

Overview

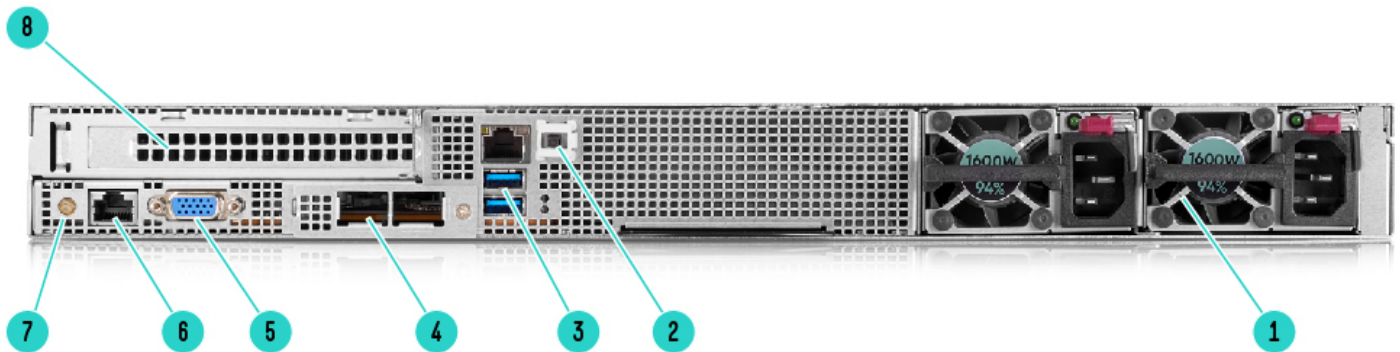
HPE Cloudline CL3150 Gen10 Server

The HPE Cloudline CL3150 Gen10 is a new 1U 1P AMD EPYC dense fast storage server for Cloud Service Providers that Features the latest AMD EPYC 7000 series processors, choice 24NVMe or 22NVMe + 2 SATA SSD hard drives. Without any extras, this server is ideal for Big data applications, In-memory databases with fast persistent storage, High-performance database management systems and Predictive analysis and machine learning workloads to meet the storage needs of Service Providers.



Item Front View

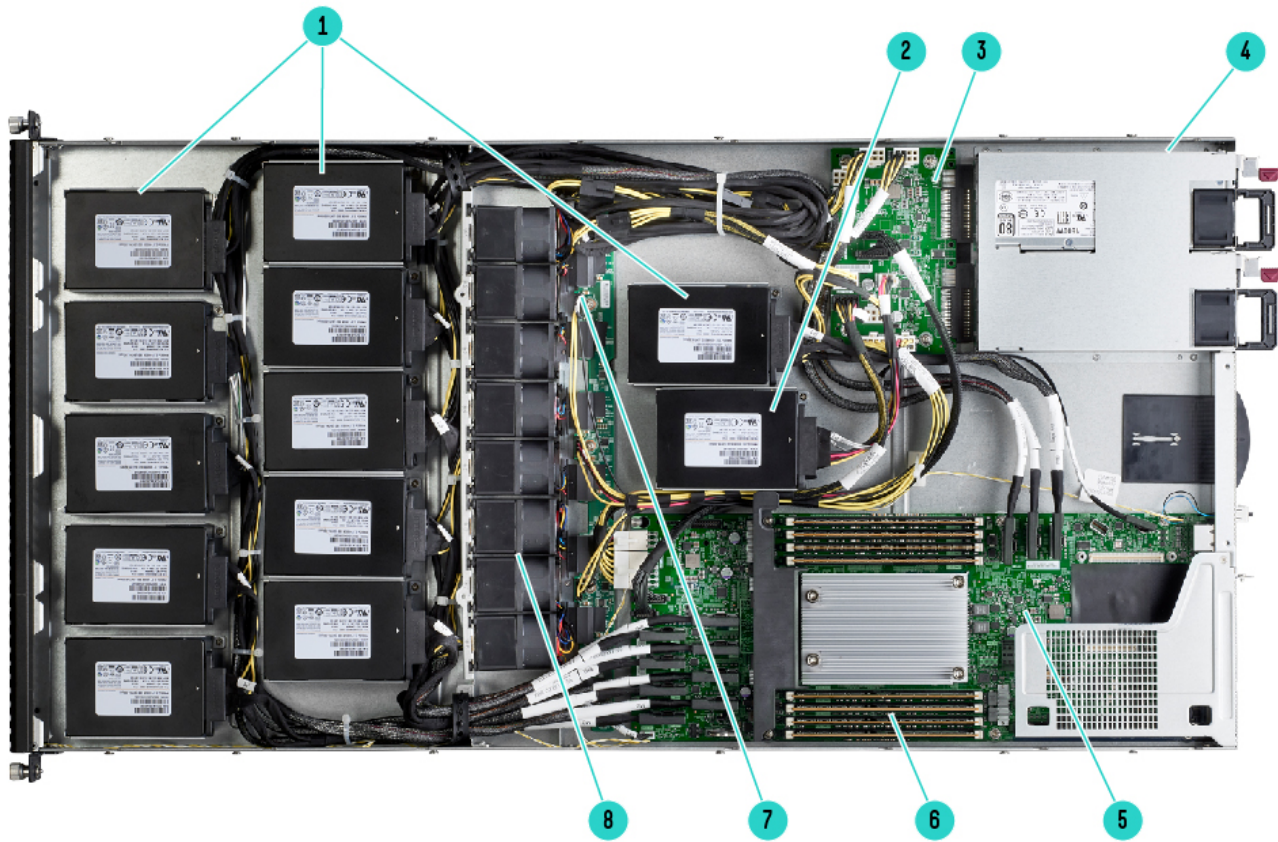
1. UID LED



Item Rear View

1. (2) Redundant PSUs
2. UID Button
3. RJ45 Management port + (2) USB 3.0 Ports
4. OCP mezzanine card
5. VGA port
6. RJ45 for serial console
7. Power button
8. PCIe Card

Overview



Item Internal View

1. (22) NVMe
2. (2) SATA SSD or NVMe
3. (1) PDB Board
4. (2) Redundant PSUs
5. (1) System Board
6. (8) DIMM slots
7. (1) Fan Control Board
8. (8) Non Hot-plug fans

Standard Features

Processor

NOTE: For more information regarding AMD EPYC processors, please see the following <http://www.amd.com/en/products/epyc-7000-series>.

NOTE: Up to 1 processor supported. Mixing different processor models is not supported.

AMD® EPYC® processor 7000 product family

Model	CPU frequency	Cores	L3 Cache	TDP	PCIe	DDR4 Maximum Speed
7601	2.2GHz	32	64MB	180W	128	2667 MHz
7551P	2.0GHz	32	64MB	180W	128	2667 MHz
7401P	2.0GHz	24	64MB	155W	128	2667 MHz
7351P	2.4GHz	16	64MB	155W	128	2667 MHz
7251	2.1GHz	8	32MB	120W	128	2400MHz

Upgradeability

Up to 8 DIMM slots available for higher Memory capacity
 OCP Mezzanine connector for 10/25/50 Gigabit networking options
 PCIe connector for 100 Gigabit networking options
 24NVMe SSD or 22NVMe + 2 SATA SSD Drive Cage Bay

On System Processor

iBMC ASPEED AST2500 with KVM Support

Memory

Industry Standard DDR4 Registered (RDIMM/LRDIMM)
 DIMM Slots Available 8
 (8 DIMM slots per processor, 8 channels per processor, 1 DIMMs per channel)
 Maximum Capacity 512GB
 (8 x 64GB LRDIMM) 16GB/32GB/64GB DDR4 up to 2666MT/s

Memory Protection

ECC with Chipkill capability
 Corrected Error Counters
 Software-Managed Bad Symbol ID
 Patrol Scrubber
 Redirect Scrubber
 Address/Command Parity with Replay
 Write Data CRC with Replay
 Thermal Throttling
 DDR4 Post Package Repair
 Row Hammer Protection
 MCA Address Translation

Expansion Slots One of the following depending on model

Expansion Slots #	Technology	Bus Width	Connector Width	Form Factor	Notes
Slot 1	PCIe 3.0	X16	X16	Low profile	RAID/HBA
OCP Mezz	PCIe 3.0	X16	X16	OCP Mezz 2.0	Networking, TYPE 1 (backward compatible to OCP 1.0)

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

Internal Storage Devices One of the following depending on model

Optical Drive None
 Hard Drives None ship standard
 Drive Bays 24 NVMe SSD or 22 NVMe SSD + 2 SATA SSD

NOTE: 24 NVMe drives is support with Ambient 25°C

Maximum Internal Storage

NVMe SSD	76.8TB	24 x 3.2TB
SFF SATA SSD	7.68TB	2 x 3.84TB

Standard Features

Power Supply	HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
System Fans	(8) 4056 Non Hot Plug Redundant fans
Interfaces	RJ45 for serial console 1 Video 1 OCP NIC ports 2x SFP+ ports (for OCP NIC Mezzanine card) - depending on model IPMI management port dedicated 10/100/1000M LAN port USB 3.0 Ports Up to 2
Operating Systems	Windows Server 2012 R2 Windows Server 2016 Datacenter Windows Server 2016 Essentials Windows Server 2016 Standard SLES 12 SP2 (64 bit) SLES 12 SP3 (64 bit) Ubuntu 16.04 (Test only) RHEL 7.4 (64 bit) VMware ESXi 6.5 U1 NOTE: Tested for successful installation only, No Operating Systems certification done unless indicated.
Industry Standard Compliance	ACPI 2.0b Complaint PCIe 3.0 Complaint PXE Support WOL Support USB 3.0 Support
Graphics	Integrated PCIe VGA/2D Controller via ASPEED 2500 BMC, 1920 x 1200 @ 60Hz (32 bpp)
Form Factor	17.26" x 34.48" x 1.71" (438.5mm x 875.99mm x 43.5mm) 1U Rack form factor
Security	Power-on password Administrator's password UEFI
Warranty	Server Warranty includes 3 Years Parts only with five (5) business days part response time. Additional information regarding worldwide limited warranty and technical support is available at http://www.hpe.com/support/cloudline_warranty_en

HPE Pointnext – Service and Support

HPE Cloudline Support Services

HPE Pointnext Support Services provide remote diagnosis and support, scheduled onsite hardware repair/troubleshooting, and coverage for replacement components, including defective media retention (DMR). With HPE Cloudline Support Services, you can purchase the services that meet your specific needs.

- HPE CL3150 Parts + Remote Technical Support + Defective Media Retention
- HPE CL3150 Parts + Remote Technical Support + Onsite Labor
- HPE CL3150 Parts + Remote Technical Support + Onsite Labor + Defective Media Retention

Additional information regarding HPE packaged support services for Cloudline servers is available at: <https://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA5-9207ENN.pdf>.

Parts and Materials

HPE 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 quick-specs, 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 HPE due to malfunction.

Other Related Services

Datacenter Care for Hyperscale

DC for Hyperscale is available for Service Providers and HPC customers who use a scale out approach to computing with a high volume homogenous infrastructure and resilient architecture. Customers can take advantage of this environment support tailored to their operating model.

Configuration Information - Factory Integrated Models

This section lists some of the steps required to configure a Factory Integrated Model. 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 information on configurable product offerings and requirements.

1. Factory Integrated Models must start with a CTO Server.
2. FIO indicates that this option is only available as a factory installable option.
3. All Factory Integrated Models will be populated with sufficient hard drive blanks
4. Some options may not be integrated at the factory. Contact your local sales representative for additional information.

Step 1: Base Configuration (choose one of the following configurable models)

SKU Number	879727-B21
Processor	1
DIMMSlots	8 DIMM slots for RDIMM/LRDIMM DDR4 Memory
PCIe	1 Full height half-length PCIe 3.0 slot, 1 OCP Mezz Slot
Drive Cage	24 NVMe or 22 NVMe + 2 SATA SSD
Fans	8 non hot plug fans, redundant
Management	ASPEED AST2500 with a dedicated 10/100M management LAN port, on board "KVM over IP" support, Redfish API, IPMI
USB	2 USB 3.0 Ports rear

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

HPE Processors

AMD EPYC 7000 series Processor

HPE CL G4 AMD EPYC 7251 (2.10GHz/8-core/32MB/120W) FIO Processor Kit	881373-L21
HPE CL G4 AMD EPYC 7351P (2.4GHz/16-core/64MB/155W) FIO Processor Kit	881377-L21
HPE CL G4 AMD EPYC 7401P (2.00GHz/24-core/64MB/155W) FIO Processor Kit	881381-L21
HPE CL G4 AMD EPYC 7551P (2.00GHz/32-core/64MB/180W) FIO Processor Kit	881471-L21
HPE CL G4 AMD EPYC 7601 (2.2GHz/32-core/64MB/180W) FIO Processor Kit	880213-L21

HPE Memory

HPE CL 16GB (1x16GB) Single Rank x4 DDR4-2666 CAS-19-19-19 Registered Memory FIO Kit	881067-B21
HPE CL 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Memory FIO Kit	880841-B21
HPE CL 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Memory FIO Kit	880842-B21

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

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 2667MHz, 2400MHz.

HPE HDD

NVMe SSD HDD – PCIe

HPE CL 1.92TB NVMe Read Intensive SFF (2.5in) x 7mm Samsung PM963 3yr Wty Solid State Drive Kit	880846-B21
HPE CL 1TB NVMe Read Intensive SFF (2.5in) x 15mm Intel P4500 Solid State Drive Kit	880844-B21
HPE CL 2TB NVMe Read Intensive SFF (2.5in) x 15mm Intel P4500 Solid State Drive Kit	880845-B21
HPE CL 3.2TB NVMe Mixed Use SFF (2.5in) x 15mm Samsung PM1725a Solid State Drive Kit	P00252-B21

Hot Plug SFF (2.5-inch) SATA SSD – 6Gb/s

HPE CL 1.92TB 6G SATA Mixed Use SFF (2.5in) Samsung SM863a 3yr Wty Solid State Drive Kit	880848-B21
HPE CL 3.84TB 6G SATA Read Intensive SFF (2.5in) Intel S4500SE Solid State Drive Kit	880860-B21

Configuration Information - Factory Integrated Models

HPE Networking	10 Gigabit Ethernet OCP mezzanine Adapters	
	HPE CL Ethernet 10Gb 2-port SFP+ Intel X520 OCP Mezzanine Adapter	851279-B21
	25 Gigabit Ethernet OCP mezzanine Adapters	
	HPE CL Ethernet 25Gb 1-port SFP28 Intel XXV710-D1 OCP FIO Mezzanine Adapter	880148-B21
	HPE CL Ethernet 25Gb 2-port SFP28 Mellanox ConnectX-4 Lx OCP Mezzanine Adapter	847936-B21
	50 Gigabit Ethernet OCP mezzanine Kit	
	HPE CL Ethernet 50Gb 1-port SFP28 Mellanox ConnectX-4 Lx OCP FIO Mezzanine Adapter	880843-B21
	100 Gigabit Ethernet PCIe Card	
	HPE CL Ethernet 100Gb 1-port QSFP28 Mellanox ConnectX-5 EN PCIe3 FIO Card	880150-B21
Security Hardware	HPE Trusted Platform Module 2.0 Kit	745823-B21

Additional Options

HPE Cloudline Support Services

HPE Cloudline Parts + Remote Technical Support with DMR	H2NA8A3#WGE
HPE Cloudline Parts + Onsite Labor + Remote Technical Support	H0HF0A3#WGE
HPE Cloudline Parts + Onsite Labor + Remote Technical Support with DMR	H2NA9A3#WGE

Memory

Memory Subsystem Architecture

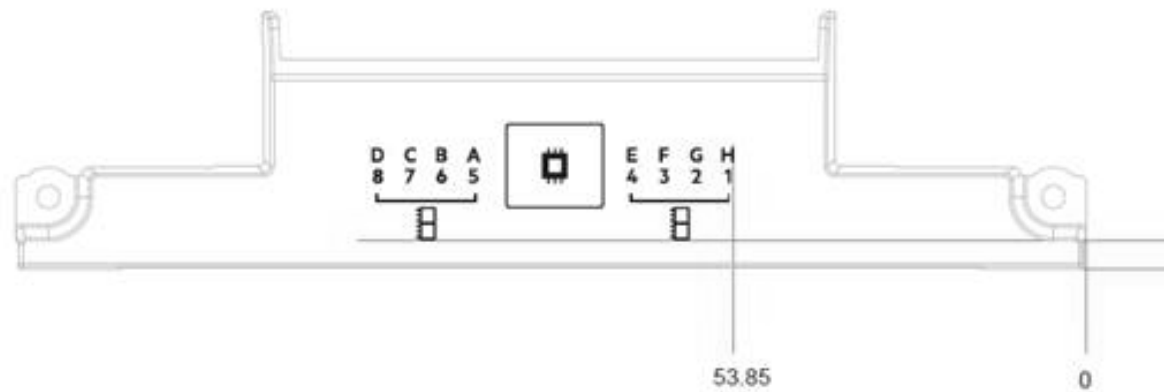
Each AMD EPYC family processor socket contains eight memory channels per installed processor with one DIMM per channel for a total of eight (8) DIMMs for the server.

Memory Population guidelines

Listed below are general Memory Module Population Rules supported by the processor for reference. There is no longer a need to install DIMMs in pairs in non-RAS modes.

The same information is displayed alternatively by rank, by speed, or by qty. That is, when viewing by rank, selecting a particular rank will then show the DIMM qty vs DIMM speed tradeoff/combinations.

- All DIMMs must be DDR4 DIMMs.
- x4 and x8 DIMMs can be mixed in the same channel.
- DIMM install requirement Slot 8, 1, 6, 3, 7, 2, 5, 4
- Mixing of LRDIMMs and RDIMMs is not allowed in the same channel.
- Mixing of non-3DS and 3DS LRDIMMs is not allowed in the same channel.



General Memory Population Rules and Guidelines

Install DIMMs only if the corresponding processor is installed.

To maximize performance, it is recommended to balance the total memory capacity between all installed processors and load the channels similarly whenever possible.

Quad rank RDIMMs are not supported in CL3150 Gen10 Servers

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.

Memory Bandwidth and Capacity

[DIMM Type]	Registered Dimms (RDIMMs)			Load Reduced Dimms (LRDIMMs)
DIMM Rank	Single Rank	Dual Rank		Quad Rank
DIMM Capacity	16GB	32GB		64GB
Voltage	Standard Voltage 1.2V			
8 slot servers	8			
MAXIMUM CAPACITY (GB)	128	256		512

Memory

Memory Speed by Processor Model

EPYC 7000

Processor Models	Supported Memory Speeds
7601,7351P	2667MHz

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

- 16GB = 16,384MB
- 32GB = 32,768MB
- 64GB = 65,536MB

Technical Specifications

System Unit	Dimensions (H x W x D)	17.26" x 34.48" x 1.71" (438.5mm x 875.99mm x 43.5mm)	
	Weight (approximate)	Maximum: (all hard drives, power supplies, and processors installed)	24NVMe 37.04 lb (16.8 kg)
Input Requirements	Rated Line Voltage	AC input: 220V	
	Rated Input Current	For 1600W Power Supply: 7.9 A (at 220 VAC)	
	Rated Input Frequency	47/63Hz	
	Rated Input Power	For 1600W Power Supply: 1726 W (at 220 VAC) 1729 VA (at 220v)	
BTU Rating	Maximum	For 1600 W Power Supply: 5918 BTU/hr (at 220 VAC) 5884 BTU/hr (at 240 VAC)	
Power Supply Output	Rated Steady-State Power	For 1600 Power Supply: 1600 W (at 240 VAC)	
	Maximum Peak Power	For 1600 W Power Supply: 1600 W (at 200 to 240 VAC)	
System Inlet Temperature	Standard Operating Support	5° to 35°C (45° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed. System performance during standard operating support may be reduced if operating with a fan fault or above 35°C (95°F).	
	Non-operating	-40° to 70°C (-40° to 158°F). Maximum rate of change is 25°C/hr (36°F/hr).	
Relative Humidity	Operating	Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity. Maximum to be the lower (less moisture) of 24°C (75.2°F) dew point or 90% relative humidity.	
	Non-operating (non-condensing)	5% to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.	
Altitude	Operating	3048 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 304.8 m/min (1000 ft/min).	
	Non-operating	10668 m (35,000 ft). Maximum allowable altitude change rate is 304.8 m/min (1000 ft/min).	
	Emissions Classification (EMC)	FCC Rating Class A Normative Standards CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; EN 61000-3-2; EN 61000-3-3;	

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.

NOTE: The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

Summary of Changes

Date	Version History	Action	Description of Change
5-Mar-2018	Version 4	Changed	Update throughout all sections in QuickSpecs
4-Dec-2017	Version 3	Updated	Update from G4 to Gen 10 and make overall changes to the QuickSpecs
14-Aug-2017	Version 2	Updated	Update Networking section in QuickSpecs
7-Aug-2017	Version 1	New	New QuickSpecs



Sign up for updates

© Copyright 2018 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

Intel® and Xeon® are registered trademarks of Intel Corporation in the U.S. and other countries. Microsoft®, Windows®, and Windows Server® are U.S. registered trademarks of the Microsoft group of companies.

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

a00018441enw - 15993 - WorldWide - V4 - 2-April-2018



**Hewlett Packard
Enterprise**