 |
| E7-4850 v2 | 12 | Yes | 2.3 | Yes-2.8 GHz | 24 | 7.2 GT/s | 2132 |
| E7-4830 v2 | 10 | Yes | 2.2 | Yes-2.7 GHz | 20 | 7.2 GT/s | 2132 |
| E7-4820 v2 | 8 | Yes | 2.0 | Yes-2.5 GHz | 16 | 7.2 GT/s | 2132 |
| E7-4809 v2 | 6 | Yes | 1.9 | No | 12 | 6.4 GT/s | 2132 |
| E7-8890 v3 | 18 | Yes | 2.5 | Yes-3.3 GHz | 45 | 9.6 GT/s | 3200 |
| E7-8891 v3 | 10 | Yes | 2.8 | Yes-3.5 GHz | 45 | 9.6 GT/s | 3200 |
| E7-8893 v3 | 4 | Yes | 3.2 | Yes-3.5 GHz | 45 | 9.6 GT/s | 3200 |
| E7-8880 v3 | 18 | Yes | 2.3 | Yes-3.1 GHz | 45 | 9.6 GT/s | 3200 |
| E7-8870 v3 | 18 | Yes | 2.1 | Yes-2.9 GHz | 45 | 9.6 GT/s | 3200 |
| E7-8860 v3 | 16 | Yes | 2.2 | Yes-3.2 GHz | 40 | 9.6 GT/s | 3200 |
| E7-8880L v3 | 18 | Yes | 2.0 | Yes-2.8 GHz | 45 | 9.6 GT/s | 2667 |
| E7-8867v3 | 16 | Yes | 2.5 | Yes-3.3 GHz | 45 | 9.6 GT/s | 3200 |
| E7-4850 v3 | 14 | Yes | 2.2 | Yes-2.8 GHz | 35 | 8 GT/s | 2667 |
| E7-4830 v3 | 12 | Yes | 2.1 | Yes-2.7 GHz | 30 | 8 GT/s | 2667 |
| E7-4820 v3 | 10 | Yes | 1.9 | No | 25 | 6.4 GT/s | 2667 |
| E7-4809v3 | 8 | Yes | 2.0 | No | 25 | 6.4 GT/s | 2667 |

For details about the processor models supported by the RH5885 V3, see the compatibility list at the following URL:

http://e.huawei.com/en/marketing-material/download_success?MaterialID={0E522AAE-BEF9-41F4-9601-FA010A9C03E0}

4.2 Memory

Memory Capacity Configuration Rules

The RH5885 V3 supports DDR3 and DDR4 DIMMs.

- When equipped with E7 v2 processors, the RH5885 V3 supports DDR3 DIMMs with up to 1600 MT/s operating speed. Each E7 v2 processor supports a maximum of 12 DDR3 DIMMs.
- When equipped with E7 v3 processors, the RH5885 V3 supports DDR3 DIMMs with up to 1600 MT/s operating speed or DDR4 DIMMs with up to 1866 MT/s operating speed. Each E7 v3 processor supports a maximum of 12 DDR3 or DDR4 DIMMs.

Table 4-2 lists the compatible DIMMs.

Table 4-2 Compatible DIMMs

| BOM Number | Type | Description | Maximum Number of DIMMs |
|------------|------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| 06200191 | DDR3 | Memory Module,DDR3 RDIMM,8GB,240PIN,1.25ns,1600000KHz,1.35V,ECC,2 Rank(512M*8bit),Height 30mm | 48 (12 per processor) |
| 06200169 | DDR3 | Memory Module,DDR3 RDIMM,8GB,240pin,1.1ns,1866000KHz,1.5V ,ECC,2Rank(512M*8bit),Height 30mm | 48 (12 per processor) |
| 06200199 | DDR3 | Memory Module,DDR3 RDIMM,16GB,240PIN,1.5ns,1600000KHz,1.35V,ECC,for high end product only,2 Rank(1Gx4bit),Height 30mm, IT dedicated | 48 (12 per processor) |
| 06200137 | DDR3 | Memory Module,DDR3 LRDIMM,32GB,240pin,1.5ns,1333000KHz,1.35V,ECC,4Rank(1G*4bit),height 30mm, Server dedicated | 48 (12 per processor) |
| 06200178 | DDR3 | Memory Module,DDR3 LRDIMM,32GB,240pin,1.1ns,1866000KHz,1.5V,ECC,4Rank DDP(1G*4bit),IT dedicated | 48 (12 per processor) |
| 06200190 | DDR4 | Memory Module,DDR4 RDIMM,8GB,288pin,0.9ns,2133000KHz,1.2V ,ECC,2Rank(512M*8bit) | 48 (12 per processor) |
| 06200176 | DDR4 | Memory Module,DDR4 RDIMM,16GB,288pin,0.9ns,2133000KHz,1.2V,ECC,2Rank(1G*4bit) | 48 (12 per processor) |
| 06200201 | DDR4 | Memory Module,DDR4 RDIMM,32GB,288pin,0.9ns,2133000KHz,1.2V,ECC,2Rank(2G*4bit) | 48 (12 per processor) |

Observe the following rules when configuring DIMMs:

1. The RH5885 V3 does not support mixed use of RDIMMs and LRDIMMs.
2. If the RH5885 V3 is equipped with RDIMMs, each memory channel supports up to six ranks. For details, see [Table 4-2](#).
3. If the RH5885 V3 is equipped with LRDIMMs, each DDR3 memory channel supports up to 24 ranks.
4. The maximum memory operating speed depends on the memory configuration and maximum processor capability. [Table 4-3](#), [Table 4-4](#), and [Table 4-5](#) list the maximum memory bandwidth without processor limitations.

The RH5885 V3 does not support mixed use of DIMMs with different BOM numbers.

The maximum memory operating speed also depends on the memory operating mode. There are two memory operating modes:

- Performance mode (default): Each memory channel operates independently, and the speed of an SMI2 channel doubles the speed of a memory channel. The memory system in this mode delivers high performance.
- RAS (lockstep) mode: Two memory channels on the same SMI2 channel work synchronously, and an SMI2 channel operates at the same speed as a memory channel. The memory system in this mode delivers high reliability. In RAS mode, the number of DIMMs must be a multiple of 8.

Table 4-3 Maximum memory speed (E7 v2 + DDR3)

| DIMM Properties | | | Memory Operating Voltage/Speed | | | | | |
|-----------------|------------------------------------------------------------------------------------------------|---------------|--------------------------------|----------|-----------|-----------|-----------|-----------|
| BOM Number | Key Parameters: DDR _x -Type-Rated Speed (MT/s)-Rated Voltage (V)-Number of Ranks | Capacity (GB) | Performance Mode | | | RAS Mode | | |
| | | | 1 DPC | 2 DPC | 3 DPC | 1 DPC | 2 DPC | 3 DPC |
| 06200191 | DDR3-RDIMM-1600-1.35V-2 Rank | 8 | 1.35/1333 | 1.35/133 | 1.35/1066 | 1.35/1333 | 1.35/1333 | 1.35/1066 |
| 06200169 | DDR3-RDIMM-1866-1.5V-2 Rank | 8 | 1.5/1333 | 1.5/1333 | 1.5/1333 | 1.5/1600 | 1.5/1600 | 1.5/1333 |
| 06200199 | DDR3-RDIMM-1600-1.35V-2 Rank | 16 | 1.35/1333 | 1.35/133 | 1.35/1066 | 1.35/1333 | 1.35/1333 | 1.35/1066 |
| 06200137 | DDR3-LRDIMM-1333-1.35V-4 Rank | 32 | 1.35/1333 | 1.35/133 | 1.35/1333 | 1.35/1333 | 1.35/1333 | 1.35/1333 |
| 06200178 | DDR3-LRDIMM-1866-1.5V-4 Rank | 32 | 1.5/1333 | 1.5/1333 | 1.5/1333 | 1.5/1600 | 1.5/1600 | 1.5/1333 |



NOTE

[Table 4-3](#) lists the maximum memory operating speed without processor limitations. That is, this table assumes that the maximum operating speed of an SMI2 channel for an E7 v2 processor is 2667 MT/s.

Table 4-4 Maximum memory speed (E7 v3 + DDR3)

| DIMM Properties | | | Memory Operating Voltage/Speed | | | | | |
|-----------------|------------------------------------------------------------------------------------------------|---------------|--------------------------------|-----------|----------|-----------|-----------|----------|
| BOM Number | Key Parameters: DDR _x -Type-Rated Speed (MT/s)-Rated Voltage (V)-Number of Ranks | Capacity (GB) | Performance Mode | | | RAS Mode | | |
| | | | 1 DPC | 2 DPC | 3 DPC | 1 DPC | 2 DPC | 3 DPC |
| 06200191 | DDR3-RDIMM-1600-1.35V-2 Rank | 8 | 1.35/1600 | 1.35/1333 | 1.5/1333 | 1.35/1600 | 1.35/1333 | 1.5/1333 |
| 06200169 | DDR3-RDIMM-1866-1.5V-2 Rank | 8 | 1.5/1600 | 1.5/1600 | 1.5/1333 | 1.5/1600 | 1.5/1600 | 1.5/1333 |
| 06200199 | DDR3-RDIMM-1600-1.35V-2 Rank | 16 | 1.35/1600 | 1.35/1333 | 1.5/1333 | 1.35/1600 | 1.35/1333 | 1.5/1333 |
| 06200196 | DDR3-LRDIMM-1600-1.35V-4 Rank | 32 | 1.35/1333 | 1.35/1333 | 1.5/1333 | 1.35/1333 | 1.35/1333 | 1.5/1333 |



NOTE

Table 4-4 lists the maximum memory operating speed without processor limitations. That is, this table assumes that the maximum operating speed of an SMI2 channel for an E7 v3 processor is 3200 MT/s.

Table 4-5 Maximum memory speed (E7 v3 + DDR4)

| DIMM Properties | | | Memory Operating Voltage/Speed | | | | | |
|-----------------|------------------------------------------------------------------------------------------------|---------------|--------------------------------|----------|----------|----------|----------|----------|
| BOM Number | Key Parameters: DDR _x -Type-Rated Speed (MT/s)-Rated Voltage (V)-Number of Ranks | Capacity (GB) | Performance Mode | | | RAS Mode | | |
| | | | 1 DPC | 2 DPC | 3 DPC | 1 DPC | 2 DPC | 3 DPC |
| 06200190 | DDR4-RDIMM-2133-1.2V-2 Rank | 8 | 1.2/1600 | 1.2/1600 | 1.2/1333 | 1.2/1866 | 1.2/1866 | 1.2/1333 |
| 06200176 | DDR4-RDIMM-2133-1.2V-2 Rank | 16 | 1.2/1600 | 1.2/1600 | 1.2/1333 | 1.2/1866 | 1.2/1866 | 1.2/1333 |
| 06200201 | DDR4-RDIMM-2133-1.2V-2 Rank | 32 | 1.2/1600 | 1.2/1600 | 1.2/1333 | 1.2/1866 | 1.2/1866 | 1.2/1333 |



NOTE

Table 4-5 lists the maximum memory operating speed without processor limitations. That is, this table assumes that the maximum operating speed of an SMI2 channel for an E7 v3 processor is 3200 MT/s.

DIMM Installation Rule

Figure 4-1 DIMM silk screen meaning

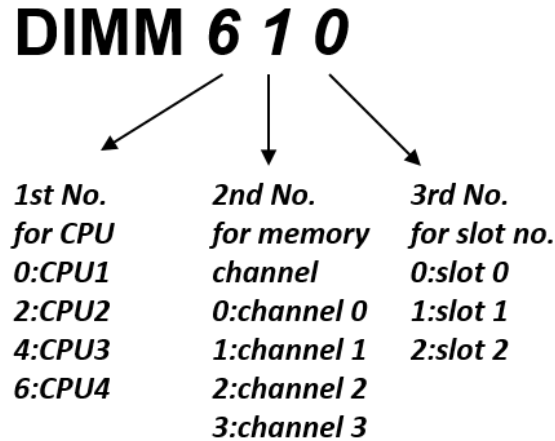


Figure 4-1 shows the DIMM silk screen meaning. The RH5885 V3 supports a maximum of 48 DIMMs. The DIMM installation rules are as follows:

- You are advised to install the same model of DIMMs in the same positions for each processor.
- The DIMM installation priorities for each processor are as follows:
DIMMx00-->DIMMx10-->DIMMx20-->DIMMx30
DIMMx01-->DIMMx11-->DIMMx21-->DIMMx31
DIMMx02-->DIMMx12-->DIMMx22-->DIMMx32

Compatible DIMMs

For details about the DIMM models supported by the RH5885 V3, see the compatibility list at the following URL:

http://e.huawei.com/en/marketing-material/download_success?MaterialID={0E522AAE-BEF9-41F4-9601-FA010A9C03E0}

4.3 Storage

The RH5885 V3 supports three types of hard disks:

- Eight 2.5-inch SAS/SATA HDDs or SSDs, with one RAID controller card on the mainboard
- Twenty-three 2.5-inch SAS/SATA HDDs or SSDs, with one RAID controller card on the mainboard
- Twenty-three directly connected 2.5-inch SAS/SATA HDDs or SSDs, with up to one RAID controller card on the mainboard and two standard RAID controller cards in PCIe slots

For details about the hard disk models and RAID controller card models supported by the RH5885 V3, see the compatibility list at the following URL:

http://e.huawei.com/en/marketing-material/download_success?MaterialID={0E522AAE-BEF9-41F4-9601-FA010A9C03E0}

Table 4-6 lists the performance of different RAIDs, the minimum number of disks required, and disk utilization.

Table 4-6 RAID level comparison

| RAID Level | Reliability | Read Performance | Write Performance | Minimum Number of Hard Disks | Hard Disk Utilization |
|------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------|--------------------|------------------------------|--------------------------------------|
| RAID 0 | Low | High | High | 2 | 100% |
| RAID 1 | High | Low | Low | 2 | 1/ <i>N</i> |
| RAID 5 | Better than medium | High | Medium | 3 | (<i>N</i> -1)/ <i>N</i> |
| RAID 6 | Better than medium | High | Medium | 4 | (<i>N</i> -2)/ <i>N</i> |
| RAID 1E | High | Medium | Medium | 3 | <i>M</i> / <i>N</i> |
| RAID 10 | High | Medium | Medium | 4 | <i>M</i> / <i>N</i> |
| RAID 50 | High | High | Better than medium | 6 | (<i>N</i> - <i>M</i>)/ <i>N</i> |
| RAID 60 | High | High | Better than medium | 8 | (<i>N</i> - <i>M</i> x 2)/ <i>N</i> |
| NOTE <i>N</i> indicates the number of member hard disks in a RAID. <i>M</i> indicates the number of subgroups of a RAID. | | | | | |

4.4 I/O Expansion

Standard PCIe Cards

Observe the following rules when configuring PCIe cards for the RH5885 V3:

- Configure a PCIe riser card if PCIe slots 5 to 7 are to be used.
- The RH5885 V3 does not support graphics processing units (GPUs).
- When standard PCIe SSD cards are configured, the RH5885 V3 supports the maximum operating temperature of 35 °C (95 °F).

For details about the standard PCIe card models supported by the RH5885 V3, see the compatibility list at the following URL:

http://e.huawei.com/en/marketing-material/download_success?MaterialID={0E522AAE-BEF9-41F4-9601-FA010A9C03E0}

4.5 PSU

The PSU configuration rules are as follows:

- Input voltage range:
 - AC: 90 V AC to 264 V AC with an input frequency of 50 Hz or 60 Hz
 - DC: –48 V DC to –60 V DC or 192 V DC to 288 V DC
- A server must use PSUs of the same model.

For details about the PSU models supported by the RH5885 V3, see the compatibility list at the following URL:

http://e.huawei.com/en/marketing-material/download_success?MaterialID={0E522AAE-BEF9-41F4-9601-FA010A9C03E0}

4.6 OSs, Virtualization Software and Databases

For details about the OSs, virtualization software, and databases supported by the RH5885 V3, see the compatibility list at the following URL:

http://e.huawei.com/en/marketing-material/download_success?MaterialID={0E522AAE-BEF9-41F4-9601-FA010A9C03E0}

5 Management

About This Chapter

The management system used by the RH5885 V3 varies depending on the combination of processor and DIMM configurations:

- E7 v2 + DDR3: iMana 200
- E7 v3 + DDR3: iMana 200
- E7 v3 + DDR4: iBMC

[5.1 iMana 200](#)

[5.2 iBMC](#)

5.1 iMana 200

The RH5885 V3 with E7 v2 or v3 processors and DDR3 DIMMs uses iMana 200 as its management system.

iMana 200 is a Huawei proprietary integrated management system for remote server management. iMana 200 complies with IPMI 2.0 specifications and provides reliable hardware monitoring and management. iMana 200 seamlessly communicates with management modules in a chassis and manages the compute nodes in the chassis through the management modules.

iMana 200 supports the following features:

- Keyboard, video, and mouse (KVM) and text console redirection
- Remote virtual media
- IPMI V2.0
- Simple Network Management Protocol Version 3 (SNMPv3)
- Common information model (CIM)
- Web-based logins

[Table 5-1](#) describes iMana 200 specifications.

Table 5-1 iMana 200 specifications

| Item | Specifications |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Management interface | iMana 200 supports a variety of management interfaces to implement system integration. iMana 200 can integrate with any standard management system over the following interfaces: <ul style="list-style-type: none"> • IPMI V2.0 • CLI • HTTPS • SNMPv3 |
| Fault detection | Detects faults and accurately locates hardware faults. |
| System watchdog | Supports BIOS power on self-test (POST), OS watchdog, and automatic system reset for timeout. You can enable or disable these functions on iMana 200. |
| Boot device configuration | Supports out-of-band configuration for boot devices. |
| Alarm management | Supports alarm management and reports alarms in various ways, such as the SNMP trap, Simple Mail Transfer Protocol (SMTP) , and syslog service, to ensure uninterrupted system operation. |
| Integrated KVM | Provides remote maintenance measures, such as KVM and KVM over IP, for troubleshooting. Support a maximum resolution of 1280 x 1024. |
| Integrated virtual media | Virtualizes local media devices or images to the media devices for remote compute nodes, which simplifies OS installation. The virtual DVD-ROM drive supports a transmission rate of up to 8 MB/s. |
| Web-based user interface (UI) | Provides a visual WebUI for quick configuration and information queries. Supports the following web browsers: <ul style="list-style-type: none"> • Internet Explorer 7.0/8.0 • Firefox 9.0 • Chrome 13.0 • Safari |
| Fault reproduction | Reproduces faults to facilitate fault diagnosis. |
| Screenshots and videos | Allows you to view screenshots and videos without login, which facilitates preventive maintenance inspection (PMI). |
| DNS/LDAP | Supports domain management and directory services, which significantly simplifies network configuration and management. |
| Dual-image backup | Starts software from an image backup if the software fails. |
| Asset management | Provides intelligent asset management. |

| Item | Specifications |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Intelligent power management | Uses the power capping technology to increase deployment density and the dynamic energy saving technology to lower the OPEX. |
| IPv6 | Supports IPv6 to ensure sufficient IP addresses. |
| NC-SI | Supports NC-SI, which allows you to access iMana 200 over a service network port. |

5.2 iBMC

The RH5885 V3 with E7 v3 processors and DDR4 DIMMs uses iBMC as its management system.

iBMC provides the following functions to improve management efficiency and reduce OPEX:

- Remote server management and carrier-class reliability
 As a Huawei home-grown intelligent management system, iBMC is advanced software for remotely managing servers. It supports KVM redirection, text console redirection, remote virtual media (mapping the CD-ROM drive, floppy disk drive (FDD), and hard disks from the terminal to the server), and IPMI 2.0-based hardware monitoring and management. iBMC is designed based on the carrier-class reliability requirements and supports dual-image backups for software.
- Various user interfaces
 iBMC provides various user interfaces, such as the CLI, web-based UI, IPMI management interface. All user interfaces adopt a highly secure encryption algorithm, ensuring access security.
- Comprehensive server monitoring
 iBMC not only monitors servers, but also provides diversified alarms and detailed logs. For example, logs record processor core temperatures, voltages, fan speed, PSU faults, and bus faults. In addition, iBMC allows you to query the information about processors, memory, and hard disks.
- Last-screen information recording and screenshot capturing
 When a server about to break down, iBMC saves the last information displayed on the screen for fault identification. iBMC allows you to configure regular or periodical tasks for capturing screenshots, which requires no manual intervention and saves maintenance time.

iBMC supports the following features and protocols:

- Management interfaces
 The server provides IPMI, call-level interface (CLI), Hypertext Transfer Protocol Secure (HTTPS), Simple Network Management Protocol (SNMP), and Web Service Management interfaces, meeting various system integration requirements.
- Compliance with IPMI 1.5 and IPMI 2.0
 iBMC provides standard management interfaces, which allow integration with standard management systems.

- **Fault detection and alarm management**
 iBMC supports fault detection and alarm management, ensuring stable uninterrupted system operation.
- **Virtual KVM and virtual media**
 iBMC provides virtual KVM and virtual media, facilitating remote maintenance.
- **Web user interface (WebUI)**
 iBMC provides the WebUI, helping users to rapidly set and query tasks.
- **Breakdown screenshot and video**
 iBMC creates screenshots and videos when the system collapses. The screenshots and videos provide clues to the cause of system breakdown.
- **Screen snapshot and screen video**
 iBMC offers screen snapshots and videos, which simplify routine inspections.
- **Support for domain name system (DNS) and Lightweight Directory Application Protocol (LDAP)**
 iBMC supports DNS and LDAP to implement domain management and directory service. This feature simplifies the server management network.
- **Software dual-image backup**
 iBMC provides software dual-image backup, which allows software to restart from the backup image when a failure occurs. This feature improves system security.
- **Asset management**
 iBMC implements asset management.
- **Intelligent power management**
 iBMC allows you to use power capping technology to improve deployment density and uses dynamic power saving technology to reduce OPEX.

Table 5-2 iBMC management product specifications

| Item | Specifications |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Core processor | Huawei Hi1710 management chip, dedicated for Huawei IT products |
| KVM | <ul style="list-style-type: none"> • Maximum resolution: 1280 x 1024 • Minimum resolution: 800 x 600 |
| Management network port | GE management network port |
| Virtual media | <ul style="list-style-type: none"> • The virtual DVD-ROM drive supports a maximum transmission rate of 72 Mbit/s. • The virtual FDD supports a maximum transmission rate of 4 Mbit/s. |
| User interfaces | <ul style="list-style-type: none"> • HTTPS • IPMI LAN • SNMP • CLI |
| Security | <ul style="list-style-type: none"> • User management |

| Item | Specifications |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <ul style="list-style-type: none">• Role authentication• Data encryption• Scenario-based login restriction• Account security |
| Intelligent power management | <ul style="list-style-type: none">• Power statistics and power history line• Power capping |
| Fault diagnosis | <ul style="list-style-type: none">• Component status monitoring and alarming• Screen snapshot and screen video• Black box• x86 system diagnosis log |

6 Warranty

According to the *Huawei Warranty Policy for Servers & Storage Products*, the RH5885 V3 has a three-year warranty, the DVD-ROM drives and BBUs have a one-year warranty, and the software media has a three-month warranty. The *Warranty Policy* is a series of warranty maintenance upgrades and post-warranty maintenance agreements with a well-defined scope of services, including service hours, response time, terms of service, and service agreement terms and conditions.

The *Warranty Policy* is country-specific. The service types, service levels, response time, and terms and conditions may vary by country, and some service and/or parts may not be available in all countries. For more information about warranty services in your country, contact Huawei technical support or your local representative office.

[Table 6-1](#) describes the warranty services provided by Huawei.

Table 6-1 Warranty services

| No. | Description |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Help Desk | Huawei provides 24-hour after-sales technical support (such as handling requests for troubleshooting and hardware repair), receives and handles customer inquiries, complaints, and suggestions through a dedicated hotline. |
| Remote troubleshooting | After receiving a service request for rectifying a network or system fault, Huawei engineers will first analyze and handle the fault remotely and rectify it in the shortest possible time. There are two methods for remote troubleshooting: telephone support and remote access. |
| Online technical support | Huawei enterprise support website (http://enterprise.huawei.com) provides product and technical materials, such as product manuals, configuration guides, networking case study, and maintenance experience collections. Registered users can access the website and download required documents. |
| Licensing of software updates | To ensure that the devices operate stably, Huawei provides software patches whenever necessary. |
| Return for repair | Huawei provides repair or replacement services for customers within the promised time to meet customer needs |

| No. | Description |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <p>for spare parts. You can return defective parts to the designated Huawei site after submitting a service request.</p> <p>Huawei provides a three-year warranty for parts replacement and onsite repair for the RH1288 V2 used in China. Huawei provides a 10-hour-a-day, 5-day-a-week support program. Service requests will be handled the next business day.</p> <p>Huawei provides a three-year warranty for parts replacement and repair for the RH1288 V2 used outside China. Huawei provides a 9-hour-a-day, 5-day-a-week support program. Service requests will be handled the next business day.</p> <p>Huawei delivers the repaired or new parts within 45 calendar days after receiving the defective parts.</p> |

Table 6-2 describes the warranty services provided by Huawei.

Table 6-2 Response time

| Service | Response Time | Description | Remarks |
|-------------------------------|---------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Help Desk | 24/7 | Available 24 hours a day, 7 days a week (00:00 to 24:00, Monday to Sunday) | None |
| Remote troubleshooting | | Available 24 hours a day, 7 days a week (00:00 to 24:00, Monday to Sunday) | The response time starts from the time when Huawei technical support accepts a customer's service request to the time when the technical support contacts the customer the first time to provide remote troubleshooting services. |
| Online technical support | | Huawei enterprise support website: available 24 hours a day, 7 days a week (00:00 to 24:00, Monday to Sunday) | None |
| Licensing of software updates | | Huawei enterprise support website: available 24 hours a | None |

| Service | Response Time | | Description | Remarks |
|-------------------|---------------|--------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| | | | day, 7 days a week (00:00 to 24:00, Monday to Sunday) | |
| Return for repair | Outside China | 9/5 hours, 45 calendar days shipment | Available 9 hours a day, 5 days a week (09:00 to 18:00, Monday to Friday), excluding official holidays | The repaired or replacement parts will be shipped within 45 calendar days after Huawei receives the defective parts. |
| | In China | 10/5 hours, next business day | Available 10 hours a day, 5 days a week (08:00 to 18:00, Monday to Friday), excluding official holidays | Service requests submitted after 15:30 will be handled the next business day. |

7 Certifications

Table 7-1 lists the certifications passed by the RH5885 V3 and the standards that the RH5885 V3 complies with.

Table 7-1 Certifications and standards

| No. | Country/Region | Certification | Standard |
|-----|----------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | China | RoHS | SJ/T-11363-2006 SJ/T-11364-2006 GB/T 26572-2011 |
| 2 | China | China Environmental Labeling | GB/T24024:2001 idt ISO14024:1999 HJ 2507-2011 |
| 3 | China | CCC | GB4943.1-2011;GB9254-2008(A);GB17625.1-2012 |
| 4 | Europe | WEEE | 2002/96/EC |
| 5 | Europe | CE | Safety: IEC 60950-1:2005 (2nd Edition) + A1:2009 and/or EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 EMC: EN 55022:2010 CISPR 22:2008 EN 55024:2010 CISPR 24:2010 ETSI EN 300 386 V1.5.1:2010 ETSI ES 201 468 V1.3.1:2005 IEC 61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009 IEC 61000-3-3:2008/EN 61000-3-3:2008 RoHS |

| No. | Country/Region | Certification | Standard |
|-----|----------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | 2002/95/EC REACH EC 1907/2006 |
| 6 | Turkey | CE | Safety: IEC 60950-1:2005 (2nd Edition) + A1:2009 and/or EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 EMC: EN 55022:2010 CISPR 22:2008 EN 55024:2010 CISPR 24:2010 ETSI EN 300 386 V1.5.1:2010 ETSI ES 201 468 V1.3.1:2005 IEC61000-3-2:2005+A1:2008+A2:2009/EN 61000-3-2:2006+A1:2009+A2:2009 IEC 61000-3-3:2008/EN 61000-3-3:2008 |
| 7 | America | FCC | FCC CFR47 Part 15 Class A |
| 8 | Canada | IC | ICES-003 Class A |
| 9 | Australia | C-Tick | AS/NZS CISPR 22:2009+A1:2010 |
| 10 | Japan | VCCI | VCCI V-3:2012 |
| 11 | America | NRTL-UL | UL 60950-1,2nd Edition,2011-12-19 (Information Technology Equipment-Safety-Part 1:General Requirement) CSA C22.2 No.60950-1-07,2nd Edition,2011-12 (Information Technology Equipment-Safety-Part 1:General Requirement) |
| 12 | Canada | NRTL-UL | UL 60950-1,2nd Edition,2011-12-19 (Information Technology Equipment-Safety-Part 1:General Requirement) CSA C22.2 No.60950-1-07,2nd Edition,2011-12 (Information Technology Equipment-Safety-Part 1:General Requirement) |