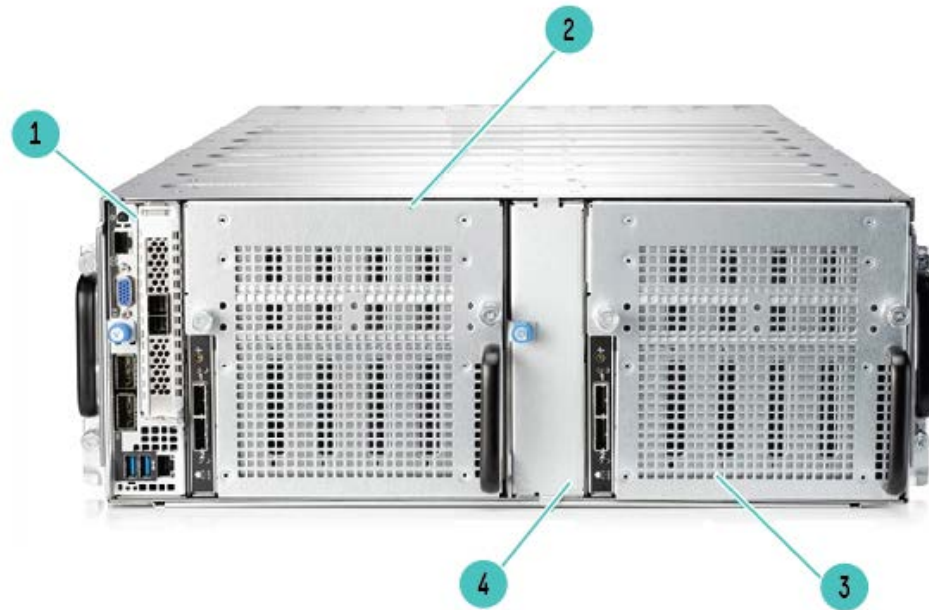


Overview

HPE Cloudline CL5200 G3 Server

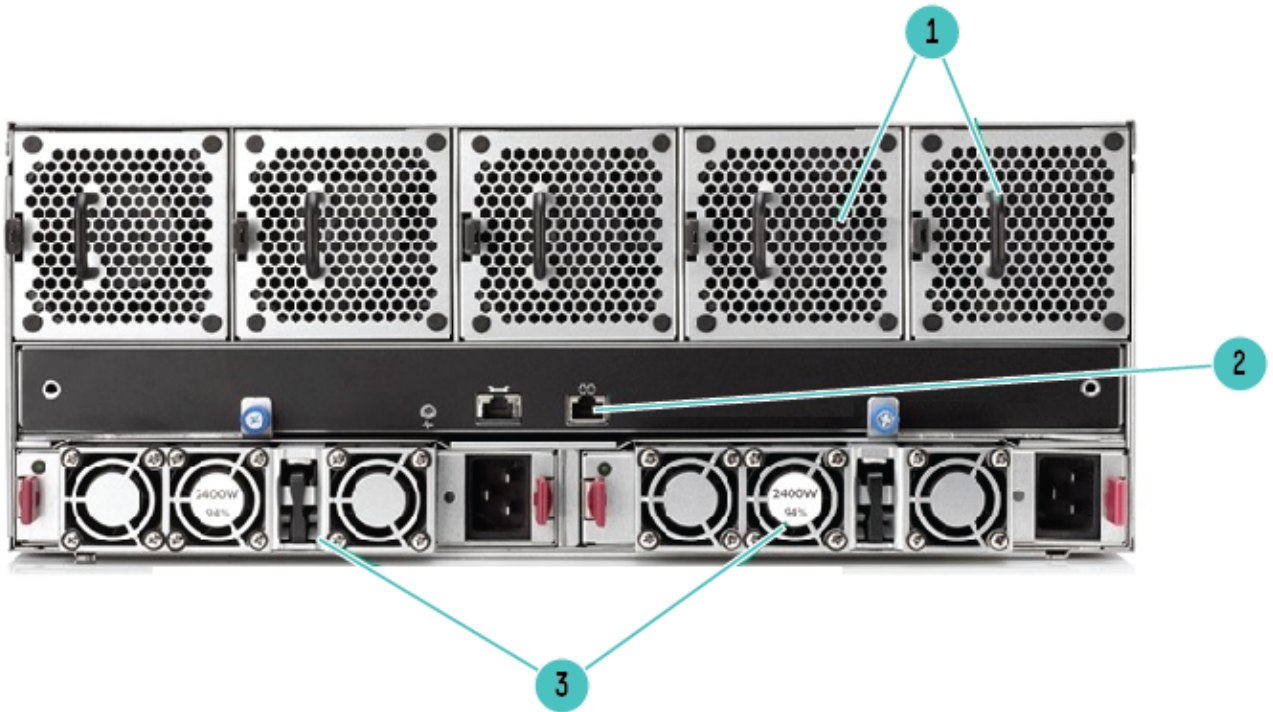
The HPE Cloudline CL5200 G3 Server is a 4U open-standards based storage server that is purpose built for cold storage, object storage, and data analytics applications. Supporting one or two compute nodes and up to 80 Large Form Factor (LFF) drives in a 4U form factor the Cloudline CL5200 G3 Server provides up to 800 TB of storage in a single chassis.



Front View

1. Compute Node #1
2. Storage Drawer #1 (Drives 1-40)
3. Storage Drawer #2 (Drives 41-80)
4. Compute Node #2 (Optional)

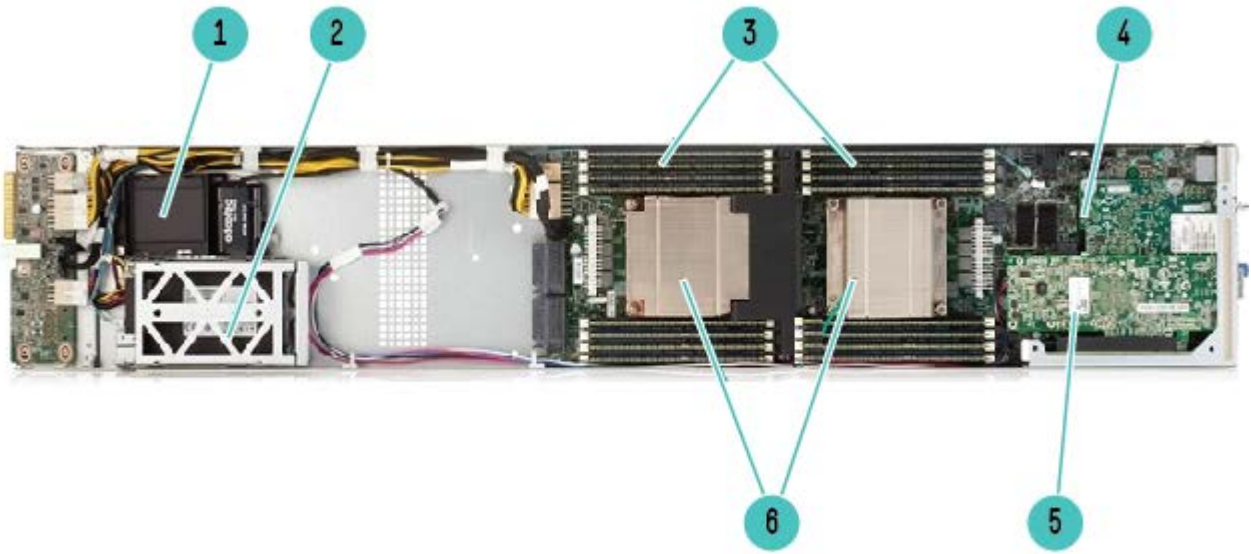
Overview



Rear View

1. 5x N+1 Hot Plug Fans
2. Chassis Management Controller
3. 2x 2400W N+N Redundant Power Supplies

Overview



Internal View

1. Optional SuperCap Battery
2. (2) Small form factor HDD/SSD
3. (16) DDR-4 Memory Sockets
4. OCP form factor network mezzanine card
5. PCI-E x16 HBA/RAID Adapter
6. (2) Intel Xeon E5 2600 Series CPUs

Standard Features

Processor

One of the following depending on model

NOTE: For more information regarding Intel Xeon processors, please see the following <http://www.intel.com/content/www/us/en/processors/xeon/xeon-processor-e5-family.html> Intel® Xeon® processor E5-2600 v4 product family is designed to deliver the best combination of performance, built-in capabilities, and cost-effectiveness. One (or two) of the following Intel® Xeon® E5-2600 v4 processors based on the model.

Model	CPU frequency	Cores	L3 Cache	TDP	QPI	DDR4 Maximum Speed
E5-2603v4	1.7GHz	6	15MB	85W	6.4GT/s	1866 MHz
E5-2609v4	1.7GHz	8	20MB	85W	6.4GT/s	1866 MHz
E5-2620v4	2.1GHz	8	20MB	85W	8.0GT/s	2133 MHz
E5-2630v4	2.2GHz	10	25MB	85W	8.0GT/s	2133 MHz
E5-2640v4	2.4GHz	10	25MB	90W	8.0GT/s	2133 MHz
E5-2650v4	2.2GHz	12	30MB	105W	9.6GT/s	2400 MHz
E5-2660v4	2.0GHz	14	35MB	105W	9.6GT/s	2400MHz
E5-2680v4	2.4GHz	14	35MB	120W	9.6GT/s	2400 MHz
E5-2695v4	2.1GHz	18	45MB	120W	9.6GT/s	2400 MHz

Chipset

One of the following depending on model

Intel® C610 Series Chipset

Intel® E5-2600 v4 Processor Family

NOTE: For more information regarding Intel chipsets, please see the following <http://www.intel.com/content/www/us/en/chipsets/x99-chipset-pch-spec-update.html>

On System

Management Chipset

One of the following depending on model

ASPEED 2400 with KVM Support

Memory

One of the following depending on model

Type:

Industry Standard DDR4

DDR4 Registered (RDIMM)

DIMM Slots Available 16 (16 DIMM slots per processor, 4 channels per processor, 3 DIMMs per channel)

Maximum Capacity (RDIMM) 512GB (16 x 32GB RDIMM @2400MHz)

Memory Protection

One of the following depending on model

Advanced ECC

Advanced ECC uses single device data correction to detect and correct single and all multibit error that occurs within a single DRAM chip.

Online spare

Memory online spare mode detects a rank that is degrading and switches operation to the spare rank.

Expansion Slots

PCIe riser slots

Expansion Slots #	Technology	Bus Width	Connector Width	Form Factor	Notes
1	PCIe 3.0	X16	X16	Low profile	RAID/HBA
2	PCIe 3.0	x16	x16	OCP Mezz	Networking

Standard Features

NOTE: Bus Width data indicates the number of physical electrical lanes running to the connector.

Power Supply HPE CL 2400W N+N PSU Redundant

System Fans 5 Hot Plug redundant fans

Interfaces	Video	1
	IPMI Management Port	1 RJ-45 Management Port
	USB	2 USB ports (Standard)

Operating Systems Test for CL Servers **Cent OS**
Red Hat Enterprise Linux (RHEL)
Suse Linux Enterprise Server
Ubuntu Server
Microsoft Windows Server 2012

Upgradeability Upgradeable to two processors (24 cores)
up to 16 DIMM slots
NOTE: To take advantage of DIMMs 9-16, a second processor must be installed.

Industry Standard Compliance ACPI 2.0b Compliant
PCIe 3.0 Compliant
PXE Support
WOL Support

Graphics Integrated PCIe VGA/2D Controller via ASPEED 2400 BMC
1920 x 1200 @ 60Hz (32 bpp)

Form Factor 4U Rack form factor
All models ship with tool-less friction rail kits
7" (176mm) Height x 17.63" (448mm) Width x 42" (1067mm) Length

Security Power-on password
Serial interface control
Administrator's password

Warranty This product is covered by a global limited warranty and supported by Hewlett Packard Enterprise Services. The Limited Warranty Period for a Hewlett Packard Enterprise hardware Product is a specified, fixed period commencing on the date of purchase. Your HPE Limited Warranty may include a parts only warranty service. Under the terms of parts only service, Hewlett Packard Enterprise will provide replacement parts free of charge. If Hewlett Packard Enterprise carries out the repair, labor and logistics costs are at your expense. Hardware support and is available for 3 years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HPE Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the HPE Cloudline Servers and Options Global Limited Warranty and Technical Support for details.

NOTE: Server Warranty includes 3 year five (5) day Parts response time, 0-Years Labor, 0-Years Onsite support. Addition information regarding worldwide limited warranty and technical support is available at http://www.hp.com/support/cloudline_warranty_en

Response time: Response times are based on local standard business days and working hours. Unless

Standard Features

otherwise stated, all responses are measured from the time the customer calls until Hewlett Packard Enterprise has either established a mutually acceptable time for support to be performed, or Hewlett Packard Enterprise has begun to provide support or remote diagnostics. Response time is based on commercially reasonable effort. In some countries and under certain supplier constraints, response time may vary. If your location is outside the customary service zone, response time may be longer or there may be an additional charge. Contact your local Hewlett Packard Enterprise service organization for response time availability in your area.

Services

HPE Technology Services

HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to Hewlett Packard Enterprise to help prevent problems and solve issues faster. Our support technology lets you to tap into the knowledge of millions of devices and thousands of experts to stay informed and in control, anywhere, any time.

Protect your business beyond warranty with HPE Care Pack Services

HPE Care Pack Services enable you to order the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement for the term you select.

Standard Support recommendation

HPE Cloudline Carepacks Service Connect to Hewlett Packard Enterprise for faster problem resolution. Cloudline Carepack Services provides hardware onsite response. Simplify your support experience and make Hewlett Packard Enterprise your first call for hardware or software questions.

Related Services

Data Center Platform Consulting Services

These services help modernize key systems and leverage new technology to support a changing business climate and prepare you for the new style of IT. Hewlett Packard Enterprise understands the needs of the data center of the future and will serve as your guide for the journey. <http://www.hp.com/services/consulting>

Data Privacy Services

Protect your data through better media management. HPE Data privacy services help manage and protect sensitive data. <http://www.hp.com/services/dataprivacy>

Additional HPE Care Pack services can be found at: <http://www.hp.com/go/cpc>

Parts and Materials

Hewlett Packard Enterprise will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements. Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

For HPE Cloudline spare parts replenishment, see the Hewlett Packard Enterprise website http://www.hp.com/support/cloudline_parts

Pre-configured Models

Step 1: Base Configuration (Base chassis with HDD drawers)

HPE Chassis – Cloudline CL5200 G3 HPE Cloudline CL5200 G3 2-node PMC Expander Storage Configure-to-order Chassis 855069-B21
NOTE: Standard 5 hot-plug fan module included

NOTE: Standard 2400W N+N Redundant Power Supply Included

Step 1a: Select Nodes (choose one or two of the following configurable models)

HPE Server Nodes - Cloudline CL5200 G3 HPE Cloudline CL5200 G3 RJ45 I/O Configure-to-order Compute Node Server 855083-B21

HPE Cloudline CL5200 G3 SFP+ I/O Configure-to-order Compute Node Server 860256-B21

NOTE: 855083-B21 is for use with 10Base-T NIC

NOTE: 860256-B21 is for use with SFP+ or QSFP NIC

Step 2: Choose Required Node Options (only one of the following from each list unless otherwise noted)

NOTE: If two processors are desired, select one xxxxxx-L21 and one xxxxxx-B21 for every processor option chosen per node

HPE Processors	<p>E5-2600v4 series Processors</p> <p>HPE CL G3 Intel Xeon E5-2603 v4 (1.7GHz/6-core/85W) FIO Processor Kit 847824-L21</p> <p>HPE CL G3 Intel Xeon E5-2609 v4 (1.7GHz/8-core/85W) FIO Processor Kit 857634-L21</p> <p>HPE CL G3 Intel Xeon E5-2620 v4 (2.1GHz/8-core/85W) FIO Processor Kit 848499-L21</p> <p>HPE CL G3 Intel Xeon E5-2630 v4 (2.2GHz/10-core/85W) FIO Processor Kit 847822-L21</p> <p>HPE CL G3 Intel Xeon E5-2640 v4 (2.4GHz/10-core/90W) FIO Processor Kit 847812-L21</p> <p>HPE CL G3 Intel Xeon E5-2650 v4 (2.2GHz/12-core/105W) FIO Processor Kit 847810-L21</p> <p>HPE CL G3 Intel Xeon E5-2660 v4 (2.0GHz/14-core/105W) FIO Processor Kit 847798-L21</p> <p>HPE CL G3 Intel Xeon E5-2680 v4 (2.3GHz/14-core/120W) FIO Processor Kit 847792-L21</p> <p>HPE CL G3 Intel Xeon E5-2695 v4 (2.1GHz/18-core/120W) FIO Processor Kit 857635-L21</p>
HPE Memory	<p>HPE CL 16GB (1x16GB) Dual Rank x4 DDR4-2400 Registered Memory Kit 851005-B21</p> <p>HPE CL 32GB (1x32GB) Dual Rank x4 DDR4-2400 Registered Memory Kit 851007-B21</p> <p>HPE CL 64GB (1x64GB) Dual Rank x4 DDR4-2400 LR Registered Memory Kit 859992-B21</p> <p>NOTE: Select one or more memory from section above. A minimum of two memory kits are required if server is configured with two processors</p> <p>NOTE: If only one processor is installed, only half of the total DIMM slots are available. When populating with two processors, all 16 DIMM slots are available.</p> <p>NOTE: Depending on the memory configuration and processor model, the memory speed may run at 2400MHz, 2133MHz or 1866MHz.</p> <p>Registered DIMMs (RDIMMs) for E5-2600 v4 Series</p>
HPE RAID Controller (Data Drives)	<p>HPE CL PMC-ASR-8885 RAID Controller Kit 860004-B21</p> <p>HPE CL PMC-AFM-700 Super Capacitor Flash Module Device for 8885 RAID Adapter 860046-B21</p> <p>HPE CL LSI CVM02 CacheVault Module Kit 860048-B21</p> <p>HPE CL LSI SAS 9300-8e Host Bus Adapter 851320-B21</p> <p>NOTE: One RAID or HBA card must be selected per compute node. For connection to LFF data hard drives.</p> <p>NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends the use of a Hewlett Packard Enterprise approved configurator. Contact your local sales representative for additional information.</p>
HPE Networking	<p>HPE CL Ethernet Intel® X540 2-port 10GBASE-T OCP Mezzanine Adapter 847932-B21</p> <p>HPE CL 40GbE QSFP28 Dual Port Mellanox OCP Mezzanine Adapter 847934-B21</p> <p>HPE CL Ethernet 25Gb 2-port SFP28 Mellanox OCP Mezzanine Adapter 847936-B21</p> <p>HPE CL Ethernet 10Gb 2-port SFP+ OCP Mezzanine Adapter 851279-B21</p> <p>SFF (2.5-inch) SSD Drives (Boot)</p> <p>HPE CL 256GB 6G SATA Value Endurance SFF (2.5in) Sandisk Solid State Drive Kit 851019-B21</p> <p>HPE CL 800GB 6G SATA SFF (2.5in) Enterprise Intel S3610 Solid State Drive Kit 867477-B21</p> <p>HPE CL 960GB 6G SATA SFF (2.5in) Enterprise Toshiba PM863 Solid State Drive Kit 858337-B21</p> <p>HPE CL 1.6TB 6G SATA SFF (2.5in) Enterprise Intel Read Intensive Solid State Drive Kit</p>

Pre-configured Models

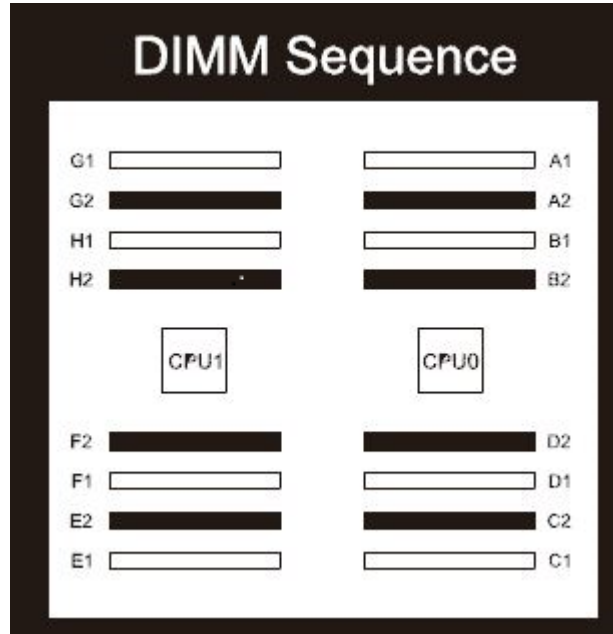
		872587-B21
HPE Disk Drives	NOTE: Select 1 or 2 boot drives per compute node	
Storage Sleds	Hot Plug LFF (3.5-inch) Drives (Data)	
	HPE CL 6TB 6G SATA 7.2K rpm LFF (3.5in) Hitachi Midline Hard Drive	851232-B21
	HPE CL 6TB 6G SATA 7.2K rpm LFF (3.5in) Seagate Midline Hard Drive	847820-B21
	HPE CL 8TB 6G SATA 7.2K rpm LFF (3.5in) 512e Seagate Midline Hard Drive	848539-B21
	HPE CL 10TB 6GB SATA 7.2K rpm LFF (3.5in) HGST Midline Hard Drive Kit	860036-B21
	HPE CL 10TB 6GB SATA 7.2K rpm LFF (3.5in) Seagate Midline Hard Drive Kit	860038-B2
	NOTE: Select up to 80 LFF data drives per chassis (20 Minimum per storage tray)	
Step 4: Choose Additional for Factory Integration from Core and Additional Options sections below.		
NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends the use of a Hewlett Packard Enterprise approved configurator. Contact your local sales representative for additional information.		
HPE Processors	NOTE: Please choose processor options for the second processor of each compute node	
	E5-2600v4 series Processors	
	HPE CL G3 Intel Xeon E5-2603 v4 (1.7GHz/6-core/85W) Processor Kit	847824-B21
	HPE CL G3 Intel Xeon E5-2609 v4 (1.7GHz/8-core/85W) Processor Kit	857634-B21
	HPE CL G3 Intel Xeon E5-2620 v4 (2.1GHz/8-core/85W) Processor Kit	848499-B21
	HPE CL G3 Intel Xeon E5-2630 v4 (2.2GHz/10-core/85W) Processor Kit	847822-B21
	HPE CL G3 Intel Xeon E5-2640 v4 (2.4GHz/10-core/90W) Processor Kit	847812-B21
	HPE CL G3 Intel Xeon E5-2650 v4 (2.2GHz/12-core/105W) Processor Kit	847810-B21
	HPE CL G3 Intel Xeon E5-2660 v4 (2.0GHz/14-core/105W) Processor Kit	847798-B21
	HPE CL G3 Intel Xeon E5-2680 v4 (2.3GHz/14-core/120W) Processor Kit	847792-B21
	HPE CL G3 Intel Xeon E5-2695 v4 (2.1GHz/18-core/120W) Processor Kit	857635-B21
HPE Memory	NOTE: Please choose memory options for the second processor of each compute node. Up to 8 DIMMS per socket	
	HPE CL 16GB (1x16GB) Dual Rank x4 DDR4-2400 Registered Memory Kit	851005-B21
	HPE CL 32GB (1x32GB) Dual Rank x4 DDR4-2400 Registered Memory Kit	851007-B21
	HPE CL 64GB (1x64GB) Dual Rank x4 DDR4-2400 LR Registered Memory Kit	859992-B21
HPE Heatsink Kit	HPE CL5200 G3 P1 Heatsink Kit	865540-B21
	HPE CL5200 G3 P2 Heatsink Kit	865541-B21
	NOTE: A Heatsink is required for each processor	
HPE HDD Carrier Kit	HPE CL LFF (3.5in) Hard Drive Carrier Kit	850001-B21
	NOTE: Each CL5200 will come with 80 carriers installed.	
HPE Internal SAS Cable Kit	HPE Mini-SAS to SATA x2 Cable Kit	867110-B21
	NOTE: This optional mini-SAS cable should be selected when the internal boot drives need to be connected to the RAID card instead of the onboard PCH. This option is only available when selecting the PMC 8885 Raid Card.	
HPE LFF to SFF Drive Converter Kit	HPE CL5200 LFF to SFF Drive Converter Kit	869861-B21
	NOTE: This optional drive carrier converter allows 2.5" SSDs to be used in the 3.5" LFF drive bays of the sled enclosure. This kit can only be used with the 800GB SSD (863083-B21) with a max limit of 5x SSDs per drive enclosure.	

Memory

Memory Subsystem Architecture

Each Intel® Xeon® E5-2600v4 family processor socket contains four memory channels per installed processor with two DIMM per channel for a total of eight (8) DIMMs or a grand total of sixteen (16) DIMMs for the server.

Memory Population guidelines



General Memory Population Rules and Guidelines:

- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors and load the channels similarly whenever possible.
- When two processors are installed, balance the DIMMs across the two processors.
- DIMMs of different speeds may be mixed in any order; the server will select a common optimal speed.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the memory type and number of installed processors.

DIMM Type	Registered Dimms (RDIMMs)
DIMM Rank	Dual Rank
DIMM Capacity	16GB, 32GB, 64GB
Voltage	Standard Voltage 1.2V
16 slot servers	16
MAXIMUM CAPACITY (GB)	1024
1 DIMM Per Channel	2133MHz or 2400MHz (Processor Dependent)
2 DIMM Per Channel	1866MHz or 2133MHz (Processor Dependent)

Technical Specifications

Processor Models	Supported Memory Speeds
E5-2603v4	1866MHz
E5-2609v4	1866MHz
E5-2620v4	2133MHz
E5-2630v4	2133MHz
E5-2640v4	2133MHz
E5-2650v4	2400MHz
E5-2660v4	2400MHz
E5-2680v4	2400MHz
E5-2695v4	2400MHz

NOTE: Capacity references are rounded to the common gigabyte (GB) values.

- 2GB = 2,048MB
- 4GB = 4,096MB
- 8GB = 8,192MB
- 16GB = 16,384MB

Technical Specifications

System Unit	Dimensions (H x W x D)	6.93" x 17.64" x 42.05" (176mm x 448mm x 1068mm)	
	Weight (approximate)	Maximum:	271 lbs. (122.8 kg)
		(all hard drives, power supplies, and processors installed)	
	Input Requirements	Rated Line Voltage	AC input: 200-240V DC input: 240V
		Rated Input Current	200-240Vac ~13.6A 240Vdc ~13.3A
		Rated Input Frequency	50/60Hz
		Rated Input Power	AC input: 2700W DC input: 2700W
	BTU Rating	Maximum	8191BTU/hour at 220Vac
	Power Supply Output	Rated Steady-State Power	2400W
		Maximum Peak Power	2640W
System Unit	System Inlet Temperature	Standard Operating Support	0° to 35°C (50° to 95°F)
		Non-operating	-40° to 70°C.
	Relative Humidity	Operating	50% to 80% relative humidity (Rh)
Non-operating (non-condensing)		50% to 90% relative humidity (Rh))	
Altitude	Non-operating	All temperature ratings shown are for sea level. An altitude derating of 1°C per 304.8m (1.8°F per 1,000 ft) to 3048 m (10,000 ft) is applicable.	

NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

Summary of Changes

Date	Version History	Action	Description of Change
27-Mar-2017	From version 5 to 6	Updated	Update the pre-configured section
13-Feb-2017	From version 4 to 5	Changed	Add SATA SKUs
9-Dec-2016	From version 3 to 4	Updated	Updated commodities and corrections
06-Jun-2016	From version 2 to 3	Updated	Updated with new options for Xeon E5-2600v4
13-May-2016	From version 1 to 2	Updated	Update information for the CL5200 G3
31-Mar-2016	Version 1	Created	Create HPE Cloudline CL5200 G3



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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less

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