

Overview

HPE ProLiant DL360 Gen10 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"
- 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 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 compliant with all required technical criteria, the product content is limited to what is listed in this document. In addition, the system maintenance switch #10 must be turned "ON" to enable the expanded operating temperature range. and the hardware from the following kits must be installed:

- HPE DL360 Gen10 High Performance Fan Kit
- HPE DL360 Gen10 High Performance Heat Sink Kit

Please refer to the HPE DL360 Gen10 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 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 number of drives ordered with server.
- 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)

CTO Server	8 SFF
SKU Number	867959-B21
TAA SKU*	875966-B21
Processor	Not included as standard
DIMM Slots	24-DIMM slots (12 can be used for NVDIMMs)
Storage Controller	Embedded SW RAID (S100i) with 14 SATA ports Optional: Choice of HPE modular Smart Array and PCIe plug-in controller
PCIe	2 PCIe slots (1 x16 FH / 1 x8 LP) Optional: 1 x16 FH or LP
Drive Cage - included	8 SFF - SAS/SATA Optional: up to 2 NVMe or 2 Dual uFF (4x M.2 cartridges)
Network Controller	Embedded 4x 1GbE with optional HPE FlexibleLOM and/or standup cards
Fans	1 CPU – 5 Standard Fans 2 CPU – 7 Standard Fans Optional: High Performance Fans
Management	HPE iLO with Intelligent Provisioning (standard) Optional: iLO Advance and OneView
USB	Front: 1 USB 3.0 + iLO service port Rear: 2 USB 3.0 Internal: 2 USB 3.0 Optional: 1 USB 2.0 (lose iLO serv. Port)

Step 2: Choose Required Options

Please select one –L21 processor required below.

For second processor, please select the same processor model with –B21 from Core Options – HPE Processors section.

For example: first processor, select 876099-L21 then for second processor, select 876099-B21.

Notes:

- For first processor, -L21 will include 5 fans, For second processor, -B21 will add 2 additional fans (for 8 SFF CTO Server). 10 NVMe CTO Server will always get 7 High Performane fans regardless of 1 or 2 processors.
- Maximum memory capacity per processor is dependent on processor models. All processors support up to 768 GB max memory per processor except “M” model processors will support up to 1.5 TB max memory per processor.
- Mixing of 2 different processor models are NOT allowed.
- DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.
- Processors with 130W or higher will ship with the High Performance heat sink plus SKUs 8156, 6128, 5122 as noted below. All other will processors will ship with the Standard heat sink.



Configuration Information

Step 2a: Choose Processor Options

Processor Option Kits

SKU

Intel Xeon-Platinum 8260 (2.4GHz/24-core/165W) FIO Processor Kit for HPE ProLiant DL360 Gen10 P02661-L21

Notes: Ships with High Performance Heatsink.

Intel Xeon-Gold 6252 (2.1GHz/24-core/150W) FIO Processor Kit for HPE ProLiant DL360 Gen10 P02646-L21

Notes: Ships with High Performance Heatsink.

Intel Xeon-Gold 6230 (2.1GHz/20-core/125W) FIO Processor Kit for HPE ProLiant DL360 Gen10 P02607-L21

Intel Xeon-Gold 6212U (2.4GHz/24-core/165W) FIO Processor Kit for HPE ProLiant DL360 Gen10 P02667-L21

Notes: Ships with High Performance Heatsink.

Intel Xeon-Gold 5220 (2.2GHz/18-core/125W) FIO Processor Kit for HPE ProLiant DL360 Gen10 P02595-L21

Notes: Consistent features with the 5218 processor but from a different die. Mixing both 5218B & 5218 in a system is not supported.

Intel Xeon-Gold 5218N (2.3GHz/16-core/110W) FIO Processor Kit for HPE ProLiant DL360 Gen10 P11845-L21

Notes: 5218 processor-Intel Speed Select Technology Base Frequency enablement via June 2019 System ROM upgrade.

Intel Xeon-Gold 5218 (2.3GHz/16-core/125W) FIO Processor Kit for HPE ProLiant DL360 Gen10 P02592-L21

Intel Xeon-Silver 4216 (2.1GHz/16-core/100W) FIO Processor Kit for HPE ProLiant DL360 Gen10 P02583-L21

Notes: 12/10/8 cores would result in 2.2/2.3/2.4 GHz operating points.

Intel Xeon-Silver 4210 (2.2GHz/10-core/85W) FIO Processor Kit for HPE ProLiant DL360 Gen10 P02574-L21

Intel Xeon-Silver 4208 (2.1GHz/8-core/85W) FIO Processor Kit for HPE ProLiant DL360 Gen10 P02571-L21

Intel Xeon-Bronze 3204 (1.9GHz/6-core/85W) FIO Processor Kit for HPE ProLiant DL360 Gen10 P02565-L21

Notes: Ships with High Performance Heatsink.

Step 2b: Choose Memory Options

Please select one or more memory from below.

For new Gen10 memory population rule whitepaper and optimal memory performance guidelines, please go to:

<https://www.hpe.com/docs/memory-population-rules>

For Gen10 memory speed table, please go to: <https://www.hpe.com/docs/memory-speed-table>

For memory Reliability, Accessibility, Serviceability (RAS) features whitepaper like Gen10 Fast Fault Tolerance and legacy mirrored memory feature etc. please go to: <http://www.hpe.com/docs/memory-ras-feature>.

Notes:

- Maximum memory capacity per processor is dependent on processor model selection or limitation.
- Maximum memory speed is dependent on processor model selection or limitation.

Registered DIMMs (RDIMMs) for 2nd Generation Intel Xeon Scalable Series

HPE 8GB (1x8GB) Single Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00918-B21

HPE 16GB (1x16GB) Single Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00920-B21

HPE 16GB (1x16GB) Dual Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00922-B21

HPE 32GB (1x32GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00924-B21

HPE 64GB (1x64GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit P00930-B21

HPE 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit 815100-B21

HPE 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit 835955-B21



Configuration Information

Step 2c: Choose Power Supplies

Please select one or two power supplies from below.

Notes: Mixing of 2 different power supplies are NOT allowed.

HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	865414-B21
HPE 800W Flex Slot -48VDC Hot Plug Low Halogen Power Supply Kit	865434-B21
HPE 48VDC 2.85m Power Cable	Q0H80A

Step 3: Choose Additional (FIO) Factory Integratable Options

Each of the following may be selected if desired at time of factory integration

HPE Trusted Platform Module 2.0 Gen10 Option	864279-B21
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Notes:

- HPE Trusted Platform Module 2.0 option works with Gen10 servers with UEFI Mode not Legacy Mode. It is not compatible with HPE ProLiant Gen8 servers or earlier generation variants.
- HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.

HPE Gen10 TPM 1.2 FIO Setting	872108-B21
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Notes: TPM 2.0 is set as default, for 1.2 TPM setting instead, please select this option.

HPE Legacy FIO Mode Setting	758959-B22
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Notes: UEFI is the default, this FIO part can be used for CTO to enable Legacy mode.



Core Options

Some options may not be integrated at the factory. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends the use of an Hewlett Packard Enterprise approved configurator. Contact your local sales representative for additional information.

HPE Unique Options

Risers

HPE DL360 Gen10 Low Profile Riser Kit

867982-B21

Riser Information						
Part Number	Description	Riser position		Bus width (Gen3 lanes)		
		Primary	Secondary	Top slot	Middle Slot	Bottom slot
867982-B21	HPE DL360 Gen10 x16 LP Riser Kit	N	O	0	0	x16

Performance Cooling Options

HPE DL360 Gen10 High Performance Heat Sink Kit

871246-B21

HPE DL360 Gen10 High Performance Fan Kit

871244-B21

Universal Media Bay Options

HPE DL360 Gen10 2SFF SAS/SATA Backplane Kit

867966-B21

HPE DL360 Gen10 2SFF NVMe Backplane Kit

871242-B21

System Insight Display Options

HPE DL360 Gen10 SFF System Insight Display Power Module Kit

867996-B21

Security

HPE Trusted Platform Module 2.0 Gen10 Option

864279-B21

HPE 1U Gen10 Bezel Kit

867998-B21

Cable Kits

HPE DL360 Gen10 SFF Internal Cable Kit

867990-B21

HPE DL3XX Gen10 Rear Serial Cable and Enablement Kit

873770-B21

HPE Processors

Please select one –L21 processor required above.

For second processor, please select the same processor model with –B21 from Core Options – HPE Processors section below.

For example: first processor, select 876099-L21 then for second processor, select 876099-B21.

Notes:

- For first processor, -L21 will include 5 fans, for second processor, -B21 will add 2 additional fans (8 SFF chassis). 10 NVMe chassis will always get 7 High Performane fans regardless of 1 or 2 processors.
- Maximum memory capacity per processor is dependent on processor models. All processors support up to 768 GB max memory per processor except “M” model processors will support up to 1.5 TB max memory per processor.
- Mixing of 2 different processor models are NOT allowed.
- DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.
- Processors with 130W or higher will ship with the High Performance heat sink plus SKUs 8156, 6128, 5122 as noted below. All other will processors will ship with the Standard heat sink.



Core Options

Intel Xeon-Platinum 8260 (2.4GHz/24-core/165W) Processor Kit for HPE ProLiant DL360 Gen10	P02661-B21
Notes: Ships with High Performance Heatsink.	
Intel Xeon-Gold 6252 (2.1GHz/24-core/150W) Processor Kit for HPE ProLiant DL360 Gen10	P02646-B21
Notes: Ships with High Performance Heatsink.	
Intel Xeon-Gold 6230 (2.1GHz/20-core/125W) Processor Kit for HPE ProLiant DL360 Gen10	P02607-B21
Intel Xeon-Gold 6212U (2.4GHz/24-core/165W) Processor Kit for HPE ProLiant DL360 Gen10	P02667-B21
Notes: Ships with High Performance Heatsink.	
Intel Xeon-Gold 5220 (2.2GHz/18-core/125W) Processor Kit for HPE ProLiant DL360 Gen10	P02595-B21
Notes: Consistent features with the 5218 processor but from a different die Mixing both 5218B & 5218 in a system is not supported.	
Intel Xeon-Gold 5218N (2.3GHz/16-core/110W) Processor Kit for HPE ProLiant DL360 Gen10	P11845-B21
Notes: 5218N processor Intel Speed Select Technology-Base Frequency enablement via June 2019 System ROM upgrade.	
Intel Xeon-Gold 5218 (2.3GHz/16-core/125W) Processor Kit for HPE ProLiant DL360 Gen10	P02592-B21
Intel Xeon-Silver 4216 (2.1GHz/16-core/100W) Processor Kit for HPE ProLiant DL360 Gen10	P02583-B21
Notes: 12/10/8 core would result in 2.2/2.3/2.4 GHz operating points	
Intel Xeon-Silver 4210 (2.2GHz/10-core/85W) Processor Kit for HPE ProLiant DL360 Gen10	P02574-B21
Intel Xeon-Silver 4208 (2.1GHz/8-core/85W) Processor Kit for HPE ProLiant DL360 Gen10	P02571-B21
Intel Xeon-Bronze 3204 (1.9GHz/6-core/85W) Processor Kit for HPE ProLiant DL360 Gen10	P02565-B21
Notes: Ships with Performance Heatsink.	

HPE Memory

For new Gen10 memory population rule whitepaper and optimal memory performance guidelines, please go to:

<https://www.hpe.com/docs/memory-population-rules>

For Gen10 memory speed table, please go to: <https://www.hpe.com/docs/memory-speed-table>

For memory Reliability, Accessibility, Serviceability (RAS) features whitepaper like Gen10 Fast Fault Tolerance and legacy mirrored memory feature etc. please go to: <http://www.hpe.com/docs/memory-ras-feature>

Notes:

- Maximum memory capacity per processor is dependent on processor model selection or limitation.
- Maximum memory speed is dependent on processor model selection or limitation.

HPE DDR4 Memory

Registered DIMMs (RDIMMs) for 2nd Generation Intel Xeon Scalable Series

HPE 8GB (1x8GB) Single Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00918-B21
HPE 16GB (1x16GB) Single Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00920-B21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00922-B21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00924-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00930-B21

Registered DIMMs (RDIMMs)

HPE 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815100-B21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	835955-B21



Core Options

HPE Drives

Enterprise - 12G SAS - SFF Drives

HPE 1.8TB SAS 12G Mission Critical 10K SFF SC 3-year Warranty 512e Multi Vendor HDD	872481-B21
HPE 300GB SAS 12G Mission Critical 15K SFF SC 3-year Warranty Multi Vendor HDD	870753-B21

Midline - 12G SAS - SFF Drives

HPE 2TB SAS 12G Business Critical 7.2K SFF SC 1-year Warranty 512e HDD	765466-B21
HPE 1TB SAS 12G Business Critical 7.2K SFF SC 1-year Warranty HDD	832514-B21

SSD Selection

To streamline the configuration process for HPE ProLiant Gen10 servers and to provide the best product availability, HPE recommends SSDs from the list located here: <http://www.hpe.com/products/recommend>.

Hard Drive Blank Kits

HPE Small Form Factor Hard Drive Blank Kit	666987-B21
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HPE Networking

25 Gigabit Ethernet adapters

HPE Ethernet 10/25Gb 2-port SFP28 MCX4121A-ACUT Adapter	817753-B21
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10 Gigabit Ethernet adapters

HPE Ethernet 10Gb 2-port SFP+ X710-DA2 Adapter	727055-B21
HPE Ethernet 10Gb 2-port BASE-T 57810S Adapter	656596-B21

1 Gigabit Ethernet adapters

HPE Ethernet 1Gb 4-port BASE-T I350-T4V2 Adapter	811546-B21
HPE Ethernet 1Gb 2-port BASE-T BCM5720 Adapter	615732-B21
HPE Ethernet 1Gb 4-port BASE-T BCM5719 Adapter	647594-B21

FlexibleLOM Adapters

HPE Ethernet 10/25Gb 2-port FLR-SFP28 MCX4121A-ACFT Adapter	817749-B21
HPE Ethernet 10/25Gb 2-port FLR-SFP28 BCM57414 Adapter	817709-B21
HPE Ethernet 10Gb 2-port FLR-SFP+ X710-DA2 Adapter	727054-B21
HPE Ethernet 10Gb 2-port FLR-T X550-AT2 Adapter	817745-B21
HPE Ethernet 1Gb 4-port FLR-T I350-T4V2 Adapter	665240-B21
HPE Ethernet 1Gb 4-port FLR-T BCM5719 Adapter	629135-B21

HPE InfiniBand

HPE InfiniBand EDR/Ethernet 100Gb 2-port 841QSFP28 Adapter	872726-B21
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Notes: For additional InfiniBand information:

<https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04154440>.

HPE Flex Slot Platinum Hot-plug Power supplies

HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit	865414-B21
HPE 800W Flex Slot -48VDC Hot Plug Low Halogen Power Supply Kit	865434-B21



Additional Options

HPE Security

HPE 1U Gen10 Bezel Kit	867998-B21
HPE Trusted Platform Module 2.0 Gen10 Option	864279-B21

Notes:

- HPE Trusted Platform Module 2.0 option works with Gen10 servers with UEFI Mode not Legacy Mode. It is not compatible with HPE ProLiant Gen8 servers or earlier generation variants.
- HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.

HPE Gen10 TPM 1.2 FIO Setting	872108-B21
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Notes: This is a FIO setting to allows the TPM 2.0 module to operate in a TPM 1.2 mode.

HPE Storage Controllers

Notes: For additional details, please see HPE Smart Array Gen10 Controllers Data Sheet at:

<https://www.hpe.com/h20195/v2/Getdocument.aspx?docname=a00017196ENW>

HPE Flexible Smart Array Controllers

HPE Smart Array P816i-a SR Gen10 (16 Internal Lanes/4GB Cache/SmartCache) 12G SAS Modular Controller	804338-B21
HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular Controller	804331-B21

HPE Smart Array Controllers

HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21
HPE Smart Array E208i-p SR Gen10 (8 Internal Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804394-B21
HPE 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit	P01366-B21
HPE Smart Storage Hybrid Capacitor with 145mm Cable Kit	P02377-B21

Notes: Supports up to 3 P-class Smart Array controllers

HPE Cable Options

HPE DL360 Gen10 SFF Internal Cable Kit	867990-B21
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Notes: For additional details and cabling matrix, please see: <http://www.hpe.com/info/CablingMatrixGen10>

HPE Storage Options

QLogic Fibre Channel HBAs

HPE SN1100Q 16Gb Dual Port Fibre Channel Host Bus Adapter	P9D94A
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HPE Rack Options

Rail Kits

HPE 1U Gen10 SFF Ball Bearing Rail Kit	872252-B21
HPE Gen10 1U SFF Easy Install Rail Kit	874543-B21

Notes:

- HPE rail kits contain telescoping rails which allow for in-rack serviceability.
- Hewlett Packard Enterprise recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.
- 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.



Technical Specifications

Environment-friendly Products and Approach End-of-life Management and Recycling

Hewlett Packard Enterprise offers **end-of-life product return, trade-in, and recycling programs**, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the **Hewlett Packard Enterprise web site**. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.



Summary of Changes

Date	Version History	Action	Description of Change
18-Mar-2024	Version 4	Changed	Additional Options section was updated.
03-Aug-2020	Version 3	Changed	Core Options section was updated. Obsolete SKUs were removed from the QS
03-Sep-2019	Version 2	Changed	All sections were updated Obsolete SKUs were removed from the QS
05-Mar-2018	Version 1	Created	New QuickSpecs.



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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less
a00042637enw - 16173 - Worldwide - V4 - 18-March-2024