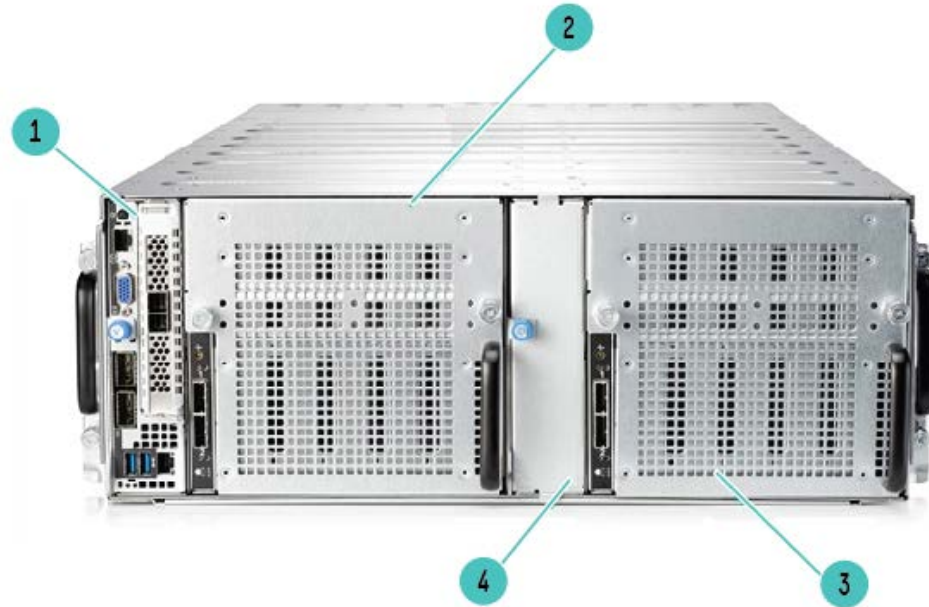


Overview

HPE Cloudline CL5200 G3 Server

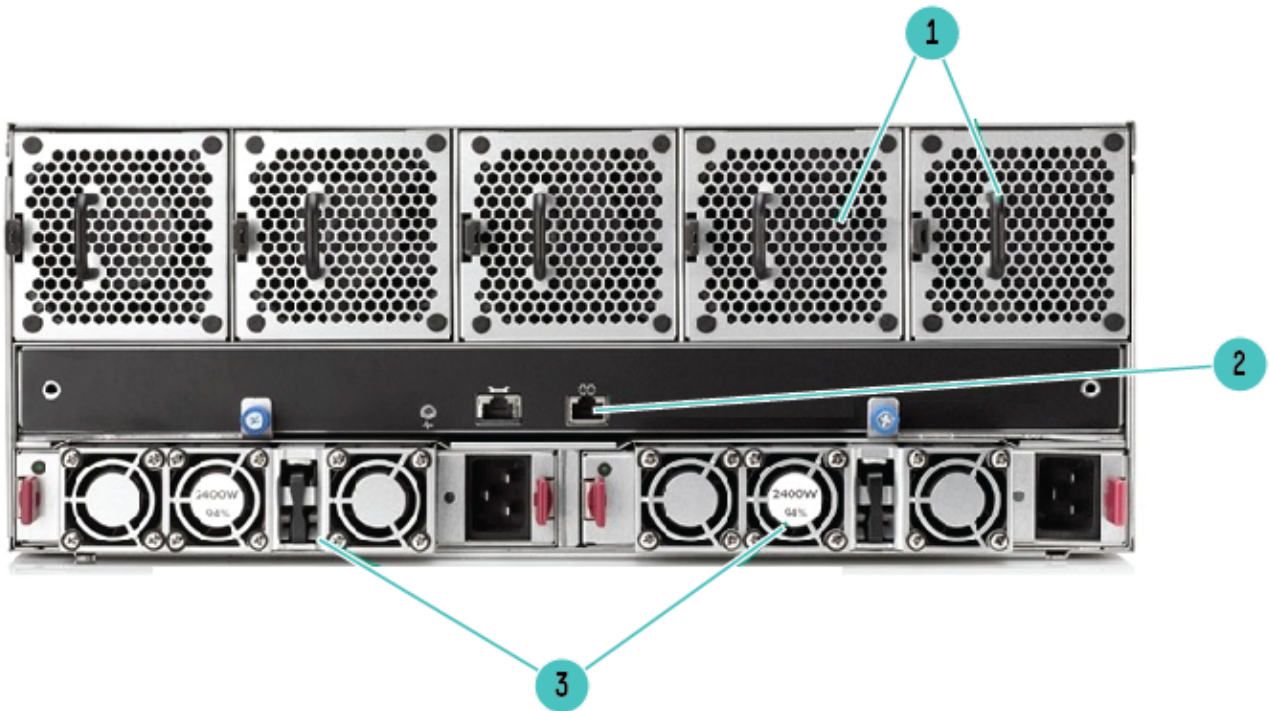
The HPE Cloudline CL5200 G3 Server is a 4U open-standards based storage server that is purpose built for cold storage, object storage, and data analytics applications. Supporting one or two compute nodes and up to 80 Large Form Factor (LFF) drives in a 4U form factor the Cloudline CL5200 G3 Server provides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



Front View

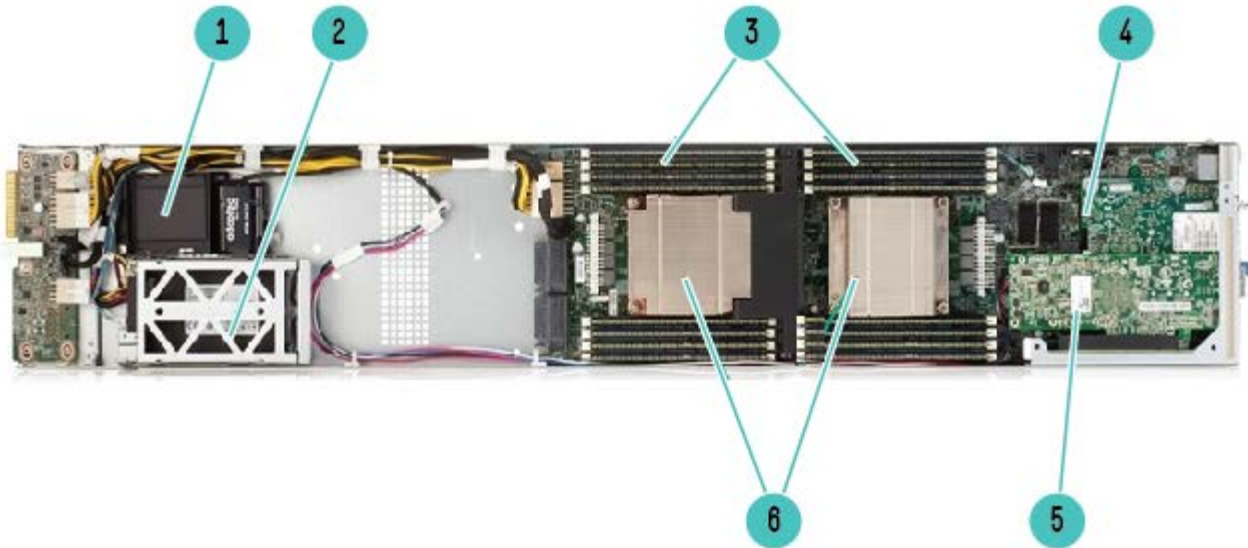
1. Compute Node #1
2. Storage Drawer #1 (Drives 1-40)
3. Storage Drawer #2 (Drives 41-80)
4. Compute Node #2 (Optional)

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/xeon>.

Intel® Xeon® processor E5-2600 v3 and v4 product families are designed to deliver the best combination of performance, built-in capabilities, and cost-effectiveness. One (or two) of the following Intel® Xeon® E5-2600 v3/v4 processors based on the model.

Model	CPU frequency	Cores	L3 Cache	TDP	QPI	DDR4 Maximum Speed
E5-2620v3	2.4GHz	6	15MB	85W	8.0GT/s	1866 MHz
E5-2630v3	2.4GHz	8	20MB	85W	8.0GT/s	1866 MHz
E5-2660v3	2.3GHz	12	30MB	120W	9.6GT/s	2133 MHz
E5-2680v3	2.3GHz	12	30MB	120W	9.6GT/s	2133 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 v3/v4 Processor Family

NOTE: For more information regarding Intel chipsets, please see the following <http://www.intel.com/products/server/chipsets/>.

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.

Standard Features

Expansion Slots	Expansion Slots #	Technology	Bus Width	Connector Width	Form Factor	Notes
PCIe riser slots	1	PCIe 3.0	X16	X16	Low profile	RAID/HBA
	2	PCIe 3.0	x16	X8	Low profile	Optional
	3	PCIe 3.0	x16	x16	OCP Mezz	Networking

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 2013**

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

Standard Features

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 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

Configuration Information - Factory Integrated Models

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

HPE Chassis – HPE CL5200 G3 NS CTO Chassis 855069-B21

Cloudline CL5200 G3 **NOTE: Standard 5 hot-plug fan module included**
NOTE: Standard 2400W N+N Redundant Power Supply Included

Step 1a: Select Hard Drives (choose minimum of twenty and maximum of eighty hard drives)

HPE Hard Drives **Hot Plug LFF (3.5-inch) Drives**

HPE CL 4TB 6G SATA 7.2K rpm LFF (3.5in) Hitachi Midline Hard Drive	851211-B21
HPE CL 4TB 6G SATA LFF (3.5in) Hitachi 5.7K rpm MegaScale Hard Drive	851209-B21
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) Hitachi Midline Hard Drive	853381-B21
HPE CL 8TB 6G SATA 7.2K rpm LFF (3.5in) Seagate Midline Hard Drive	848539-B21
HPE CL 8TB 6G SATA 5.9K rpm LFF (3.5in) Seagate SMR Hard Drive	851238-B21
HPE CL 10TB 6G SATA 7.2K rpm LFF (3.5in) Hitachi Midline Hard Drive	860036-B21
HPE CL 10TB 6G SATA 7.2K rpm LFF (3.5in) Seagate Midline Hard Drive	860038-B21

Step 1b: Select Nodes (choose one or two of the following configurable compute nodes)

HPE Server Nodes - HPE CL 5200 G3 Compute Node with RJ-45 I/O 855083-B21

Cloudline CL5200 G3 **NOTE: 855083-B21 is for use with 10Base-T NIC**
 HPE CL 5200 G3 Compute Node with SFP+ I/O 860256-B21
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)

HPE Processors **E5-2600v3 series Processors**

HPE CL G3 Intel Xeon E5-2620 v3 (2.4GHz/6-core/85W) FIO Processor Kit	847806-L21
HPE CL G3 Intel Xeon E5-2630 v3 (2.4GHz/8-core/85W) FIO Processor Kit	857739-L21
HPE CL G3 Intel Xeon E5-2660 v3 (2.6GHz/10-core/105W) FIO Processor Kit	858572-L21
HPE CL G3 Intel Xeon E5-2680 v3 (2.5GHz/12-core/120W) FIO Processor Kit	858569-L21

E5-2600v4 series Processors

HPE CL G3 Intel Xeon E5-2620 v4 (2.1GHz/8-core/85W) FIO Processor Kit	848499-L21
HPE CL G3 Intel Xeon E5-2630 v4 (2.2GHz/10-core/85W) FIO Processor Kit	847822-L21
HPE CL G3 Intel Xeon E5-2640 v4 (2.4GHz/10-core/90W) FIO Processor Kit	847812-L21
HPE CL G3 Intel Xeon E5-2650 v4 (2.2GHz/12-core/105W) FIO Processor Kit	847810-L21
HPE CL G3 Intel Xeon E5-2660 v4 (2.0GHz/14-core/105W) FIO Processor Kit	847798-L21
HPE CL G3 Intel Xeon E5-2680 v4 (2.3GHz/14-core/120W) FIO Processor Kit	847792-L21
HPE CL G3 Intel Xeon E5-2695 v4 (2.1GHz/18-core/120W) FIO Processor Kit	857635-L21

NOTE: If two processors are desired, select one xxxxxx-L21 and one corresponding xxxxxx-B21 for each node selected.

NOTE: A Heatsink (865540-B21) is required for each processor ordered.

HPE Memory **Registered DIMMs (RDIMMs) for E5-2600v3 Series**

HPE CL 16GB (1x16GB) Dual Rank x4 DDR4-2133 Registered Memory Kit	847826-B21
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Registered DIMMs (RDIMMs) for E5-2600v4 Series

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

NOTE: Select one or more memory from section above. A minimum of two memory kits are required if server is configured with two processors.

NOTE: If E5-2600v3 processors are selected, must select RDIMMs for E5-2600v3

Configuration Information – Factory Integrated Models

Series.

NOTE: If E5-2600v4 processors are selected, must select RDIMMs for E5-2600v4

Series.

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.

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 2400MHz, 2133MHz or 1866MHz.

HPE RAID Controller (Data Drives)	HPE CL PMC-ASR-8885e RAID Controller Kit	851318-B21
	HPE CL LSI MegaRAID SAS 9380-8e Controller Kit	851316-B21
	HPE CL LSI SAS 9300-8e RAID Card Kit	851320-B21
	NOTE: One RAID card must be selected per compute node.	
HPE Networking	HPE CL X540 2p 10GBASE-T OCP Mezz Card	847932-B21
	HPE CL 10GbE SFP+ 2p Mellanox Mezz Card	860040-B21
	HPE CL 40GbE 2p Mellanox Mezz Card	847934-B21
	HPE CL 1-port Broadcom 25GbE OCP Mezzanine Card	861718-B21
	HPE CL 2-port Mellanox 25G OCP Mezzanine Card	847936-B21
	HPE CL 2-port Intel 10GbE SFP+ OCP Mezzanine Card	851279-B21

Step 3: Choose additional options for Factory Integration from Core and Additional Options sections below.

Core and Additional Options

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	E5-2600v3 series Processors	
	HPE CL G3 Intel Xeon E5-2620 v3 (2.4GHz/6-core/85W) Processor Kit	847806-B21
	HPE CL G3 Intel Xeon E5-2630 v3 (2.4GHz/8-core/85W) Processor Kit	857739-B21
	HPE CL G3 Intel Xeon E5-2660 v3 (2.6GHz/10-core/105W) Processor Kit	858572-B21
	HPE CL G3 Intel Xeon E5-2680 v3 (2.5GHz/12-core/120W) Processor Kit	858569-B21
	E5-2600v4 series Processors	
	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	
	NOTE: A Heatsink (865541-B21) is required for each processor ordered.	
HPE Memory	Registered DIMMs (RDIMMs) for E5-2600v3 Series	
	HPE CL 16GB (1x16GB) Dual Rank x4 DDR4-2133 Registered Memory Kit	847826-B21
	Registered DIMMs (RDIMMs) for E5-2600v4 Series	
	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 Storage Controller Upgrades	HPE CL PMC-AFM-700 Super Capacitor Flash Module Device for 8885e RAID Card	860046-B21
	NOTE: Can only be selected if PMC RAID Controller (851318-B21) is ordered.	
	HPE CL LSI CVM02 CacheVault Module for 9300 Series RAID Card	860048-B21
	NOTE: Can only be selected if LSI RAID Controller (851316-B21 or 851320-B21) is ordered.	
HPE Hard Drives	SFF (2.5-inch) HDD Drives	
	HPE CL 1TB 6GB SATA 7.2K SFF ENT HDD	848503-B21
	SFF (2.5-inch) SSD Drives	
	HPE CL 120GB 6G SATA SFF VE Int SSD Kit	851011-B21
	HPE CL 120GB 6G SATA SFF VE SGT SSD Kit	851015-B21
	HPE CL 256GB 6G SATA SFF VE TSH SSD Kit	847836-B21
	HPE CL 256GB 6G SATA SFF VE SNDK SSD Kit	851019-B21
	HPE CL 480GB 6G SATA SFF VE SMSNG SSD Kit	807825-B21
	HPE CL 480GB 6G SATA SFF VE INTEL SSD Kit	851178-B21
	HPE CL 512GB 6G SATA SFF VE TSH SSD Kit	847838-B21
	NOTE: May select up to two (2) drives per compute node	
HPE Rail Kit	HPE CL L shape Rail Kit	863056-B21
HPE HDD Carrier Kit	HPE CL LFF (3.5in) Hard Drive Carrier Kit	850001-B21
	NOTE: Spare 3.5" HDD Carriers for adding HDDs if not fully populated when ordered	

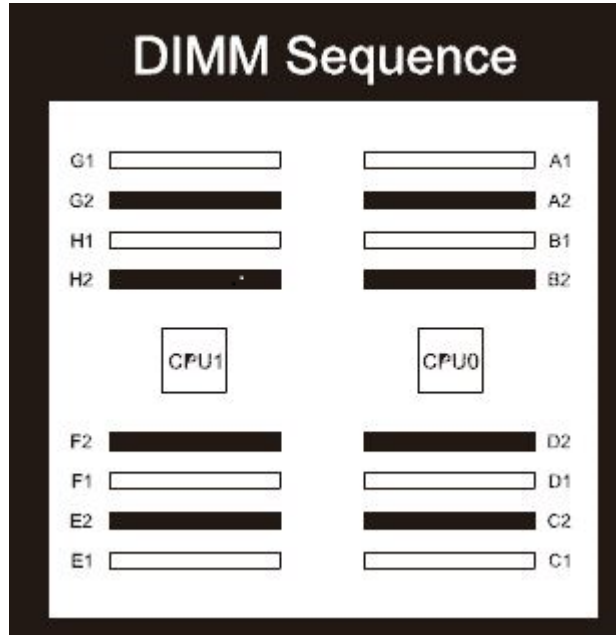
Core and Additional Options

Memory

Memory Subsystem Architecture

Each Intel® Xeon® E5-2600v3/v4 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 or 32GB
Voltage	Standard Voltage 1.2V
16 slot servers	16
MAXIMUM CAPACITY (GB)	512
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
E5-2620v3	1866MHz
E5-2630v3	1866MHz
E5-2660v3	2133MHz
E5-2680v3	2133MHz
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
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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Red Hat is a trademark of Red Hat, Inc. in the U.S. and other countries.

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

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