

Overview

HPE ProLiant DL325 Gen11 - Carrier Grade Supplement

NEBS Level 3 and ETSI Certified

This section lists some of the steps required to configure a Factory Integrated Model compliant with typically requested telecom carrier NEBS and ETSI requirements. In addition to the worldwide compliance criteria applied to the commercial version of the product, all components listed in this document have been evaluated to the following criteria: SR-3580, Level 3, NEBS Criteria Levels

- GR-1089-CORE, EMC & Electrical Safety
- GR-63-CORE, Physical Protections
- GR-3108-CORE Outside Plant
- ETSI EN 300 386, Class A, EMC
- ETSI EN 300 019-2-1, Class 1.2, Storage
- ETSI EN 300 019-2-2, Class 2.3, Transportation
- ETSI EN 300 019-2-3, Class 3.1 & 3.1E, Stationary use at weather protected locations
- ETSI 300 132, Power supply interface to telecom equipment, -48VDC
- ETSI ETS 300 753, Acoustic noise

To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends the use of an HPE approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

Factory Integrated Models must start with a CTO Server. FIO indicates that this option is only available as a factory installable option. All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server. Some options may not be integrated at the factory. Contact your local sales representative for additional information.

Notes:

- To yield a carrier grade server that is compliant with all the required technical criteria, the product content is limited to what is listed in this document. In addition to this, the system maintenance switch #10 must be turned to the "ON" position to enable the expanded operating temperature range. Select HPE NEBS-compliant FIO Trigger System Setting (P40010-B21) for factory integration. Hardware from the following kits MUST be installed:
 - o HPE ProLiant DL3X5 Gen11 1U CPU Performance Heat Sink Kit (P58457-B21)
 - o HPE ProLiant DL3XX Gen11 1U Performance Fan Kit (P58462-B21)

Please refer to the HPE DL325 Gen11 Carrier Grade Conversion documentation on the HPE web site:

<http://www.hpe.com/services/hpsc>

Configuration Information

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 an HPE approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

- Factory Integrated Models must start with a CTO Server.
- FIO indicates that this option is only available as a factory installable option.
- All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.
- Some options may not be integrated at the factory. Contact your local sales representative for additional information.

Step 1: Base Configuration (choose one (1) of the following configurable server models from the tables below)

CTO Server	HPE ProLiant DL325 Gen11 Server 8SFF Configure-to-order Server	
SKU Number	P54199-B21	
TAA SKU	P54199-B21#GTA	
HPE Trusted Supply Chain	P36394-B21 – Optional	
Processor	Not included as standard	
DIMM Slots	12-DIMM slots	
Storage Controller	Choice of HPE storage controllers	
PCIe	1 PCIe 5.0 x16 Primary Riser	
OCP3.0 Slot	2 PCIe 5.0 x8	
Drive Cage - included	Not included	
Network Controller	Choice of either OCP 3.0 or select stand-up network adapters for primary networking selection plus additional/optional stand-up network adapters Notes: No embedded networking	
Cooling	Choice of Standard, Performance, or Closed-Loop Liquid Cooling Heat Sink Choice of Standard, Performance, or Liquid Cooling Fan Kit	
Management	Default: HPE iLO Standard with Intelligent Provisioning, HPE OneView Standard (requires download), HPE GreenLake for Compute Ops Management (subscription included)	
Video	1 VGA rear	
USB	Front: 1 USB 3.2 Gen1 + iLO service port Rear: 2 USB 3.2 Gen1 Internal: 2 USB 3.2 Gen1	
Security	TPM2.0 (Trusted Platform Module) embedded Notes: Disabled on shipments to China	
Rail Kit	Optional Easy Install rails and CMA	
Form Factor	1U Rack	
Warranty	3-year parts, 3-year labor, 3-year onsite support with next business day response.	

Notes:

- HPE offers multiple Trade Agreement Act (TAA) compliant configurations to meet the needs of US Federal Government customers. These products are either manufactured or substantially transformed in a designated country. TAA compliance is only provided when HPE options are included as part of factory integrated orders (CTO).
- TAA compliant configuration requires TAA versions of the CTO Server SKUs.
- HPE Trusted Supply Chain (P36394-B21) is an optional security upgrade intended for agencies and regulated industries needing enhanced security and compliance needs. Applying this option to a DL325 Gen11 CTO server ensures it is built in the USA in a secured facility by vetted HPE personnel assigned to the manufacturing processes. A multitude of checkpoints/inspections for malicious microcode and counterfeit parts are performed throughout the server build, and



Configuration Information

additional safeguards are put in place against cyber-exploits throughout the server lifecycle. See “HPE Security” section within this document for more detail and learn more at <http://www.hpe.com/security>

- All CTO servers are Energy Star 3.0 compliant.

Step 2: Choose Core Options

- Choice of 1 Processor model and Heat Sink Kit
 - Requires necessary Heat Sink for different processor wattage.
- Choice of DDR5 memory options.
 - Requires necessary Fan Kits for different memory configurations and subjects to the recommended system ambient temperature.
- Choice of Drive cage, Storage Controllers, and Storage Controller Cables
- Choice of SSD, HDD, and Optical Drive
- Choice of OS Boot Devices
- Choice of Riser Cards
- Choice of Networking options
 - PCIe standup or OCP 3.0. Requires necessary Fan Kits and subjects to the recommended system ambient temperature.
- Choice of Accelerator options
- Choice of Power and Cooling options
- Choice of Security options
- Choice of Software as a Service Management - HPE GreenLake for Compute Ops Management and HPE OneView

Step 3: Choose Additional Options

- Choice of Embedded Management
 - Choice of Rail Kits
 - Choice of Rack options
 - Choice of Support Services
-



Core Options

Choice of Core Options

Processor

Please select ONE 4th Generation AMD EPYC Processor

AMD EPYC 9634 2.25GHz 84-core 290W Processor for HPE	P53705-B21
AMD EPYC 9534 2.45GHz 64-core 280W Processor for HPE	P53699-B21
AMD EPYC 9454P 2.75GHz 48-core 290W Processor for HPE	P53709-B21
AMD EPYC 9334 2.7GHz 32-core 210W Processor for HPE	P53712-B21
AMD EPYC 9354P 3.25GHz 32-core 280W Processor for HPE	P53704-B21
AMD EPYC 9254 2.9GHz 24-core 200W Processor for HPE	P53707-B21
AMD EPYC 9224 2.5GHz 24-core 200W Processor for HPE	P58540-B21
AMD EPYC 9124 3.0GHz 16-core 200W Processor for HPE	P53702-B21

Memory

Please select one or more memory from below.

For new DDR5 memory, please go to **[HPE DDR5 Smart Memory QuickSpecs](#)**

For details on the Memory Population Rules and Guidelines with AMD EPYC 9004 series processors, please go to:

<https://www.hpe.com/psnow/doc/a50007481enw>

Notes:

- Quantity of memory DIMMs selected per socket must be 1, 2, 4, 6, 8, 10, or 12.
- The maximum memory speed and capacity is a function of the memory type, memory configuration, and processor model
- The maximum speed capability of the memory system is governed by the combination of the CPU and any other DIMMs installed in the server. If higher speed DIMMs are installed with a CPU that only supports a lower memory speed, the DIMMs will only run at the (lower) memory speed supported by the processor. Likewise, if memory DIMMs are mixed with slower DIMMs within a server, all DIMMs will run at the slower memory speed. For further information please refer to the Memory Population Rules for your specific server.

Registered DIMMs (RDIMMs)

HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P50309-B21
HPE 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P50311-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P50312-B21

Storage

Drive cages

HPE ProLiant DL325 Gen11 8SFF x1 Tri-Mode U.3 Backplane Kit	P54999-B21
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Notes:

- Supports 8 SFF SAS/SATA/ NVMe (U.3) Basic Carrier (BC) Drives.
- This drive cage can only be selected with 8SFF CTO Server.
- Max = 1.

HPE ProLiant DL325 Gen11 2SFF x4 Tri-Mode U.3 BC Backplane Kit	P56652-B21
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Notes:

- Supports 2 SFF SAS/SATA/ NVMe (U.3) Basic Carrier (BC) Drives.
- This drive cage can only be selected with 8SFF CTO Server.
- Max = 1.



Core Options

Storage Controller

HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21
HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller	P47789-B21
HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller	P58335-B21
HPE MR416i-o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller	P47781-B21
HPE MR216i-p Gen11 x16 Lanes without Cache PCI SPDM Plug-in Storage Controller	P47785-B21
HPE MR416i-p Gen11 x16 Lanes 8GB Cache PCI SPDM Plug-in Storage Controller	P47777-B21
HPE SR932i-p Gen11 x32 Lanes 8GB Wide Cache PCI SPDM Plug-in Storage Controller	P47184-B21

Battery and Hybrid Capacitor

HPE Smart Storage Hybrid Capacitor with 145mm Cable Kit	P02377-B21
HPE 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit	P01366-B21
HPE ProLiant DL325 Gen11 Megacell Extension Cable Kit	P56659-B21

Storage Controller Cables

HPE ProLiant DL325 Gen11 8SFF x1 OCP2 Tri-Mode Cable Kit	P59619-B21
Notes: supports 8 SFF U.3 SAS/SATA/NVMe connecting to storage controllers at OCP22 slot with x1 speed.	
HPE ProLiant DL325 Gen11 2SFF x4 OCP2 Tri-Mode Cable Kit	P59620-B21
Notes: supports 2 SFF U.3 SAS/SATA/NVMe connecting to storage controllers at OCP22 slot with up to x4 speed.	

HPE Drives

Solid State Drives

For SSD selection guidance, please visit <https://ssd.hpe.com/>

Read Intensive - 12G SAS - SFF

HPE 960GB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40506-B21
HPE 1.92TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40507-B21
HPE 3.84TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40508-B21
HPE 7.68TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40509-B21
HPE 1.92TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49031-B21
HPE 3.84TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49035-B21

Mixed Use - 12G SAS - SFF

HPE 960GB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40510-B21
HPE 1.92TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40511-B21
HPE 3.84TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40512-B21
HPE 1.6TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49049-B21
HPE 800GB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49047-B21
HPE 3.2TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49053-B21
HPE 960GB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49029-B21

Read Intensive - 6G SATA - SFF

HPE 240GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40496-B21
HPE 480GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40497-B21
HPE 960GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40498-B21
HPE 1.92TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40499-B21
HPE 3.84TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40500-B21
HPE 7.68TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40501-B21



Core Options

Mixed Use - 6G SATA - SFF

HPE 480GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40502-B21
HPE 960GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40503-B21
HPE 1.92TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40504-B21
HPE 3.84TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40505-B21

Read Intensive - NVMe - SFF

HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50216-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50219-B21

Mixed Use - NVMe - SFF

HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50227-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50230-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50233-B21

Hard Disk Drive

Enterprise - 12G SAS - SFF Drives

HPE 300GB SAS 12G Mission Critical 15K SFF BC 3-year Warranty Multi Vendor HDD	P28028-B21
HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P28352-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P28586-B21
HPE 300GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P40430-B21
HPE 900GB SAS 12G Mission Critical 15K SFF BC 3-year Warranty Multi Vendor HDD	P40432-B21
HPE 600GB SAS 12G Mission Critical 15K SFF BC 3-year Warranty Multi Vendor HDD	P53560-B21
HPE 600GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P53561-B21
HPE 1.8TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P53562-B21

Midline - 6G SATA - SFF Drives

HPE 1TB SATA 6G Business Critical 7.2K SFF BC 1-year Warranty HDD	P28610-B21
HPE 2TB SATA 6G Business Critical 7.2K SFF BC 1-year Warranty 512e HDD	P28500-B21

Boot Controllers

HPE ProLiant DL325 Gen11 NVMe/SATA M.2 Enablement Kit	P57014-B21
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Read Intensive - 6G SATA - M.2 - Solid State Drives

HPE 480GB SATA 6G Read Intensive M.2 Multi Vendor SSD	P47818-B21
HPE 480GB NVMe Gen3 Mainstream Performance Read Intensive M.2 Multi Vendor SSD	P40513-B21
HPE 960GB NVMe Gen3 Mainstream Performance Read Intensive M.2 Multi Vendor SSD	P40514-B21
HPE 1.92TB NVMe Gen3 Mainstream Performance Read Intensive M.2 Multi Vendor SSD	P40515-B21

Factory Configuration Settings

HPE NEBS-compliant FIO Trigger System Setting	P40010-B21
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Notes: Selecting this will enable NEBS expanded operating temperature range by turning ON system maintenance switch #10

Risers

HPE ProLiant DL3X5 Gen11 1U x16 Riser Kit	P56915-B21
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HPE Networking

PCIe Adapters

1 Gigabit Ethernet adapter

Intel I350-T4 Ethernet 1Gb 4-port BASE-T Adapter for HPE	P21106-B21
Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T Adapter for HPE	P51178-B21

10 Gigabit Ethernet adapters

Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE	P26253-B21
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Core Options

Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE P26259-B21

10/25 Gigabit Ethernet adapters

Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE P26262-B21

Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE P26264-B21

Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE P08443-B21

Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE P42044-B21

Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE P08458-B21

100/200 Gigabit Ethernet adapters

Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE P25960-B21

Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE P21112-B21

Mellanox MCX623105AS-VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE P10180-B21

OCP 3.0 Adapter

1 Gigabit Ethernet OCP adapters

Intel I350-T4 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE P08449-B21

Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE P51181-B21

10 Gigabit Ethernet OCP Adapters

Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE P10097-B21

10/25 Gigabit Ethernet OCP adapters

Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE P10106-B21

Mellanox MCX631432AS-ADAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE P42041-B21

100/200 Gigabit Ethernet adapters

Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE P22767-B21

HPE InfiniBand

HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe4 x16 MCX653105A-ECAT Adapter P23665-B21

HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe4 x16 MCX653106A-ECAT Adapter P23666-B21

HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 MCX653105A-HDAT Adapter P23664-B21

HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 MCX653106A-HDAT Adapter P31324-B21

Power and Cooling

Cooling

Notes: Require one (1) Heat Sink and Seven (7) Fan Kit in the order.

HPE ProLiant DL3X5 Gen11 1U CPU Performance Heat Sink Kit P58457-B21

HPE ProLiant DL3XX Gen11 1U Performance Fan Kit P58462-B21

Power Supplies

HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit P38995-B21

HPE 1000W Flex Slot Titanium Hot Plug Power Supply Kit P03178-B21

HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit P17023-B21

HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit P38997-B21

HPE 1600W -48VDC Power Cable Lug Kit P36877-B21

Notes: Must be selected along with HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit (P17023-B21)

Additional Cable Options

HPE ProLiant DL3X5 Gen11 OCP1 Upgrade Cable Kit P56658-B21

HPE ProLiant DL3X5 Serial Port Enablement Kit P50887-B21



Additional Options

Rail Kits

Notes: HPE rail kits are designed to work with HPE racks in compliance with industry standard EIA-310-E. In the event a customer elects to purchase a third-party rack for use with an HPE rail kit, any such use is at customer’s own risk. HPE makes no express or implied warranties with respect to such third-party racks and specifically disclaims any implied warranties of merchantability and fitness for a particular purpose. Furthermore, HPE has no obligation and assumes no liability for the materials, design, specifications, installation, safety, and compatibility of any such third-party racks with any rail kits, including HPE rail kits.

HPE DL3XX Gen11 Easy Install Rail 2 Kit	P52351-B21
HPE ProLiant DL300 Gen10 Plus 1U Cable Management Arm for Rail Kit	P26489-B21



Summary of Changes

Date	Version History	Action	Description of Change
17-Jun-2024	Version 3	Changed	Overview and Core Options sections were updated
06-May-2024	Version 2	Changed	Core Options section was updated.
04-Mar-2024	Version 1	New	New QuickSpecs.



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

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