INFORMATION TECHNOLOGY
CONSULTING & SUPPORT

Asunción, 30 de agosto de 2023

Señores
Corte Suprema de Justicia (CSJ)
Atte.: Abg. Mirko Duré Rolón, Coordinador
Comité de Evaluación de Ofertas
Presente

Ref.: NCEO Nº 708/2023

Por este medio, nos dirigimos a ustedes en el marco del llamado a "**Licitación 422372 - ADQUISICIÓN DE SERVIDORES PARA MARCAS Y SEÑALES Y ÁREAS ADMINISTRATIVAS - PLURIANUAL - AD REFERÉNDUM - S.B.E.**" para dar retorno a la solicitud de las siguientes documentaciones anexadas a la presente nota:

1- Catalogo del equipo Ofertado **ITEM 1**: HPE Proliant DL360 Gen11
2- Cumplimiento de Certificaciones XenServer, también se adjunta el enlace oficial del fabricante donde se indica el cumplimento de certificaciones Xenserver. https://techlibrary.hpe.com/us/en/enterprise/servers/supportmatrix/xenserver.aspx

Sin otro particular, les saludo atentamente,

Cesar Acosta
Director – ITCS S.A.

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Director
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HPE GreenLake

Hoja de datos

HPE ProLiant DL360 Gen11

Novedades

- Con procesadores Intel Xeon Scalable de 4.ª generación con innovadora tecnología que admite hasta 60 núcleos a 350 W y 16 DIMM para hasta 8 TB de memoria DDR5 de gran ancho de banda de hasta 4800 MHz.
- 16 DIMM por procesador para hasta 8 TB de memoria DDR5 por servidor con rendimiento mejorado, compatibilidad con memoria de gran ancho de banda y menores requisitos energéticos.
- Altas tasas de transferencia de datos y mejores velocidades de red del bus de expansión PCIe Gen5 de serie, con hasta 2 x16 PCIe Gen5 y dos ranuras OCP.
- Incluye el nuevo software de gestión de servidores HPE Integrated Lights-Out 6 (iLO 6) que te permite configurar, supervisar y actualizar de forma segura y sin problemas tus servidores HPE ProLiant Gen11, desde cualquier parte.
- Compatible con hasta 2 GPU[1] de ancho sencillo para acelerar las cargas de trabajo

Descripción general

¿Buscas una solución escalable y de gran densidad computacional para tus cargas de trabajo de alto rendimiento como VDI, EDA o CAD? El servidor HPE ProLiant DL360 Gen11 es una solución 1U densa optimizada para rack que ofrece un rendimiento de computación excepcional, una tasa de transferencia de datos de alta velocidad mejorada y profundidad de memoria con capacidad de computación 2P. Con procesadores Intel Xeon Scalable de 4.ª generación con hasta 60 núcleos, mayor ancho de banda de memoria, hasta 8 TB de memoria y E/S PCIe Gen5 de alta velocidad, el servidor HPE ProLiant DL360 Gen11 es una solución densa 1U 2P optimizada para rack para cargas de trabajo de virtualización de uso general que requieren mayor densidad de computación con seguridad y flexibilidad integradas. La raíz de confianza de silicio afianza el firmware del servidor en un ASIC exclusivo de HPE, lo que crea una huella inmutable para el procesador seguro de Intel que debe coincidir a la perfección antes de que el servidor arranque. El servidor HPE ProLiant DL360 Gen11 es una opción excelente para EDA, CAD y VDI.

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de uso intensivo de gráficos.

- Compatible con módulos de refrigeración inteligente para el mejor diseño térmico.

Solo ventajas

Intuitiva experiencia operativa de la nube: sencilla, automatizada y de autoservicio

Los servidores HPE ProLiant DL360 Gen11 han sido diseñados para el mundo híbrido. Los servidores ProLiant DL360 Gen11 cuentan con procesadores Intel Xeon de 4.ª generación y simplifican la forma en que controlas la computación de tu negocio, desde el extremo hasta la nube, con una experiencia operativa de la nube.

Transforma las operaciones empresariales y facilita que tu equipo pase de reactivo a proactivo con información y visibilidad globales mediante una consola de autoservicio.

Automatiza tareas con el fin de lograr la eficiencia en implementaciones, escalabilidad instantánea y una gestión del ciclo de vida y soporte sencillos e impecables para reducir y acortar las ventanas de mantenimiento.

Las experiencias de autoservicio automatizadas están diseñadas e integradas en todos los servidores HPE ProLiant Gen11, tanto como servidores físicos o consumidos como servicio usando HPE GreenLake a medida que crecen las necesidades de almacenamiento y de computación.

Simplifica y protege la gestión de servidores del extremo a la nube con HPE GreenLake para Compute Ops Management. HPE GreenLake para Compute Ops Management es una experiencia de gestión de computación como servicio que ofrece una mayor simplicidad, agilidad y velocidad en todo el entorno de computación, a nivel global.

Seguridad de confianza gracias al diseño: protección sin compromisos y fundamental

El servidor HPE ProLiant DL360 Gen11 utiliza la raíz de confianza de silicio de HPE, el enfoque integral de seguridad de HPE que ofrece la arquitectura de confianza cero del nivel de silicio y garantiza que todo el firmware esencial del servidor se encuentra libre de malware o código comprometido.

Este servidor, con procesadores escalables Intel® Xeon® de 4.ª generación, incorpora funciones de seguridad asistidas por hardware y software, entre las que se incluyen Intel® Software Guard Extensions e Intel® Boot Guard, que refuerzan la infraestructura de hardware del servidor sobre la que se ejecutan las aplicaciones críticas y protegen mejor los datos en memoria.

Los servidores HPE ProLiant Gen11 protegen de forma continuada los servidores sanos: a) al proporcionar una rápida detección de los servidores con problemas de seguridad, incluso hasta el punto que no les permite arrancar si identifica y contiene código malicioso y, b) protegiendo los servidores en el extremo con los certificados IDevID instalados por defecto.

Los servidores HPE ProLiant Gen11 proporcionan recuperación automatizada de una incidencia de seguridad, incluida la restauración de firmware validado, facilitando la recuperación del sistema operativo, la aplicación y las conexiones de datos, ofreciendo una ruta rápida para devolver un servidor a su funcionamiento habitual y que vuelva a estar en línea.

Integrado en los servidores HPE, HPE Integrated Lights-Out 6 (iLO 6) es una inteligencia de núcleo exclusiva que supervisa el estado de los servidores, para ofrecer los recursos necesarios para la generación de informes, la gestión permanente, las alertas de servicios y la gestión local o remota para identificar y resolver con rapidez los problemas.

Rendimiento optimizado para tus cargas de trabajo: acelerado, abierto y eficiente

El servidor HPE ProLiant DL360 Gen11 es una excelente opción para EDA, CAD y cargas de trabajo de virtualización de uso general (incluso VDI a gran escala), así como plataformas (contenedores y VCF) que requieren una mayor densidad de computación con flexibilidad y seguridad integradas.

Aprovecha el mayor rendimiento informático. El servidor HPE ProLiant DL360 Gen11 cuenta con procesadores Intel Xeon Scalable de 4.ª generación con innovadora tecnología que admite hasta 60 núcleos, 350 W y hasta 8 TB de

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memoria.

El servidor HPE ProLiant DL360 Gen11 ofrece altas tasas de transferencia y las mejores velocidades de red del bus de expansión PCIe Gen5 de serie, con hasta 2 x16 PCIe Gen5 y dos ranuras OCP para mejorar el rendimiento de E/S y reducir la latencia.

El servidor ofrece 16 canales DIMM por procesador para hasta un total de 8 TB de memoria DDR5 con mayor ancho de banda de memoria y rendimiento, y menores requisitos energéticos.

El servidor HPE ProLiant DL360 Gen11 ofrece una retroalimentación operativa en tiempo real sobre el rendimiento del servidor y recomendaciones para ajustar la configuración de la BIOS y adaptarla a las necesidades cambiantes de la empresa.

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Especificaciones técnicas	HPE ProLiant DL360 Gen11
Procesador	Intel®
Familia de procesador	Procesadores Intel Xeon Scalable de 4ª generación
Número de procesador	1 o 2
Núcleo de procesador disponible	De 8 a 60 núcleos, según el procesador.
Caché de procesador	12-60 MB L3, según el procesador
Velocidad del procesador	3,7 GHz, máximo según el procesador.
Tipo de fuente de alimentación	Fuente HPE Platinum hot-plug ranura flexible 500 W, fuente HPE Platinum hot-plug ranura flexible 800 W, fuente HPE Titanium hot-plug ranura flexible 800 W, fuente HPE Titanium ranura flexible 1000 W, fuente HPE Platinum hot-plug ranura flexible 1600 W, fuente HPE 1600 W DC, fuente HPE hot-plug ranura flexible 1600 W -48 VDC, fuente HPE Titanium hot-plug ranura flexible 1800-2200 W (disponible el CQ4 de 2023), según el modelo.
Ranuras de expansión	Máximo 3 ranuras PCIe Gen5 y máximo 2 ranuras OCP 3.0 PCIe5. Consulte las especificaciones rápidas para obtener una descripción detallada
Memoria, máxima	4 TB por zócalo, al complementarse con DDR5 de 256 GB
Ranuras de memoria	16 ranuras DIMM por socket
Tipo de memoria	HPE DDR5 SmartMemory
Características de protección de memoria	Memoria rápida tolerante a fallos HPE Memoria ECC avanzada Memoria de repuesto en línea Memoria duplicada
Tipo de unidad óptica	Opcional: unidad óptica HPE SATA DVD-RW de 9,5 mm, unidad USB HPE Mobile DVD-RW
Características de los ventiladores del sistema	Kit de ventilador estándar (5 unidades), kit de ventilador estándar (2 unidades) para el segundo procesador, kit de ventilador de rendimiento (7 unidades), kit de disipador con refrigeración líquida en circuito cerrado y ventilador, solución de refrigeración líquida directa (envío disponible en el CQ3 de 2023), según el modelo
Controlador de red	Amplia gama de velocidades, cableados, chipsets y formatos (adaptador PCIe y OCP3.0). Consulta las especificaciones rápidas para conocer las opciones de conectividad de red.
Controlador de almacenamiento	Incluido: controlador SATA integrado (AHCI o controlador RAID de software SATA de Intel) Opcional: controlador de almacenamiento HPE Smart Array Gen11 en distintos protocolos, incluido NVMe, recuento de puertos, utilidades de cabina y factores formato (adaptador PCIe y OCP3.0). Consulta las especificaciones rápidas para obtener más detalles sobre las opciones de controladores de almacenamiento.
Capacidad de DIMM	De 16 a 256 GB
Administración de infraestructura	Incluido: HPE iLO Standard con aprovisionamiento inteligente (integrado), HPE OneView Standard (requiere descarga). Opcional: HPE iLO Advanced y HPE OneView Advanced.
Garantía	3/3/3: La garantía del servidor incluye tres años de garantía en piezas, tres años de mano de obra y tres años de cobertura de soporte a domicilio. Encontrarás información adicional sobre la garantía limitada en todo el mundo y el soporte técnico disponible en: http://h20564.www2.hpe.com/hpsc/wc/public/home. Se ofrece cobertura de servicio y soporte de HPE adicionales para complementar la garantía del producto. Para obtener más información, visita https://www.hpe.com/support
Tipo de unidad	Hasta 4 HDD o SSD SAS/SATA LFF. Hasta 8+2 HDD SAS/SATA SFF o SSD SATA/SAS/NVMe U.3, según el modelo. Hasta 20 SSD EDSFF E3.s 1T NVMe. Hasta 2 dispositivos de arranque RAID 1 NVMe M.2 (interno modular o accesible externo desde el panel posterior).

Soporte GPU disponible en el Q2 de 2023. Sujeto a cambios.

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Para obtener información técnica adicional, modelos disponibles y opciones, consulte las QuickSpecs

Servicios HPE

No importa en qué punto se encuentre tu proceso de transformación: siempre puedes contar con los servicios HPE para recibir la experiencia que necesites, cuándo, dónde y cómo la necesites. Nuestros expertos pueden ayudarte a alcanzar tus ambiciones digitales desde el diseño de la estrategia y la planificación hasta la implementación, las operaciones en curso y mucho más.

Servicios de consultoría

Nuestros expertos pueden ayudarte a trazar tu ruta hacia la nube híbrida y optimizar tus operaciones.

Servicios gestionados

HPE puede ejecutar tus operaciones de IT, proporcionándote un control unificado para que tú puedas concentrarte en la innovación.

Servicios operativos

Optimiza todo tu entorno de IT e impulsa la innovación. Gestiona las tareas operativas diarias de IT y libera tiempo y recursos valiosos.

- HPE Complete Care Service: un servicio modular diseñado para ayudar a optimizar todo tu entorno de IT y lograr los resultados y objetivos acordados. Todo ello ofrecido por un equipo asignado de expertos de HPE.
- HPE Tech Care Service: la experiencia de servicio operativo para productos HPE. Este servicio ofrece acceso a expertos en productos específicos, una experiencia digital impulsada por inteligencia artificial y orientación técnica general para ayudar a reducir el riesgo y buscar mejores formas de hacer las cosas.

Servicios para todo el ciclo de vida

Aborda las necesidades específicas de tu proyecto de implementación de IT mediante servicios de implementación y gestión de proyectos personalizados.

HPE Education Services

Formación y certificación diseñadas para profesionales de negocios e IT de todos los sectores. Crea rutas de aprendizaje para expandir tus competencias en un tema específico. Programa la formación como mejor se adapte a tu negocio con las opciones flexibles de aprendizaje continuo.

La retención de medios defectuosos es opcional y solo es aplicable a discos o unidades flash/SSD seleccionadas que haya sustituido HPE por mal funcionamiento.

HPE GreenLake

La plataforma edge-to-cloud HPE GreenLake es la oferta como servicio líder de HPE para proporcionar una experiencia de nube en aplicaciones y datos alojados en diferentes ubicaciones (múltiples nubes, centros de datos y extremos) con un modelo operativo unificado, local y totalmente gestionado de pago por consumo.

Si buscas más servicios, como por ejemplo **soluciones de financiación de IT**, consulta aquí.

Explore HPE GreenLake

Tome la decisión de compra correcta. Contacte con nuestros especialistas en preventa.

Busque un socio

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Llamar ahora

Comprar ahora

Comparte ahora

Obtener actualizaciones

Hewlett Packard Enterprise

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Piezas y materiales: HPE proporcionará los materiales y las piezas de repuesto compatibles con HPE necesarios mantener el hardware cubierto.

Las piezas y los componentes que hayan alcanzado su vida útil máxima y/o sus limitaciones de uso máximo, como se establece en el manual de funcionamiento del fabricante, las especificaciones rápidas del producto o la hoja de datos técnicos del mismo, no se proporcionarán, repararán ni sustituirán como parte de este servicio.

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La imagen del producto puede diferir del producto real.
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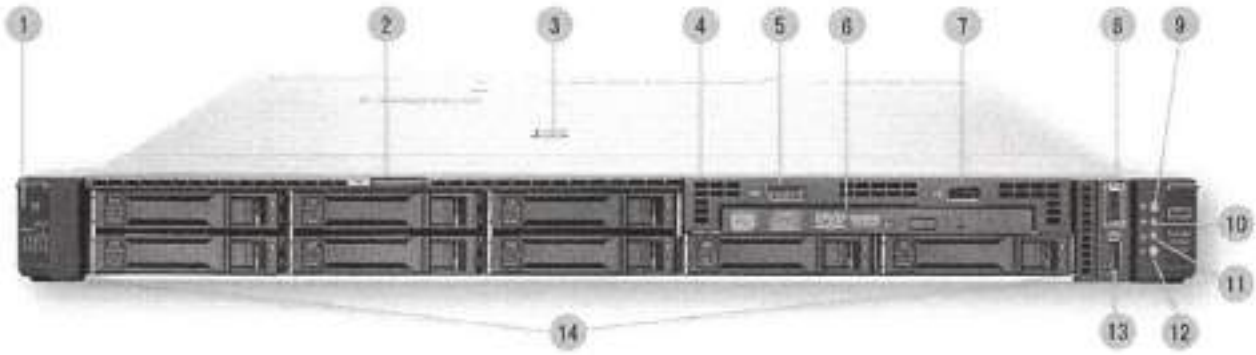
QuickSpecs

Overview

HPE ProLiant DL360 Gen11

Do you need to efficiently expand or refresh your IT infrastructure to propel the business? Adaptable for diverse workloads and environments, the compact 1U HPE ProLiant DL360 Gen11 delivers enhanced performance with the right balance of expandability and density. Designed for supreme versatility and resiliency while backed by a comprehensive warranty, the HPE ProLiant DL360 Gen11 is ideal for IT infrastructure, either physical, virtual, or containerized.

The HPE ProLiant DL360 Gen11 supports the 4th Generation Intel® Xeon® Scalable Processors with up to 60 cores, plus 4800 MT/s HPE DDR5 Smart Memory up to 4.0 TB per socket. Introducing PCIe Gen5 and Intel® Software Guard Extensions (SGX) support on the dual-socket segment, the HPE ProLiant DL360 Gen11 complements Gen10 Plus reach by delivering premium compute, memory, networking communication, discrete graphic, I/O, and security capabilities for customers focused on performance at any cost. DL360 Gen11 server is an execellent choice of daily business and workloads in General Compute, Database Management, Virtual Desktop Infrastructure, Content Delivery Network, Edge Acceleration and Intelligent Video Analytics.



8 SFF Front View – 8 SFF + optional Universal Media Bay, optical drive, Display Port, USB2.0 and SAS drives shown

1. Drive support label
2. Serial number/iLO information pull tab
3. Quick removal access panel
4. Universal Media Bay (optional):
   - Option: Optical drive bay + Display port & USB 2.0 port kit (shown)
   - Option : 2SFF 24G x4 NVMe/SAS (TriMode) U.3 BC Cage
5. Display Port (optional – shown)
6. Optical drive (optional – shown)
7. USB2.0 port (optional)
8. iLO Service port
9. Power On/Standby button and system power LED
10. Health LED
11. NIC status LED
12. Unit ID button/LED
13. USB 3.2 Gen1 port
14. Drive bays; optional backplanes:
    - Option: 8 SFF 24G x1 NVMe/SAS (TriMode) U.3 BC
    - Option: 8 SFF 24G x4 NVMe/SAS (TriMode) U.3 BC

Notes: Optional- Systems Insight Display (SID) module is available for 8SFF CTO Server, and will be installed at the left-hand side of iLO Service port and USB 3.2 Gen1 port.

Hewlett Packard
Enterprise

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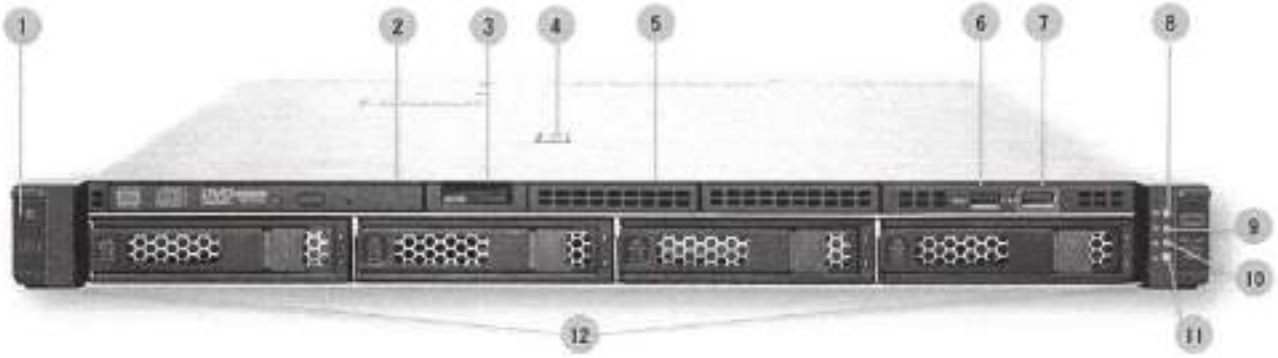
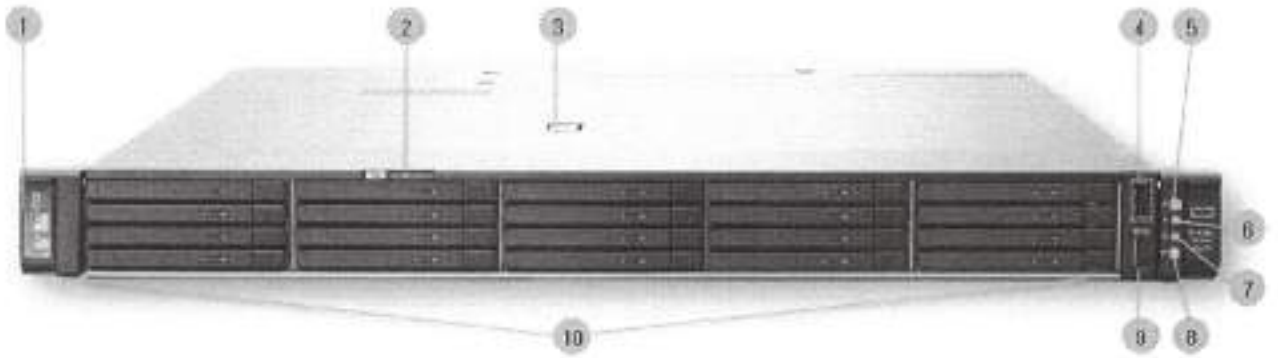
Overview



4 LFF Front View – 4 LFF + optional Optical drive, Display Port, USB2.0 and SAS drives shown

1. Drive support label
2. Optical drive (optional – shown)
3. Serial number/iLO information pull tab
4. Quick removal access panel
5. Option: Display port & USB 2.0 port bundle Kit (blank shown)
6. USB 3.2 Gen1 port
7. iLO Service Port
8. Power On/Standby button and system power LED
9. Health LED
10. NIC status LED
11. Unit ID button/LED
12. SAS/SATA drive bays (12G x1 SAS LP BP embedded)

Notes: Systems Insight Display (SID) module is not available in 4LFF CTO Server.



20 EDSFF Front View – 20 E3.s 1T NVMe drives shown

1. Drive support label
2. Serial number/iLO information pull tab
3. Quick removal access panel
4. iLO Service Port
5. Power On/Standby button and system power LED
6. Health LED
7. NIC status LED
8. Unit ID button/LED
9. USB 3.2 Gen1 port
10. EDSFF drive bays (32G x4 NVMe BP embedded)

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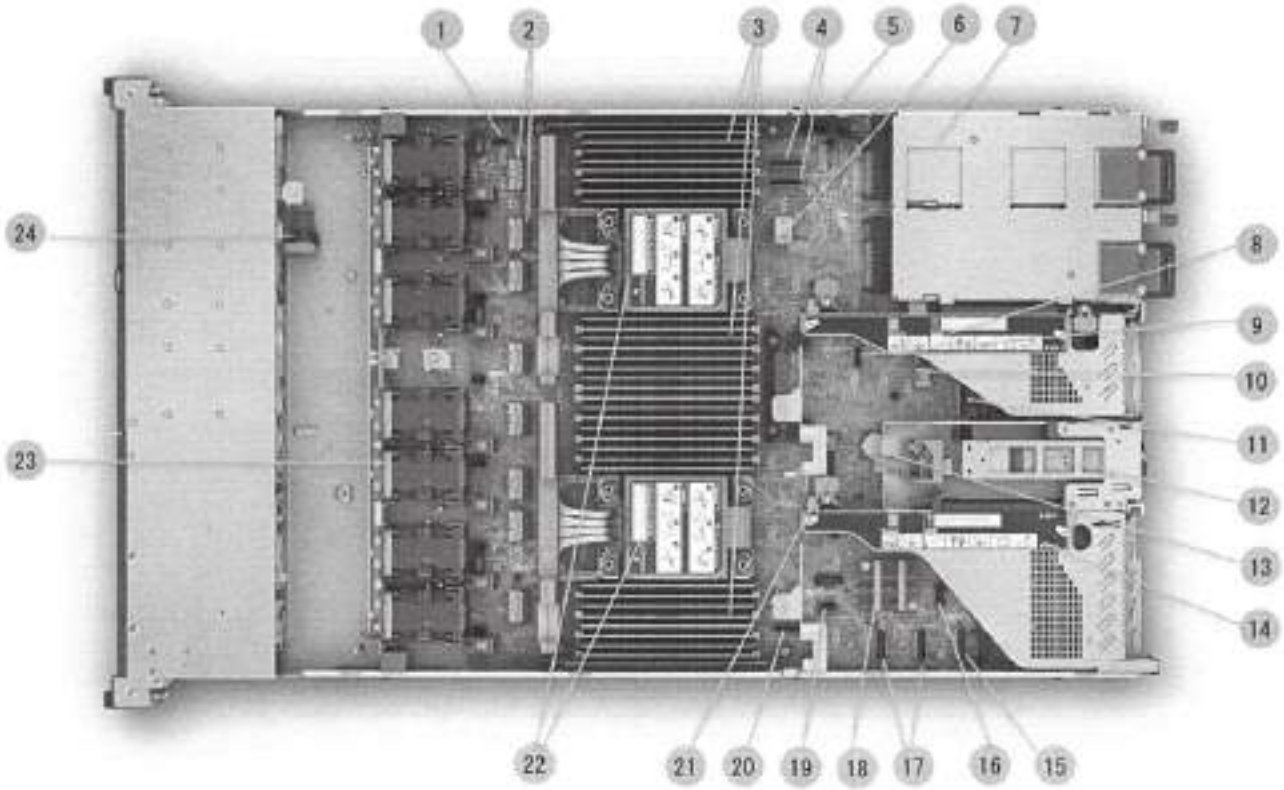
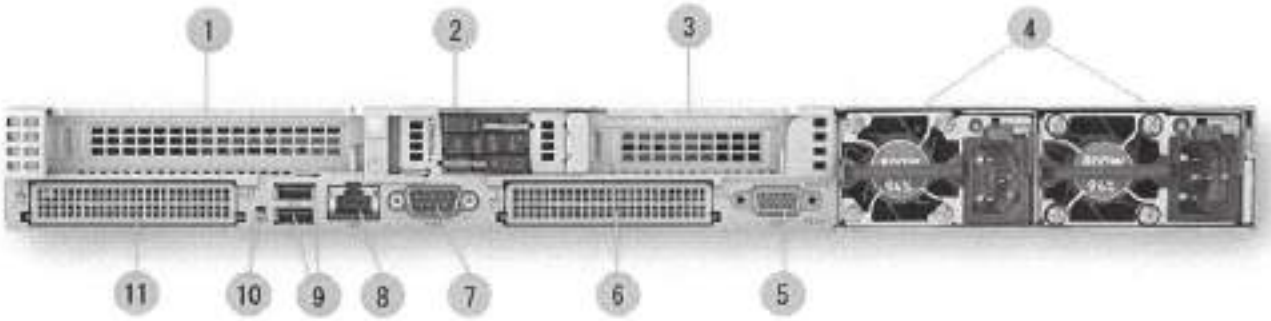
Overview



Internal View - Standard for all DL360 Gen11

1. Liquid Cooling Module connector
2. x8 SlimSAS ports (1A to 4A, 1B to 4B)
3. DDR5 DIMM Slots (fully populated 32 DIMMs shown)
4. Socket 2 MCIO ports (1 & 2)
5. Backplane Power connector
6. Internal USB port (top USB 3.2 Gen1 and bottom USB 2.0)
7. Redudant Power Supply (1 & 2 as shown)
8. Secondary (CPU 2) Riser PCIe 5.0
   - Option: Low Profile x16
   - Option: Full height x16 (lose Slot 2 on Primary Riser)
9. SID connector (optional feature, 8SFF only)
10. Energy Pack connector
11. OCP Slot port
12. HPE NS204i-u NVMe Hot Plug Boot Optimized Storage Device (optional – shown)
13. System Battry
14. Primary (CPU1) Riser PCIe 5.0
    - 1x 16 FH and 1x16 LP slots
15. OCP Slot port
16. Front Display Port and USB 2.0 connector (optional feature)
17. LP SlimSAS ports (1 & 2)
18. Chipset
19. Front I/O and USB 3.2 Gen1 connector
20. SATA Optical port
21. Socket 1 MCIO connector
22. CPU 1 (bottom) and CPU 2 (top) (shown with High Performance Heatsink)
23. Hot plug (dual rotor) High Performance Fan Kit (7 fans)
    - Option: Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit
24. HPE Hybrid Capacitor or HPE Storage Battery holder

Overview



Rear View - Standard for all DL360 Gen11

1. Slot 1 x16 PCIe 5.0 – Full Height
2. Slot 2 x16 PCIe 5.0 – Low Profile*
   Notes: *Shown with optional hot-plug NS204i-u Boot Device (cabled, PCIe connection is not required)
3. Option: Slot 3 x16 PCIe 5.0 (Requires 2nd processor)
   - Low Profile and Full Height options
4. Redundant Power Supply (1 & 2 as shown)
5. Video (VGA) port
6. OCP 3.0 Slot 2: x16* PCIe 5.0[1,2] (Requires 2nd Processor)
   Notes: *x8 for 20EDSFF CTO Server (requires 2nd Processor)
7. Serial port (optional - shown)
8. iLO Management Port
9. USB 3.2 Gen1 Ports
10. Uint ID Indicator LED
11. OCP 3.0 Slot 1: x16* PCIe 5.0[2]
    Notes: *x8 for 20EDSFF CTO Server

Notes:

- [1] Supports various NICs, up to 200GbE
- [2] Or supports each slot with x8 PCIe 5.0 under one processor, with the selection of "P51911-B21, CPU1 to the "OCP2 x8 Enablement Kit".

What's New

- All new DL360 Gen11 server
- New 4th Generation Intel® Xeon® Scalable Processors (Extreme Core Count die/ XCC die; Medium Core Count/ MCC; High Bandwidth Memory/ HBM)
- New PCIe 5.0 support
- New HPE DDR5 SmartMemeory – Registered (RDIMM), 4800MT/s
- New HPE Gen11 Storage Controllers
- New HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device
- New HPE Storage SSD and HDD support
- New HPE iLO6 support
- Nvidia A2 and L4 GPU support
- New Intel® Virtual RAID on CPU (Intel® VROC) Premium & Standard FIO Software for HPE
- New 4th Generation Intel® Xeon® Scalable Processors (Medium Core Count die/ MCC die)
- New DL360 Gen11 Standard Heatsink & Standard Fan Kit
- New DL360 Gen11 20EDSFF NC CTO Server
- New DL360 Gen11 Pre-Configured Models
- New HPE NVMe EDSFF E3.s 1T SSD
- New HPE Self-encrypting Drives
- HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit

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Overview

- HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
- HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit
- HPE ProLiant DL360 Gen11 Direct Liquid Cooling solution
- HPE ProLiant for vSAN
- HPE Azure Stack HCI

Platform Information

Form Factor

- 1U rack

Chassis Types

- 20 EDSFF Carrier 1T (EC1) drive bays: 32G x4 NVMe (PCIe5.0 E3.s 1T)
- 8 SFF Basic Carrier (BC) drive bays:
  - 24G x1 NVMe/SAS (TriMode) U.3 (PCIe4.0) or
  - 24G x4 NVMe/SAS (TriMode) U.3 (PCIe4.0)
- With options for additional 2 SFF BC drive bays: 24G x4 NVMe/SAS (TriMode) U.3 (PCIe4.0)
- With options for additional optical drive, 1x USB3.2 Gen1 and 1x Display Port
- 4 LFF Low Profile (LP) drive bays: 12G x1 SAS/SATA
- With additional options for optical drive, 1x USB3.2 Gen1, and 1x Display Port

System Fans

- **For 4 LFF and 8+2 SFF chassis**
  - Choice of 1P (one processor) Standard Fan Kit, 2P (two processors) Standard Fan Kit, Performnace Fan Kits and Closed-loop Liquid Cooling Heatsink Fan FIO Bundle Kit
- **For 20 EDSFF chassis**
  - Choice of Performance Fan Kits and Closed-loop Liquid Cooling Heatsink Fan FIO Bundle Kit

Notes:

- Standard Fan Kit: Dual rotor hot plug Standard Fan kit (includes 5 fans) for processors below 185W TDP
- Optional 2P standard Fan Kit: Dual rotor hot plug 2P Standard Fan Kit (includes 2 fans) for second processor
- Performance Fan Kit: Dual rotor hot plug High Performance Fan Kit available (includes 7 fans), for one or two processors from 186W to 270W TDP. Or one processor with 300W TDP.
- The DL360 Gen11 will support up to 7 fans with fan redundancy built in. One fan rotor failure will place server in degraded mode but fully functional. Two fan rotor failures could provide warning and imminent server shutdown
- Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit supports one or two processors go beyond 271W TDP, as factory installation kit only. Customer self-repair or self-field upgrade is not allowed.
- Direct Liquid Cooling Heatsink Fan FIO Bundle Kit supports two processors go beyond 271W TDP, with enhanced thermal condition

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Standard Features

Processors – Up to 2 of the following, depending on model

- The 2nd digit of the processor model number "x4xx" is used to denote the processor generation (i.e. 4 = New 4th Generation Intel® Xeon® Scalable Processors

Notes:

- All information provided here is subject to change without notice. Intel may make changes to specifications and product descriptions at any time, without notice. Please contact your Intel representative to obtain the latest Intel product specifications and roadmaps.
- For more information regarding Intel® Xeon® Scalable Processors, please see the following **http://www.intel.com/xeon**

New 4th Generation Intel® Xeon® Scalable Processors numbering convention

Workload

New 4th Generation Intel® Xeon® Scalable Processors		
Processor Suffix	**Description**	**Offering**
H	DB and Analytics	Highest core counts. Database and Analytics usages benefit from DSA and IAA accelerators.
M	Media Transcode	Optimized around AVX frequencies to deliver better performance/watt around Media, AI, and HPC workloads.
N	Network/5G/Edge (Hight TPT/Low latency)	Designed for NFV and networking workloads, such as: L3 forwarding, 5G UPF, OVS DPDK, VPP FIB router, VPP IPsec, web server/NGINX, vEPC, vBNG, and vCMTS.
S	Storage and HCI	Optimized for Storage UMA use cases with increased UPI Bandwidth for vs Mainline SKUs.
P	Cloud - IaaS	Designed for cloud IaaS environments to deliver higher frequencies at constrained TDPs.
Q	Liquid Cooling	Liquid cooled processors with higher frequency and performance at same TDP.
U	One Socket Optimized	Optimized for targeted platforms adequately served by the cores, memory bandwidth and IO capacity. Available from a single processor configuration.
V	Cloud- SaaS	Optimized for orchestration efficiency that delivers higher core counts and VMs per rack.
Y	Speed Select[1]	Intel® SST-Performance Profile (PP) increases base frequency when fewer cores are enabled. Allows greater flexibility, deployment options and platform longevity.

Notes:

- Covers the Intel public offering only.
- New Built-in Accelerators.
  - 1 to 8 socket support
  - Intel® Data Streaming Accelerator (DSA)
  - Intel® Dynamic Load Balancer (DLB)
  - Intel® Quick Assist Technology (QAT)
  - Intel® In-Memory Analytics Accelerator (IAA)
- Increased memory bandwidth with 8 channels DDR5, up to 4800 MT/s, 4.0TB maximum RAM per socket.
- Increased I/O bandwidth up to 80 PCIe 5.0 lanes per socket, and new Compute Express Link (CXL).
- Built-in AI Acceleration: Intel® Advanced Matrix Extension (AMX)
- Hardware-enhanced Security: Enhanced Intel® Software Guard Extensions (SGX) – with new cryptographic memory integrity
- Increaed Multi-Socket Bandwidth with new UPI2.0 (up to 16GT/s) with maximum 4 UPI Links
- New FlexBus I/O Interface PCIe5.0 + CXL
- [1] The 4th Generation Intel® Xeon® Scalable Processors are featured with Intel Speed Select Technology (SST) for Infrastructure as as Service, Networking and Virtualized environments workloads. The SST includes,
  - SST- Performace Profile
  - SST- Base Frequency

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Standard Features

- SST- Core Power
- SST- Turo Frequency

– Default setting in ROM-Based Setp Utility (RBSU) as shown.

Intel® SST Features	RBSU Options	Granular Control over CPU Performance	Default Setting
SST- Performance Profile	Dynamic Intel® Speed Select Technology – Performance Profile	Alllows the CPU to run in one of three performance profiles	CPU hardware-based. Enabled by default
SST-Base Frequency	Intel® Speed Select Technology – Base Frequency	Enables some CPU cores to run at a higher base frequency in return for other cores running at a lower base frequency	Disabled by default
SST-Core Power	Intel® Speed Select Technology – Core Power	Allows software to prioritize with cores will receive excess power after satisfying minimum requirements	Disabled by default
Intel SST Turbo Frequency	Intel® Turbo Boost Technology	Allows software-selected cores to achieve a higher max turbo frequency by reducing other cores' max turbo frequency	Enabled by default

4th Generation Intel® Xeon® Scalable Processor Family (Platinum)

Intel® Xeon® Models	Frequency	Cores	L3 Cache	Power	UPI	DDR5	SGX Enclave size	Die
Platinum 9462 Processor	2.7 GHz	32	75.0 MB	350W	3	4800 MT/s	128 GB	HBM
Platinum 8490H Processor	1.9 GHz	60	112.5 MB	350W	4	4800 MT/s	512 GB	XCC
Platinum 8480+ Processor	2.0 GHz	56	105 MB	350W	4	4800 MT/s	512 GB	XCC
Platinum 8470 Processor	2.0 GHz	52	105 MB	350W	4	4800 MT/s	512 GB	XCC
Platinum 8470Q Processor	2.1 GHz	52	105 MB	350W	4	4800 MT/s	512 GB	XCC
Platinum 8470N Processor	1.7 GHz	52	105 MB	300W	3	4800 MT/s	128 GB	XCC
Platinum 8468 Processor	2.1 GHz	48	105 MB	350W	4	4800 MT/s	512 GB	XCC
Platinum 8468V Processor	2.4 GHz	48	97.5 MB	330W	3	4800 MT/s	128 GB	XCC
Platinum 8462Y+ Processor	2.8 GHz	32	60.0 MB	300W	3	4800 MT/s	128 GB	MCC
Platinum 8460Y[1]+[2] Processor	2.0 GHz	40	105 MB	300W	4	4800 MT/s	128 GB	XCC
Platinum 8458P Processor	2.7 GHz	44	82.5 MB	350W	3	4800 MT/s	512 GB	XCC
Platinum 8452Y[1] Processor	2.0 GHz	36	67.5 MB	300W	4	4800 MT/s	128GB	XCC
Platinum 8444H Processor	2.9 GHz	16	45.0 MB	270W	4	4800 MT/s	512 GB	XCC

Notes:

– One or two processor(s) with TDP equal to or greater than 186W through 270W require High Performance Heatsink Kit (P48905-B21) and High Performance Fan Kit (P48908-B21)

– Two processors with TDP equal or greater than 271W require Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit (P48906-B21)

– In 300Watt processor one socket configuration, the air cooling with Performance Heatsinks & Performance Fan Kits can be supported (configurable in HPE One Config Advanced from CQ3 2023). Field upgrade to two socket is not supported with air cooling solution.

– [1]Supports Intel® Speed Select Performance Profile (SST-PP), even though not being a "Y" processor.

– [2] +: Feature Plus: Support AMX, DLB, DSA, IAA and QAT additionally

– Intel® Speed Select enabled processors: Platinum 8468V, 8460Y+, 8458P and 8452Y

4th Generation Intel® Xeon® Scalable Processor Family (Gold 6)

Intel® Xeon® Models	Frequency	Cores	L3 Cache	Power	UPI	DDR5	SGX Enclave size	Die
Gold 6458Q Processor	3.1 GHz	32	60.0 MB	350W	3	4800 MT/s	128 GB	MCC
Gold 6454S Processor	2.2 GHz	32	60.0 MB	270W	4	4800 MT/s	128 GB	XCC
Gold 6448Y Processor	2.1 GHz	32	60.0 MB	225W	3	4800 MT/s	128 GB	MCC
Gold 6448H Processor	2.4 GHz	32	60.0 MB	250W	3	4800 MT/s	512 GB	MCC
Gold 6444Y Processor	3.6 GHz	16	45.0 MB	270W	3	4800 MT/s	128 GB	MCC
Gold 6442Y Processor	2.6 GHz	24	60.0 MB	225W	3	4800 MT/s	128 GB	MCC

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Standard Features

Gold 6438Y+ Processor	2.0 GHz	32	60.0 MB	205W	3	4800 MT/s	128 GB	MCC
Gold 6438N Processor	2.0 GHz	32	60.0 MB	205W	3	4800 MT/s	128 GB	MCC
Gold 6434 Processor	3.7 GHz	8	22.5 MB	195W	3	4800 MT/s	128 GB	MCC
Gold 6430 Processor	2.1 GHz	32	60.0 MB	270W	3	4400 MT/s	128 GB	XCC
Gold 6426Y Processor	2.5 GHz	16	37.5 MB	185W	3	4800 MT/s	128 GB	MCC
Gold 6421N Processor[1]	1.8 GHz	32	60.0 MB	185W	N/A	4400 MT/s	128 GB	MCC
Gold 6418H Processor	2.1 GHz	24	60.0 MB	185W	3	4800 MT/s	512 GB	MCC
Gold 6416H Processor	2.2 GHz	18	45.0 MB	165W	3	4800 MT/s	512 GB	MCC
Gold 6414U Processor[1]	2.0 GHz	32	60.0 MB	250W	N/A	4800 MT/s	128 GB	XCC

Notes:

- One or two processor(s)
- [1]Single socket capable, no dual socket support
- One or two processor(s) with TDP equal to or greater than 186W through 270W or one processor with TDP equals 300W, require High Performance Heatsink Kit (P48905-B21) and High Performance Fan Kit (P48908-B21) together
- In 300W processor one socket configuration, the air cooling with Performance Heatsinks & Performance Fan Kits can be supported together (configurable in HPE One Config Advanced from CQ3 2023). Field upgrade to two socket is not supported with air cooling solution.
- One or two processors with TDP equal or greater than 271W require Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit (P48906-B21)

4th Generation Intel® Xeon® Scalable Processor Family (Gold 5)

Intel® Xeon® Models	Frequency	Cores	L3 Cache	Power	UPI	DDR5	SGX Enclave size	Die
Gold 5420+ Processor	2.0 GHz	28	52.5MB	205W	3	4400 MT/s	128 GB	MCC
Gold 5418Y Processor	2.0 GHz	24	45.0 MB	185W	3	4400 MT/s	128 GB	MCC
Gold 5418N Processor	1.8 GHz	24	45.0 MB	165W	3	4000 MT/s	128 GB	MCC
Gold 5416S Processor	2.0 GHz	16	30.0 MB	150W	3	4400 MT/s	128 GB	MCC
Gold 5415+Processor	2.9 GHz	8	22.5 MB	150W	3	4400 MT/s	128 GB	MCC
Gold 5411N[1] Processor	1.9 GHz	24	45.0 MB	165W	N/A	4400 MT/s	128 GB	MCC

Notes:

- One or two processor(s)
- [1]Single socket capable, no dual socket support

4th Generation Intel® Xeon® Scalable Processor Family (Silver)

Intel® Xeon® Models	Frequency	Cores	L3 Cache	Power	UPI	DDR5	SGX Enclave size	Die
Silver 4416+ Processor	2.0 GHz	20	37.5MB	165W	2	4000 MT/s	64 GB	MCC
Silver 4410Y Processor	2.0 GHz	12	30.0 MB	150W	2	4000 MT/s	64 GB	MCC

Notes: One or two processor(s)

4th Generation Intel® Xeon® Scalable Processor Family (Bronze)

Intel® Xeon® Models	Frequency	Cores	L3 Cache	Power	UPI	DDR5	SGX Enclave size	Die
Bronze 3408U Processor	1.8 GHz	8	22.5 MB	125W	N/A	4000 MT/s	64 GB	MCC

Notes: [1]Single socket capable, no dual socket support

Chipset

Intel® C741 Chipset (Code Name: Product formerly Emmitsburg)

Notes: For more information regarding Intel® chipsets, please see the following URL:
https://www.intel.com/content/www/us/en/products/chipsets/server-chipsets.html

System Management Chipset

HPE iLO 6 ASIC

Notes: Read and learn more in the **iLO QuickSpecs**

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Standard Features

Memory

Type	HPE DDR5 Smart Memory	Registered (RDIMM)
DIMM Slots Available	32	16 DIMM slots per processor, 8 channels per processor, 2 DIMMs per channel
Maximum capacity (RDIMM)	8.0 TB	32 x 256 GB RDIMM @ 4800 MT/s

Notes:

- All processors support up to 4TB memory per socket.
- The maximum memory speed is limited by the processor selection.
- To realize the performance memory capabilities listed in this document, HPE DDR5 Smart Memory is required.
- For additional information, please visit the **HPE Memory QuickSpecs and Technical White Papers or HPE DDR5 Smart Memory QuickSpecs.**

Memory Protection

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.
Notes: For more information see our **Memory RAS feature technical whitepaper**.

PCIe Expansion Slots

Primary Riser (default in chassis)					
Expansion Slots #	**Technology**	**Bus Width**	**Connector Width**	**Processor**	**Slot Form Factor**
1	PCIe 5.0	x16	x16	CPU 1	Full-height, up to 9.5" length (or half-length card)
2	PCIe 5.0	x16	x16	CPU 1	Half-height (Low-profile), up to 9.5" length (or half length card)

Notes: The specifications above correspond with the default primary butterfly riser, which comes with CTO chassis.

Secondary Riser*					
Expansion Slots #	**Technology**	**Bus Width**	**Connector Width**	**Processor**	**Slot Form Factor (two options)**
3	PCIe 5.0	x16	x16	CPU 2	-Full-height, up to 9.5" length (or half-length card). Slot 2 will be not available. Or -Half-height (Low-profile), up to 9.5" length (or up half length card). Slot 2 is available.

Notes:

- All PCIe Slots support Wake-on-Lane (WoL) feature.
- If Secondary riser is selected, then 2 Processor must be selected.
- If secondary riser is not selected and "NS204i-u Rear Cbl Kit" is not selected, then maximum 2 quantity of PCIe cards can be selected at Slot1 & Slot2. If secondary riser is not selected and "NS204i-u Rear Cbl Kit" is selected, then maximum 1 quantity of PCIe cards can be selected at Slot1.
- If secondary FH riser is installed, then primary PCIe Slot2 cannot be used, maximum 2 quantity of PCIe cards can be selected at Slot 1 & Slot3. If secondary FH riser is not selected, then maximum 1 quantity of FH PCIe cards can be selected at Slot1 & Slot3.
- If Secondary LP riser and "NS204i-u Rear Cbl Kit" are selected, then maximum 2 quantity of PCIe cards can be selected at Slot 1 & Slot3. If Secondary LP riser is selected and "NS204i-u Rear Cbl Kit" is not selected, then maximum 3 quantity of PCIe cards can be selected.

Standard Features

OCP Expansion Slots

OCP3.0 Slot Priority Support Matrix

	Rear wall	Selected OCP cards (Qty & type)				
		2	1	1	1	2
OCP Slots #	Share NIC Feature	1xOROC[1] + 1x NIC[2]	1xNIC	2xNICs	1xOROC	2x OROCs
1	N/A	OROC	(Secondary)	NIC	OROC (Primary)	OROC[4] (Primary)
2	Available (Incl. Wake-on-Lane)	NIC	NIC (Primary)	NIC (Primary)	No support[3]	OROC[4]

Notes:

- [2] OCP form factor internal controller.
- [3] OCP Networking card.
- [1]If only 1 OROC card is selected, by default connected from 8SFF backplane to OCP Slot1. And there is no controller cable can connect from 8SFF Backplane to OCP Slot 2.
- [4]If 2 OROC cards are selected, by default the 8SFF controller cable is connected to OCP Slot1 (the comparably higher-end OROC card to be selected by default) and the 2SFF backplane is connected to OCP Slot2 with another OROC card selected (comparably less high-end one) with 2FF controller cable.
- In 4LFF & 8SFF CTO Server, each OCP slots are in design with up to x16 electrical PCIe5.0 lanes through OCP enablement kits
- In 20EDSFF CTO Server, Each OCP slots are in design with up to x8 electrical PCIe5.0 lanes (OCP Slot2 through OCP enablement kit)

Internal Storage Devices

- **Optical Drive**
  Available on 8 SFF and 4 LFF CTO Servers as an option (DVD-ROM or DVD-RW)
- **Hard Drives**
  None ship standard

Storage Controllers

NVMe Boot Devices

- HPE NS204i-u NVMe Hot Plug Boot Optimized Storage Device (P48183-B21)[1]
- HPE ProLiant DL360 Gen11 NS204i-u Rear Cable Kit (P54702-B21)
- HPE ProLiant DL360 Gen11 NS204i-u Internal Cable Kit (P48920-B21)

DL360 Gen11 NS204i-u Enablement Kit Support Matrix

Enablement Kit	Description	Field Inst.	NS204i-u Location	Hot-plug Capability
P54702-B21	HPE ProLiant DL360 Gen11 NS204i-u Rear Cable Kit	Yes	PCIe Slot 2[2]	Yes
P48920-B21	HPE ProLiant DL360 Gen11 NS204i-u Internal Cable Kit	Yes	Internal	No support

Notes:

- [1]x4 PCIe Gen3.0 OS Boot device includes 2x 480GB M.2 NVMe SSDs, with preconfigured hardware RAID1.
- [2]Removing the original PCIe Slot 2 cage and re-install the dedicated DL360 Gen11 NS204i-u cage, latch and cables in the P54702-B21. The NS204i-u will take up PCIe Slot 2 space only. The PCIe Slot 1 (FHHL) and PCIe Slot 3 (to be Low Profile) are available in the system with the selection of optional "HPE ProLiant DL360 Gen11 x16 LP Riser Kit (P48903-B21)".
- For additional information, please see the **HPE OS Boot Device QuickSpecs**

Standard Features

Software RAID Controllers

The available Gen11 controllers are depicted below.

Software RAID Controller

- **Intel® VROC SATA for HPE ProLiant Gen11**

  Notes:

  - Embedded Intel® VROC SATA for HPE ProLiant Gen11, with 14 SATA ports (10-ports accessible).
  - Intel® VROC for HPE ProLiant Gen11 is an enterprise, hybrid Software RAID solution specifically designed for SSDs.
  - Intel® VROC is a software-based solution utilizing Intel® CPU to RAID or HBA direct connected drives.
  - RAID Support- 0/1/5/10.
  - Windows and Linux OS support.
  - Host Tools- Windows GUI/CLI, Linux CLI.
  - UEFI Support- HII Utility, OBSE.
  - iLO Support- IML, Alert, SNMP, AHS.
  - iLO Redfish- Redfish Read .
  - Intel® VROC SATA for HPE ProLiant Gen11 will operate in UEFI mode only. For legacy support an additional storage controller will be needed.
  - Intel® VROC SATA is off by default and must be enabled.

- **Intel® VROC NVMe for HPE ProLiant Gen11**
  - Intel® Virtual RAID on CPU (Intel® VROC) Premium FIO Software for HPE
  - Intel® Virtual RAID on CPU (Intel® VROC) Standard Software FIO for HPE

In HPE ProLiant Gen11 servers, when secure boot is enabled, Intel® Virtual RAID on CPU (Intel® VROC) 8.0 Out-of-Band (OOB) management does not function with Linux kernel version 5.4 (or later). Intel® VROC OOB will not respond to any PLDM (over-MCTP-over-PCIe) requests from iLO (BMC). Intel® VROC Redfish resources will not function (e.g., Redfish actions); therefore, Intel® VROC over Redfish management is not available. This is due to a new security feature in Linux kernel version 5.4 (or later).
For more information, pls visit **Customer Advisory Document ID: a00128934en_us** at HPE Support Center.

Notes:

- All models feature 4 x8 PCIe 5.0 connectors per socket for NVMe connectivity, provides support for up to 8 direct attach x4 NVMe bays.
- Only supported on SFF models.
- Intel® VROC for HPE ProLiant Gen11 is an enterprise, hybrid Software RAID solution specifically
- designed for NVMe SSDs connected directly to the CPU. Intel® VROC is a software-based solution
- utilizing Intel® CPU to RAID or HBA direct connected drives.
- Intel® Virtual RAID on CPU Standard for RAID 0/1/10 (S0E37A/S0E38AAE) or Premium SKU for RAID 0/1/5/10 (R7J57A/R7J59AAE) must be ordered to enable RAID support.
- Windows, Linux, VMware OS support.
- Host Tools- Windows GUI/CLI, Linux CLI.
- UEFI Support- HII Utility, OBSE.
- Active health monitoring of NVMe M.2 drives requires use of SMART tools.
- Intel® VROC NVMe for HPE ProLiant Gen11 will operate in UEFI mode only. For legacy support an additional Tri-
- Mode controller will be needed.
- For NVMe SSDs only, no PCIe card support.

Intel VROC for HPE ProLiant QuickSpecs

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Standard Features

Essential RAID Controllers

- HPE Smart Array E208e-p SR Gen10 Controller

Performance RAID Controllers

- HPE MR216i-p Gen11 x16 Lanes without Cache PCI SPDM Plug-in Storage Controller
- HPE MR216i-o Gen11 x16 Lanes without Cache OCP SPDM Storage Controller
- HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller
- HPE MR416i-o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller
- HPE MR416i-p Gen11 x16 Lanes 8GB Cache PCI SPDM Plug-in Storage Controller
- HPE SR932i-p Gen11 x32 Lanes 8GB Wide Cache PCI SPDM Plug-in Storage Controller[1,3]

Notes:

- PE80xx NVMe drives are not supported.
- [1]Requires x16 physical and electrical riser slot.
- [3]If second controller is required, must select secondary FH riser. For additional details, please see:

HPE Compute MR Gen11 Controllers QuickSpecs
HPE Compute SR Gen11 Controllers QuickSpecs

Maximum Storage

Storage	Capacity	Configuration
Hot Plug SFF SAS HDD	24.0 TB	8+2 x 2.4 TB (with optional 2 SFF cage on UMB)
Hot Plug SFF SATA HDD	20.0 TB	8+2 x 2.0 TB (with optional 2 SFF cage on UMB)
Hot Plug SFF SAS SSD	15.3 TB	8+2 x 15.36 TB (with optional 2 SFF cage on UMB)
Hot Plug SFF SATA SSD	76.8 TB	8+2 x 7.68 TB (with optional 2 SFF cage on UMB)
Hot Plug SFF U.3 NVMe PCIe SSD	153.6 TB	8+2 x 15.36 TB (with optional 2 SFF cage on UMB)
Hot Plug LFF SAS HDD	80.0 TB	4 x 20 TB
Hot Plug LFF SATA HDD	80.0 TB	4 x 20 TB
Hot Plug LFF SAS SSD	30.72 TB	4 x 7.68 TB
Hot Plug LFF SATA SSD	3.84 TB	4 x 960 GB
M.2 NVMe SSD	960 GB	2 x 480 GB (shipped with optional HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device): Available with external or internal version
EDSFF MVMe SSD	307.2TB	20 x 15.36 TB

Graphics

Integrated video standard

- Video modes up to 1920 x 1200 @ 60 Hz (32 bpp)
- 16 MB Video Memory

HPE iLO 6 on system management memory

- 32 MB Flash
- 8 Gbit DDR4 with ECC protection

Power Supply

- HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
  Notes: Available in 94% efficiency.
- HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
  Notes: Available in 94%efficiency.
- HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
  Notes: Available in 96% efficiency.

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Standard Features

- HPE 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
  Notes: Available in 96% efficiency.
- HPE 1600W Flex Slot -48VDC Hot Plug Power Supply Kit
- HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
  Notes:
  - Available in 94% efficiency.
  - 1600W Power supplies only support high line voltage (200 VAC to 240 VAC).

HPE Flexible Slot (Flex Slot) Power Supplies share a common electrical and physical design that allows for hot plug, tool-less installation into HPE ProLiant Gen11 Performance Servers. Flex Slot power supplies are certified for high-efficiency operation and offer multiple power output options, allowing users to 'right-size' a power supply for specific server configurations. This flexibility helps to reduce power waste, lower overall energy costs, and avoid "trapped" power capacity in the data center.

All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (A0K02A). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the **ProLiant Power Cables** web page.

To review the power requirements for your selected system, please visit the HPE Power Advisor located at: **HPE Power Advisor**

For information on power specifications and technical content visit **HPE Flexible Slot Power Supplies.**

Interfaces

Serial	1 port - Optional
Video	1 Front - Display port (optional) 1 Rear - VGA port (standard on all models) Notes: Both ports are not active simultaneously.
Network Ports	None. Choice of OCP or stand up card, supporting a wide arrange of NIC adapters. BTO models will come pre-selected with a primary networking card.
HPE iLO Remote Mgmt Port at rear	1 GbE Dedicated
Front iLO Service Port	1 standard
MicroSD Slot	Optional via HPE 32GB microSD RAID1 USB Boot Device Notes: – MicroSD cards are not hot-pluggable, server must be powered down before removal. – There is limited supply on MicroSD cards and may not be available in Gen11
USB	5 standard on all models: 1 front, 2 rear, 2 internal +1 optional at the front • Front: 1 USB 3.2 Gen1 + iLO service port • Rear: 2 USB 3.2 Gen1 • Internal: 1 USB 3.2 Gen1 + 1 USB 2.0 • Optional: 1 Front USB 2.0
Systems Insight Display (SID)	Optional for 8SFF CTO Server model

Operating Systems and Virtualization Software

See HPE Servers Support & Certification Matrices

- **Microsoft Windows Server**
- **VMware ESXi**
- **Red Hat Enterprise Linux (RHEL)**
- **SUSE Linux Enterprise Server (SLES)**
- **Canonical Ubuntu**

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Standard Features

- **Oracle Linux and Oracle VM**
- **Citrix**

Notes:

- For Windows Server and Microsoft Hyper-V Server, will be certified when shipment is available
- RHEL, SLES, Oracle Linux and Ubuntu will be certified at a later timeframe.

Industry Standard Compliance

- ACPI 6.4 Compliant
- PCIe 5.0 Compliant
- WOL Support
- Microsoft® Logo certifications
- PXE Support
- VGA
- Display Port
  Notes: This support is on the optional Universal Media Bay.
- USB 3.2 Gen1 Compliant
- USB 2.0 Compliant (only on optional Universal Media Bay and embedded internal USB)
- USB NIC Driver in UEFI for Factory
- UEFI (Unified Extensible Firmware Interface Forum) Class 3 Support
- UEFI (Unified Extensible Firmware Interface Forum) 2.7 support
  Notes: UEFI is the default for the DL360 Gen11.
- OCP 3.0 SFF NIC Support
- OCP 3.0 SFF Storage Support
- Embedded TPM Support Energy Star
- SMBIOS 3.4
- Redfish API
- IPMI 2.0
- Secure Digital 4.0
- Advanced Encryption Standard (AES)
- Triple Data Encryption Standard (3DES)
- SNMP v3
- TLS 1.2
- DMTF Systems Management Architecture for Server Hardware Command Line (SMASH CLP)
- Active Directory v1.0
- ASHRAE A3/A4
  Notes:
  For additional technical, thermal details regarding ambient temperature, humidity, and feature support, please visit **http://www.hpe.com/servers/ashrae**
  At Standard Operating Support conditions, there is no time limitation for operating the servers in ASHRAE Class A2 conditions, unless otherwise specified in the applicable product information.
  Intel Xeon Platinum 8470Q is not in scope.
- EU Lot9
  Notes: European Union (EU) eco-design regulations for server and storage products, known as Lot 9, establishes power thresholds for idle state, as well as efficiency and performance in active state which vary among configurations. HPE ProLiant Gen11 servers are compliant with Lot9 requirements.
  Please visit: **https://www.hpe.com/us/en/about/environment/msds-specs-more.html** for more information regarding HPE Lot 9 conformance.

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Standard Features

HPE Server UEFI

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration than the legacy ROM while interacting with your server at boot time. HPE ProLiant Gen11 servers have a UEFI Class 2 implementation to support UEFI Mode.

Notes: The UEFI System Utilities tool is analogous to the HPE ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit **http://www.hpe.com/servers/uefi**

UEFI enables numerous new capabilities specific to HPE ProLiant servers such as

- Secure Boot and Secure Start enable for enhanced security
- Embedded UEFI Shell
- Operating system specific functionality
- Mass Configuration Deployment Tool using iLO RESTful API that is Redfish API Conformant
- Support for > 2.2 TB (using GPT) boot drives
- PXE boot support for IPv6 networks
- USB 3.2 Gen1 Stack
- Workload Profiles for simple performance optimization

UEFI Boot Mode only

- TPM 2.0 Support
- iSCSI Software Initiator Support.
- NVMe Boot Support
- HTTP/HTTPs Boot support as a PXE alternative.
- Platform Trust Technology (PTT) can be enabled.
- Boot support for option cards that only support a UEFI option ROM

Notes: For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI. Enabling TPM 2.0 no longer requires TPM module option kit for Gen11. It is an embedded feature yet disabled for shipments to China.

HPE GreenLake for Compute Ops Management

HPE is intelligently transforming compute management with an intuitive cloud operating experience through HPE GreenLake cloud platform to streamline and secure operations from edge-to-cloud. Automated key lifecycle tasks, for onboarding, updating, managing, and monitoring HPE servers, brings agility and greater efficiencies to wherever compute devices reside via a unified single browser-based interface. Manage single locations or multiple, distributed sites. Keep tens to thousands of servers secure with batch policy controls and automated updates.

Compute Ops Management is cloud-native software that is continually updated with new services, features, patches, and fixes. The management application resides in the HPE GreenLake cloud platform (access via **https://console.greenlake.hpe.com**) and leverages the HPE GreenLake architecture, security, and unified operations.

A 3-year subscription to HPE GreenLake for Compute Ops Management is added by default when ordering an HPE ProLiant Gen11 rack, tower, or micro server.

For more information, visit the HPE GreenLake for Compute Ops Management QuickSpecs:
https://www.hpe.com/psnow/doc/a50004263enw

Cesar Acosta
Director
ITCS S.A.

Standard Features

Embedded Management

HPE Integrated Lights-Out (HPE iLO)
Monitor your servers for ongoing management, service alerting, reporting and remote management with HPE iLO.
Learn more at **http://www.hpe.com/info/ilo.**

UEFI
Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI).
Learn more at **http://www.hpe.com/servers/uefi**

Intelligent Provisioning
Hassle free server and OS provisioning for one or more servers with Intelligent Provisioning.
Learn more at **http://www.hpe.com/servers/intelligentprovisioning**

iLO RESTful API
iLO RESTful API is DMTF Redfish API information and offers simplified server management automation such as configuration and maintenance tasks based on modern industry standards. Learn more at **http://www.hpe.com/info/restfulapi**

Server Utilities

Active Health System
The HPE Active Health System (AHS) is an essential component of the iLO management portfolio that provides continuous, proactive health monitoring of HPE servers. Learn more at **http://www.hpe.com/servers/ahs.**

Active Health System Viewer
Use the Active Health System Viewer, a web-based portal, to easily read AHS logs and speed problem resolution with HPE self-repair recommendations, to learn more visit: **http://www.hpe.com/servers/ahsv.**

Smart Update
Keep your servers up to date with the HPE Smart Update solution by using Smart Update Manager (SUM) to optimize the firmware and driver updates of the Service Pack for ProLiant (SPP).
Learn more at **https://www.hpe.com/us/en/servers/smart-update.html**

iLO Amplifier Pack
Designed for large enterprise and service provider environments with hundreds of HPE servers, the iLO Amplifier Pack is a free, downloadable open virtual application (OVA) that delivers the power to discover, inventory and update Gen8, Gen9, Gen10 and Gen10 Plus HPE servers at unmatched speed and scale. Use with an iLO Advanced License to unlock full capabilities.
Learn more at **http://www.hpe.com/servers/iLOamplifierpack**

HPE iLO Mobile Application
Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: **http://www.hpe.com/info/ilo/mobileapp**

RESTful Interface Tool
RESTful Interface tool (iLOREST) is a single scripting tool to provision using iLO RESTful API to discover and deploy servers at scale. Learn more at **http://www.hpe.com/info/resttool**

Scripting Tools
Provision one to many servers using your own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell.
Learn more at **http://www.hpe.com/servers/powershell**

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Standard Features

HPE OneView Standard

HPE OneView Standard can be used for inventory, health monitoring, alerting, and reporting without additional fees. It can monitor multiple HPE server generations. The user interface is similar to the HPE OneView Advanced version, but the software-defined functionality is not available. Learn more at **http://www.hpe.com/info/oneview**.

HPE Systems Insight Manager (HPE SIM)

Ideal for environments already using HPE SIM, it allows you to monitor the health of your HPE ProLiant Servers and HPE Integrity Servers. Also provides you with basic support for non-HPE servers. HPE SIM also integrates with Smart Update Manager to provide quick and seamless firmware updates. Learn more at **http://www.hpe.com/info/hpesim**.

Security

- UEFI Secure Boot and Secure Start support
- Immutable Silicon Root of Trust
- FIPS 140-3 validation (iLO 6 certification in progress)
- Common Criteria certification (iLO 6 certification in progress)
- Configurable for PCI DSS compliance
- Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser
- Support for Commercial National Security Algorithms (CNSA)
- iLO Security Modes
- Granular control over iLO interfaces
- Smart card (PIV/CAC) and Kerberos based 2-factor Authentication
- Tamper-free updates – components digitally signed and verified
- Secure Recovery – recover critical firmware to known good state on detection of compromised firmware
- Ability to rollback firmware
- Secure erase of NAND/User Data
- TPM 2.0 (Trusted Platform Module 2.0)
  Notes: Enabling TPM 2.0 no longer requires TPM module option kit for Gen11. It is an embedded feature yet disabled for shipments to China.
- Bezel Locking Kit option
- Chassis Intrusion detection option

HPE Trusted Platform Module

Enabling HPE Trusted Platform Module (TPM) 2.0 no longer requires TPM module option kit for Gen11. It is an embedded feature yet disabled for shipments to China. TPM2.0 can also be disabled from the BIOS setting.
Notes: The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates, and encryption keys.

Warranty

This product is covered by a global limited warranty and supported by HPE Services and a worldwide network of Hewlett Packard Enterprise Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three 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 Pointnext operational services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

Notes: Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have Hewlett Packard Enterprise replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:
https://www.hpe.com/us/en/search-results.html?page=1&q=servers%20warranty&autocomplete=0

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Optional Features

Server Management

HPE iLO Advanced

HPE iLO Advanced licenses offer smart remote functionality without compromise, for all HPE ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality.

HPE OneView Advanced

HPE OneView Advanced offers a sophisticated level of automation to infrastructure management by taking a template driven approach to provisioning, updating, and integrating compute, storage, and networking infrastructure. It provides full-featured licenses which can be purchased for managing multiple HPE server generations.
To learn more visit **http://www.hpe.com/info/oneview**.

HPE InfoSight for Servers

HPE InfoSight for Servers combines the cloud-based machine learning of InfoSight with the health and performance monitoring of Active Health System (AHS) and iLO to optimize performance and predict and prevent problems. The end result is an intelligent environment that modernizes IT operations and enhances the support experience by predicting and preventing the infrastructure issues that lead to application disruptions, wasted IT staff time and missed business opportunities.
Learn more at **https://www.hpe.com/servers/infosight**

HPE Insight Cluster Management Utility (CMU)

HPE Insight Cluster Management Utility is a HyperScale management framework that includes software for the centralized provisioning, management and monitoring of nodes and infrastructure. Learn more at **http://www.hpe.com/info/cmu**

Accelerator and GPGPU Information

Hewlett Packard Enterprise supports various accelerators on select HPE Proliant servers to support different workloads. The accelerators enable seamless integration of GPU computing with HPE ProLiant servers for high-performance computing, large data center graphics, deep learning and virtual desktop deployments. These accelerators deliver all of the standard benefits of GPU computing while enabling maximum reliability and tight integration with system monitoring and management tools such as HPE Insight Cluster Management Utility.

Rack and Power Infrastructure

The story may end with servers, but it starts with the foundation that makes compute go – and business grow. We've reinvented our entire portfolio of rack and power products to make IT infrastructure more secure, more practical, and more efficient. In other words, we've created a stronger, smarter, and simpler infrastructure to help you get the most out of your IT equipment. As an industry leader, Hewlett Packard Enterprise is uniquely positioned to address the key concerns of power, cooling, cable management and system access.

HPE G2 Advanced and Enterprise Racks are perfect for the server room or today's modern data center with enhanced airflow and thermal management, flexible cable management, and a 10 year Warranty to support higher density computing.
HPE G2 PDUs offer reliable power in flexible form factors that operate at temperatures up to 60°, include color-coded outlets and load segments and a low-profile design for optimal access to the rack and support for dense rack environments.
HPE Uninterruptible Power Systems are cost-effective power protection for any type workload. Some UPSs include options for remote management and extended runtime modules so you're critical dense data center is covered in power outages.

HPE KVM Solutions include a console and switches designed to work with your server and IT equipment reliably. We've got a cost-effective KVM switch for your first rack and multiple connection IP switches with remote management and security capabilities to keep your data center rack up and running.

Learn more about HPE Racks, KVM, PDUs and UPSs at **HPE Rack and Power Infrastructure.**

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Optional Features

One Config Simple (SCE)

SCE is a guided self-service tool to help sales and non-technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help, or use in your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact Hewlett Packard Enterprise Customer Business Center or an Authorized Partner for assistance
https://h22174.www2.hpe.com/SimplifiedConfig/Welcome#

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Service and Support

HPE Pointnext - Service and Support

Get the most from your HPE Products. Get the expertise you need at every step of your IT journey with **HPE Pointnext Services** We help you lower your risks and overall costs using automation and methodologies that have been tested and refined by HPE experts through thousands of deployments globally. HPE Pointnext **Advisory Services** focus on your business outcomes and goals, partnering with you to design your transformation and build a roadmap tuned to your unique challenges. Our **Professional** and **Operational Services** can be leveraged to speed up time-to-production, boost performance and accelerate your business. HPE Pointnext specializes in flawless and on-time implementation, on-budget execution, and creative configurations that get the most out of software and hardware alike.

Consume IT on your terms

HPE GreenLake brings the cloud experience directly to your apps and data wherever they are—the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake accelerates digital transformation in a distributed, edge-to-cloud world.

- Get faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

Managed services to run your IT operations

HPE GreenLake Management Services provides services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

Recommended Services

HPE Pointnext Tech Care.

HPE Pointnext Tech Care is the new operational service experience for HPE products. Tech Care goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Pointnext Tech Care has been reimagined from the ground up to support a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Pointnext Tech Care is available in three response levels. Basic, which provides 9x5 business hour availability and a 2-hour response time. Essential which provides a 15-minute response time 24x7 for most enterprise level customers, and Critical which includes a 6-hour repair commitment where available and outage management response for severity 1 incidents.

https://www.hpe.com/services/techcare

HPE Pointnext Complete Care

HPE Pointnext Complete Care is a modular, edge-to-cloud IT environment service that provides a holistic approach to optimizing your entire IT environment and achieving agreed upon IT outcomes and business goals through a personalized and customer-centric experience. All delivered by an assigned team of HPE Pointnext Services experts. HPE Pointnext Complete Care provides:

- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

https://www.hpe.com/services/completecare

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Service and Support

Other related Services

HPE Server Hardware Installation
Provides for the basic hardware installation of HPE branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.
https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=5981-9356enw

HPE Installation and Startup Service
Provides for the installation of your HPE hardware according to product specifications including options. The HPE service delivery technician will connect the product to a LAN as appropriate and enable remote support to allow for automatic case creation for hardware failures. Installation and start up services also include the installation of one supported operating system type (Windows® or Linux).

DC for Hyperscale
Complete Care 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 can take advantage of this environment support tailored to their operating model.

HPE Factory Express for Servers and storage
HPE Factory Express offers configuration, customization, integration, and deployment services for HPE servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped, and deployed.
Factory Express offers service packages for simple configuration, racking, installation, complex configuration, and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HPE products supported through Factory Express include a wide array of servers and storage: HPE Integrity, HPE ProLiant, HPE Apollo, HPE ProLiant Server Blades, HPE BladeSystem, HPE 9000 servers as well as the MSAxxxx3PAR suite, XP, rackable tape libraries and configurable network switches.

HPE Service Credits
HPE Service Credits offers flexible services and technical skills to meet your changing IT demands. With a menu of service that is tailored to suit your needs, you get additional resources and specialist skills to help you maintain peak performance of your IT. Offered as annual credits, you can plan your budgets while proactively responding to your dynamic business.

HPE Education Services
Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book on a class today and learn how to get the most from your technology investment. **http://www.hpe.com/ww/learn**

HPE Support Center
The HPE Support Center is a personalized online support portal with access to information, tools, and experts to support HPE business products. Submit support cases online, chat with HPE experts, access support resources or collaborate with peers.

Learn more **http://www.hpe.com/support/hpesc**

The HPE Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.
HPE Insight Remote Support and HPE Support Center are available at no additional cost with a HPE warranty, HPE Support Service or HPE contractual support agreement.

Notes: *HPE Support Center Mobile App is subject to local availability.

For more information: **http://www.hpe.com/services**.
Notes: HPE ProLiant DL360 Gen11 Server is covered under the HPE Service Contract applied to the HPE ProLiant Server. No separate HPE support services need to be purchased.

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Service and Support

Warranty and Support Services will extend to include HPE options configured with your server or storage device. The price of support service is not impacted by configuration details. HPE sourced options that are compatible with your product will be covered under your server support at the same level of coverage allowing you to upgrade freely. Installation for HPE options is available as needed. To keep support costs low for everyone, some high value options will require additional support. Additional support is only required on select high value workload accelerators, fiber switches, InfiniBand, and UPS batteries over 12KVA. See the specific high value options that require additional support **here**.

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.

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Pre-Configured Models

Pre-Configured models ship with the configurations below.

- Options can be selected from the Core or Additional options section of this QuickSpecs.
- Hewlett Packard Enterprise does not allow factory integration of options into pre-configured models. Any additional options purchased will not be shipped inside the server.
- Network Choice models do not include embedded LOM.
- The pre-configured BTO SKUs are right-sized for use with a single CPU, a single 32GB DIMM, and a single network controller. The storage subsystem can support either 8SFF or 4LFF drives attached to a storage controller or SATA direct connected to motherboard. The pre-configured power supply unit is sufficient for these reasonable configurations. In cases where the final configuration will be increased by adding a second processor, more memory, NVMe drives, GPUs, additional Networking cards or other components please refer to **HPE Power Advisor** for configuration guidance, as your desired configuration may require a second PSU or building the configuration as Configure To Order (CTO) may be best.

Worldwide & Japan BTO Models			
SKU Number	P60735-B21 P60735-291 P60735-421	P51930-B21 P51930-291 P51930-421	P51931-B21 P51931-291 P51931-421
Model Name	HPE ProLiant DL360 Gen11 4410Y 2.0GHz 12-core 1P 32GB-R NC 4LFF 800W PS Server	HPE ProLiant DL360 Gen11 4410Y 2.0GHz 12-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server	HPE ProLiant DL360 Gen11 5416S 2.0GHz 16-core 1P 32GB-R NC 8SFF 800W PS Server
Chassis	HPE ProLiant DL360 Gen11 4LFF NC CTO Server (P52498-B21)	HPE ProLiant DL360 Gen11 8SFF NC CTO Server (P52499-B21)	HPE ProLiant DL360 Gen11 8SFF NC CTO Server (P52499-B21)
Processor	4410Y (12 core, 2.0GHz, 150W)	4410Y (12 core, 2.0GHz, 150W)	5416S (16-core, 2.0GHz, 150W)
Number of Processors	One with standard heatsink	One with standard heatsink	One with standard heatsink
Memory	32 GB RDIMM 2Rx8 4800 MT/s (1x 32 GB) (P43328-B21) **Notes:** Runs at 4000 MT/s due to processor limitation.	32 GB RDIMM 2Rx8 4800 MT/s (1x 32 GB) (P43328-B21) **Notes:** Runs at 4000 MT/s due to processor limitation.	32 GB RDIMM 2Rx8 4800 MT/s (1x 32 GB) (P43328-B21) **Notes:** Runs at 4400 MT/s due to processor limitation.
Network Controller	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE (P51181-B21) **Notes:** No embedded networking	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE (P51181-B21) **Notes:** No embedded networking	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE (P26253-B21) **Notes:** No embedded networking
Storage Controller	Embedded Intel® VROC SATA for HPE ProLiant Gen11, with 14 SATA ports (10-ports accessible); Choice of HPE modular Smart Array and PCIe plug-in controller	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller and Smart Storage Battery (P58335-B21)	Embedded Intel® VROC SATA for HPE ProLiant Gen11, with 14 SATA ports (10-ports accessible); Choice of HPE modular Smart Array and PCIe plug-in controller
Hard Drive	None Included	None Included	None Included
Internal Storage	4 LFF NC CTO Server (upgradable to 4 LFF front)	8 SFF NC CTO Server (upgradeable to 8+2 SFF front)	8 SFF NC CTO Server (upgradeable to 8+2 SFF front)
PCIe Slots	2-slots (x16 FH, x16 HH) as standard. Upgradeable to 3rd slot in HH (or remove Slot 2 bracket to be FH at Slot 3) in a 2nd processor configuration. All PCIe Slos are in design with up to 9.5" length.		
Power Supply	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (P38995-B21) (-B21 & -291) 1x HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit (865438-B21) (-421)	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (P38995-B21) (-B21 & -291) 1x HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit (865438-B21) (-421)	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (P38995-B21) (-B21 & -291) 1x HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit (865438-B21) (-421)

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Pre-Configured Models

Fans	5 - Standard	5- Standard	5- Standard
Management	HPE iLO 6	HPE iLO 6	HPE iLO 6
Security	Trusted Platform Module (TPM) **Notes:** Enabling TPM 2.0 no longer requires TPM module option kit for Gen11. It is an embedded feature and can be disabled in the BIOS setting.		
Rail Kit	HPE Easy Install Rail 5 Kit; w/o CMA **Notes:** Server does not support shelf mounted rail kits ("L" brackets).	HPE Easy Install Rail 3 Kit; w/o CMA **Notes:** Server does not support shelf mounted rail kits ("L" brackets).	HPE Easy Install Rail 3 Kit; w/o CMA **Notes:** Server does not support shelf mounted rail kits ("L" brackets).
Energy Star	Energy Star 3.0	Energy Star 3.0	Energy Star 3.0
Form Factor	1U Rack	1U Rack	1U Rack
Warranty	3-year parts, 3-year labor, 3-year onsite support with next business day response.	3-year parts, 3-year labor, 3-year onsite support with next business day response.	3-year parts, 3-year labor, 3-year onsite support with next business day response.

China BTO Models		
SKU Number	P54866-AA1	P51931-AA1
Model Name	HPE ProLiant DL360 Gen11 4410Y 2.0GHz 12-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server	HPE ProLiant DL360 Gen11 5416S 2.0GHz 16-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server
Chassis	HPE ProLiant DL360 Gen11 8SFF NC CTO Server (P52499-B21)	HPE ProLiant DL360 Gen11 8SFF NC CTO Server (P52499-B21)
Processor	4410Y (12 core, 2.0GHz, 150W)	5416S (16-core, 2.0GHz, 150W)
Number of Processors	One with standard heatsink	One with standard heatsink
Memory	32 GB RDIMM 2Rx8 4800 MT/s (1x 32 GB) (P43328-B21) **Notes:** Runs at 4000 MT/s due to processor limitation.	32 GB RDIMM 2Rx8 4800 MT/s (1x 32 GB) (P43328-B21) **Notes:** Runs at 4400 MT/s due to processor limitation.
Network Controller	Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE (P51181-B21) **Notes:** No embedded networking	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE (P26253-B21) **Notes:** No embedded networking
Storage Controller	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller and Smart Storage Battery (P58335-B21)	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller and Smart Storage Battery (P58335-B21)
Hard Drive	Not Included	Not included
Internal Storage	8 SFF NC CTO Server (upgradeable to 8+2 SFF front)	8 SFF NC CTO Server (upgradeable to 8+2 SFF front)
PCIe Slots	2-slots (x16 FH, x16 HH) as standard. Upgradeable to 3rd slot in HH (or remove Slot 2 bracket to be FH at Slot 3) in a 2nd processor configuration. All PCIe Slos are in design with up to 9.5" length.	
Power Supply	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (-AA1)	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (-AA1)
Fans	5 - Standard	5 - Standard
Management	HPE iLO 6	HPE iLO 6
Security	Trusted Platform Module (TPM) 2.0 is disabled for shipments to China. **Notes:** Enabling TPM 2.0 no longer requires TPM module option kit for Gen11. It is an embedded feature and disabled on AA1 SKUs	

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Pre-Configured Models

Rail Kit	HPE Easy Install Rail 3 Kit; w/o CMA. **Notes:** Server does not support shelf mounted rail kits ("L" brackets).	HPE Easy Install Rail 3 Kit; w/o CMA. **Notes:** Server does not support shelf mounted rail kits ("L" brackets).
Energy Star	Energy Star 3.0	Energy Star 3.0
Form Factor	1U Rack	1U Rack
Warranty	3-year parts, 3-year labor, 3-year onsite support with next business day response.	3-year parts, 3-year labor, 3-year onsite support with next business day response.
Worldwide & Japan BTO Models		
SKU Number	P60734-B21 P60734-291 P60734-421	P51932-B21 P51932-291 P51932-421
Model Name	HPE ProLiant DL360 Gen11 4416+ 2.0GHz 20-core 1P 32GB-R MR408i-o NC 8SFF 800W PS Server	HPE ProLiant DL360 Gen11 5415+ 2.9GHz 8-core 1P 32GB-R NC 8SFF 800W PS Server
Chassis	HPE ProLiant DL360 Gen11 8SFF NC CTO Server (P52499-B21)	HPE ProLiant DL360 Gen11 8SFF NC CTO Server (P52499-B21)
Processor	4416+ (20 core, 2.0GHz, 165W)	5415+ (8 core, 2.9GHz, 150W)
Number of Processors	One with standard heatsink	One with standard heatsink
Memory	32 GB RDIMM 2Rx8 4800 MT/s (1x 32 GB) (P43328-B21) **Notes:** Runs at 4000 MT/s due to processor limitation.	32 GB RDIMM 2Rx8 4800 MT/s (1x 32 GB) (P43328-B21) **Notes:** Runs at 4400 MT/s due to processor limitation.
Network Controller	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE (P26253-B21) **Notes:** No embedded networking	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE (P26253-B21) **Notes:** No embedded networking
Storage Controller	HPE MR408i-o Gen11 x8 Lanes 4GB Cache OCP SPDM Storage Controller and Smart Storage Battery (P58335-B21)	Embedded Intel® VROC SATA for HPE ProLiant Gen11, with 14 SATA ports (10-ports accessible); Choice of HPE modular Smart Array and PCIe plug-in controller
Hard Drive	None Included	None Included
Internal Storage	8 SFF NC CTO Server (upgradeable to 8+2 SFF front)	8 SFF NC CTO Server (upgradeable to 8+2 SFF front)
PCIe Slots	2-slots (x16 FH, x16 HH) as standard. Upgradeable to 3rd slot in HH (or remove Slot 2 bracket to be FH at Slot 3) in a 2nd processor configuration. All PCIe Slos are in design with up to 9.5" length.	
Power Supply	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (P38995-B21) (-B21 & -291)	1x HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit (P38995-B21) (-B21 & -291
	1x HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit (865438-B21) (-421)	1x HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit (865438-B21) (-421)
Fans	5 - Standard	5- Standard
Management	HPE iLO 6	HPE iLO 6
Security	Trusted Platform Module (TPM) **Notes:** Enabling TPM 2.0 no longer requires TPM module option kit for Gen11. It is an embedded feature and can be disabled in the BIOS setting.	

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Pre-Configured Models

Rail Kit	HPE Easy Install Rail 3 Kit; w/o CMA. **Notes:** Server does not support shelf mounted rail kits ("L" brackets).	HPE Easy Install Rail 3 Kit; w/o CMA. **Notes:** Server does not support shelf mounted rail kits ("L" brackets).
Energy Star	Energy Star 3.0	Energy Star 3.0
Form Factor	1U Rack	1U Rack
Warranty	3-year parts, 3-year labor, 3-year onsite support with next business day response.	3-year parts, 3-year labor, 3-year onsite support with next business day response.

Notes:

- UEFI is the standard default for all Pre-configured models.
- Intel® VROC SATA is available and can be enabled in RBSU.

Country Code Key

- B21 = Worldwide
- 291 = Japan
- 421 = European Union
- AA1 = PRC

Notes:

- The -B21 WW SKU is to be ordered in all countries other than Japan or PRC.
- The -421 SKU is to be ordered in European Union countries for Lot 9 compliance

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Configuration Information

Smart Templates from HPE

HPE is releasing new Smart Template technology in the One Config Advanced (OCA) configurator. These Templates represent the CTO equivalents of the top-selling BTO configurations. They are intended to provide simple starting points to assist you in easily creating and customizing your desired Server solutions. HPE Servers that have Platform Templates, developed by HPE Product Managers, will have a separate tab in the HPE OCA configurator.

Workload Solutions Templates from HPE

The Workload Solutions Templates build on the Smart Templates technology to easily develop working configurations of the most compelling Workload Solutions. The templates complement the Reference Builds developed by HPE. Workload Solutions templates preconfigure some of the key architecture decisions and make it easier for Sellers to get started and complete a differentiated server solution for your customer's specific workload.

Mainstream SKUs

HPE launched the Mainstream SKU initiative as a market-driven approach to Demand Steering. It is a simplified portfolio of our top selling options that meet the current and future market trends. HPE has committed to provide a more predictable and faster experience for these options. Mainstream SKUs enjoy higher safety stock levels and have higher fulfilment service levels than non-Mainstream SKUs. Mainstream orders are fulfilled +30% faster than non-Mainstream orders, have fewer shortages and better recovery dates. This platform has Mainstream SKUs in the options portfolio, and is eligible for the improved Mainstream experience. Mainstream SKUs are designated with a Mainstream symbol in our configurators.

Mainstream Configurations

HPE is using the new Smart Templates technology to present Mainstream configurations. All the options in a Mainstream configuration are pre-selected Mainstream SKUs to optimize the performance, predictability and fulfilment experience. Check the Template section in our configurators for eligible Mainstream configurations.

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.
- 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 models do not include embedded LOM. To enable networking capability please select a validated alternative NIC - OCP or PCIe- from the Core Options section.

CTO Server	HPE DL360 Gen11 4LFF NC CTO Server	HPE DL360 Gen11 8SFF NC CTO Server	HPE DL360 Gen11 20EDSFF NC CTO Server
SKU Number	P52498-B21	P52499-B21	P52500-B21
TAA SKU*	P52498-B21#GTA	P52499-B21#GTA	P52500-B21#GTA
HPE Trusted Supply Chain	Optional HPE Trusted Supply Chain for HPE ProLiant (P36394-B21)		
Processor	Not included as standard. Optional: Qty 1 or 2 (2 processors must be selected in 20EDSFF NC CTO Server)		
DIMM Slots	32-DIMM slots		
DIMM Blanks	DIMM Blanks are required, embedded and shipped as default in all CTO Servers		
Storage Controller	Choice of Intel® VROC Software RAID capable; Choice of HPE ProLiant external hardware controller Choice of HPE ProLiant Gen11 MR and SR PCIe and OCP plug-in Controller,		Choice of Intel® VROC Software RAID capable Choice of HPE ProLiant external hardware controller **Internal Hardware Controller support is not available
PCIe Slots	Up to 3 Slots PCIe 5.0 (Slot 1, 2 &3)		

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	One standard primary/butterfly riser: 2 slots as Slot 1 & Slot 2 (1 x16 FH / 1 x16 LP) and 4 x8 front NVMe connectors Optional: Slot 3 in 1 x16 FH or LP slot All PCIe Slos are in design with up to 9.5" length		
OCP3.0 Slots	PCIe 5.0: 2 slots (1x16/ 1x16)[1]		PCIe 5.0: 2 slots (1x8/ 1x8)[2]
Drive Cage – included	4 LFF – default backplane. 12G x1 SAS with Low Profile (LP) carrier support.	8SFF – Optional backplanes. in choice of: - 24G x1 NVMe/SAS U.3, or - 24G x4 NVMe/SAS U.3, TriMode supported, must be selected if internal drives needed. Basic carrier (BC) support. (PCIe4.0 storage)	20EDSFF – default backplane. 32G x4 NVMe, with E3.s 1T carrier (EC1) support. (PCIe5.0 storage)
Network Controller	"BCM 5719 1Gb 4p BASE-T OCP Adptr" to be defaulted in the configurator at OCP Slot 21. Customer is allowed to remove and select other cards (PCIe of OCP) from Networking OR InfiniBand OR Smart IO (HW) OR Storage Offload category. Choice of OCP3.0 or stand-up cards for primary networking selection plus additional/optional stand-up networking adapters. Notes: – No embedded networking from motherboard. – [1]In 1 Processor configuration, "CPU1 to OCP2 x8 Enablement Kit" will be selected as default as OCP NIC is pre-selected at OCP Slot 2, to be defaulted in the configurator if 1 Processor is selected. Customer is allowed to remove if OCP NIC is not selected but need to be replaced by a PCIe standup NIC. Meanwhile, the "CPU1 to OCP2 x8 Enablement Kit" will be removed. – [1]"CPU2 to OCP2 x8 Enablement Kit" or "CPU2 to OCP2 x16 Enablement Kit" must be selected if OCP NIC is selected in 2 Processors configuration. "CPU2 to OCP2 x8 Enablement Kit" to be defaulted in the configurator if 2 Processors are selected. User should be allowed to remove "CPU2 to OCP2 x8 Enablement Kit" and should be forced select "CPU2 to OCP2 x16 Enablement Kit" if OCP NIC is selected. Customer is allowed to remove if OCP NIC is not selected but need to be replaced by a PCIe standup NIC. Meanwhile, the "CPU2 to OCP2 x8 Enablement Kit" will be removed. – [2] In 20EDSFF CTO model, either no OCP enabmenet kit or "CPU2 to OCP2 x8 Enablement Kit" can be selected from the limied PCIe5.0 electrical lanes from OCP Slot 1 (x8) and OCP Slot2 (x8).		
Fans	Choice of • 5 Standard Fans for one processor below 185W TDP • Additional 2 Standard Fans for 2nd Processor below 185W TDP • 7 High Performance Fan for processors 186W – 270W TDP • 7 High Performance Fan for processors 300W TDP in one socket configuration • Closed-loop Liquid Cooling (CL LC) Heat Sink Fan Bundle FIO Kit (7 fans included) for one or two processors above 271W TDP • Direct Liquid Cooling (DLC) Heatsink and High Performance Fan FIO solution, for all processors in 2P Configuration. (Shipment available in CQ3 2023) **Notes:** If Closed-loop Liquid Cooling HeatSink Fan FIO Bundle Kit is selected, there is default a FAN Kit bundled. Then any Fans (Standard Fan Kit or High Performane Fan Kit) cannot be selected. In the CL LC bundle Kit, with full speed the Fan Kit runs at 210W, which requires 42W additional power than DL360 Gen11 Performance Fan Kit.		

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Management	HPE iLO with Intelligent Provisioning (standard) HPE GreenLake for Compute Ops Management (a 3-year subscription included) Optional: iLO Advanced and OneView
Video Output	Rear: 1 VGA Optional: • 1 Front Display Port (standalone in 8SFF; USB2.0+ Display Port bundle kit in 4LFF). • 1 Rear Serial Port
USB	Front: 1 USB 3.2 Gen1 + iLO service port Rear: 2 USB 3.2 Gen1 Internal: 1 USB 3.2 Gen1 + 1 USB2.0 Optional: 1 Front USB 2.0
Security	TPM2.0 (Trusted Platform Module) embedded. It is an embedded feature and can be disabled in the BIOS setting. **Notes:** Disabled for shipments to China
Rail Kit	Optional Easy Install rails and CMA • HPE Easy Install Rail 3 Kit (P52341-B21) is available for 8SFF CTO Server if Rack is selected • HPE Easy Install Rail 5 Kit (P52343-B21) is available for 4LFF & 20EDSFF CTO Server if Rail kit is selected • DL300 Gen10 Plus 1U CMA (P26489-B21) as optional. (If CMA is selected, then rail Kit must be selected) **Notes:** Server does not support shelf mounted rail kits ("L" brackets).
Form Factor	1U Rack
Warranty	3-year parts, 3-year labor, 3-year onsite support with next business day response.

Notes:

- All DL360 Gen11 CTO Server models require the select of Processor, Memory and Power Supply.
- Minimum One card (PCIe or OCP) must be selected from Networking OR InfiniBand OR Smart IO (HW) OR Storage Offload category.
- "BCM 5719 1Gb 4p BASE-T OCP Adptr" to be defaulted in the configurator. Customer is allowed to remove and select other cards (PCIe of OCP) from Networking OR InfiniBand OR Smart IO (HW) OR Storage Offload category.
- 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 DL360 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 additional safeguards are put in place against cyber-exploits throughout the server lifecycle. The HPE ProLiant DL360 Gen11 is re-branded as a HPE ProLiant DL360T Gen11 to denote the HPE Trusted Supply Chain security enhancements. The DL360T is Trade Agreement Act (TAA) compliant. See "HPE Security" section within this document for more detail and learn more at **http://www.hpe.com/security**
- "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).
- All CTO servers are Energy Star compliant, exclude configuration with GPU Must select Processor, Memory and Power Supply in all CTO models. Backplane to be further selecetd in 8SFF CTO Model.
- Supported Rail kit to be defaulted for CTO Model in the configurator. But customer can deselect the Rail kit if the CTO Model is selected without Rack (Standalone server).
- If EDSFF CTO Model is selected, then Performance Heatsink or Closed Loop Liquid Cooling Heatsink Fan Bundle FIO Kit or Direct Liquid Cooling Module must be selected.

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Configuration Information

Step 2: Choose Core Options

- Mixing of 2 different processor models is not supported.
- CTO server will populate necessary heatsink and fan kits per system thermal requirements and processor models
- DIMM Blanks are pre-selected as default, minium Q'ty 1 of memory need to be selected in 1 Processor configuration, and minium Q'ty 2 of memory need to be selected in 2 Processor configuration
- Choice of hardware storage controllers (internal hardward controllers are not available for EDSFF CTO Server) and OS Boot Device
- 4LFF backplane and cage are pre-selected, in 4LFF CTO Server; choice of backplanes in 8SFF CTO server; 20EDSFF backplane and cage are pre-selected, in 20EDSFF CTO server.
- Choice of ODD drive (not available for 20EDSFF CTO server) and storage device
- Factory Configuration Settings
- Choice of riser card for PCIe5.0 slots enablement
- Choice of OS Boot Device
- Choice of Networking solution
- Choice of Power and Cooling solution
- Choice of Security Options
- Software as a Service Management : Choice of HPE GreenLake for Compute Ops Management and Choice of HPE OneView

Step 3: Choose Additional Options

- Choice of Accessories
- Choice of Intel® Virtual RAID on CPU Premium & Standard FIO Software for HPE
- Choice of GPGPU
- Choice of Embedded Management
- Choice of Racks
- Choice of PDUs
- Choice of UPS
- Choice of USB and SD Options
- Choice of Enterprise Mainstream Flash Media Kits for Memory Cards

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Core Options

Choose Core Options

Processor

Please select one or two matching processors.
For example: for a single Xeon-Platinum 8470 processor configuration select 1x P49606-B21. If dual Xeon-Platinum 8470 processor configuration, select 2x P49606-B21.
Notes:

- Mixing of 2 different processor models is not supported.
- CTO server will populate necessary fan kits per system thermal requirements and processor models, minimum as 5 standard fans. Dual processor configurations require 7 fans, either standard or high performance.
- If Processor Wattage is less than or equal to 185W, then "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.
- If Processor Wattage is more than 185W and less than or equal to 270W, then "Performance Heatsink (P48095-B21)" and "Performance Fan (P48908-B21)" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan Kit" upon Processor selection. But customer should be allowed to remove and select DLC Module and "Performance Fan" upon Processor selection.
- If Processor Wattage is more than 270W, then "Closed Loop Liquid Cooling" (P48906-B21) or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" and "Perfromacnce Fan".
- In 300W processor one socket configuration, the air cooling with Performance Heatsinks & Performance Fan Kits can be supported together (configurable in HPE One Config Advanced from CQ3 2023). Field upgrade to two socket is not supported with air cooling solution.
- If 350W Intel Open-loop Liquid Cooling CPU (6458Q/ 8470Q) Processor is selected with any backplanes or drives (excluding NS204i-u), then DLC Module must be selected.
- If 350W Processor (excluding Intel Open-loop Liquid Cooling CPU 6458Q/ 8470Q) is selected with Closed Loop Liquid cooling , then Maximum 10x SFF NVMe drive or 20x EDSFF can be selected. Or DLC module must be selected for SFF or EDSFF derves models.
- For Fan selection impact from memory capacity, pls refer to the support matrix in Fan Kit section
- See Networking section for constrainted high speed networking adapter
- For GPU selection, pls refer to the support matrix in GPU section
  - In 8SFF CTO Model, if the Graphics Option is selected with the Processor that is more than 270W, then Maximum of 8 NVMe/ SAS/ SATAdrives can be selected.
  - In EDSFF CTO Model, if the Graphics Option is selected with Processor Wattage is more than 270W, then DLC Module & Performance Fan Kit must be selected

4th Generation Intel Xeon-Platinum

Notes: All SKUs below ship with processor only. Adequate fans and heatsinks must be selected.

Intel Xeon-Platinum 9462 2.7GHz 32-core 350W Processor for HPE P49645-B21

Notes:

- HBM die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with "Perfromance Fan Kit".
- Operating System support for HBM processor, see **HPE Servers Support & Certification Matrices**

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Core Options

- HBM Memory Modes support:
  - HBM Only (memory size equals HBM memory capacity. It only provides best performance when workloads fit into 64GB of capacity): Exists when system memory is removed as Qty 0. HBM caches DDR (symmetric DDR population required). No support for Intel® SGX and MKTME. The BIOS setting can be refreshed as "HBM Only" after system reboot. In RBSU, the HBM Memory Mode is shown as "1LM", meaning One Level Memory.
  - Flat Mode (memory size equals System memory Plus HBM memory. DDR memory can be added for workloads needing capacity exceed 64GB): Default setting of system memory to be minimum Qty 1. HBM and DDR exposed as separate regions. A higher perfromance can be achieved than Cache mode. Intel® SGX and MKTME are supported in DDR region. the HBM Memory Mode is shown as "1LM", meaning One Level Memory.
  - Cache Mode (memory size equals System memory only, as HBM memory is hidden and is functioning as a cache. Cache mode provides improved performance when workloads need above 64GB of capacity) : No support for Intel® SGX and MKTME. In RBSU, the HBM Memory Mode is shown as "2LM", meaning Two Level Memory. When the system memory are populated, Cache Mode can be selected when the configuration meets below two requiremnets, incl. System Memory population requirement and the specific ratio of System Memory. Otherwise, will be configuraed as Flat Mode instead.
    - To meet below system memory population requirement from Intel, one socket scenario. Also with system DIMM Qty to be only a 4, 8 or 16.

    - The Ratio of "System memory : HBM memory" is in 2:1 or 64:1. Meaning the memory population in "one socket" needs to be:
      1. DDR5 16GB with min Qty 8 (System memory 16GB x8 : HBM memory 64GB = 2:1), or
      2. DDR5 32GB with min Qty 4 (System memory 32GB x4 : HBM memory 64GB = 2:1), or
      3. DDR5 256GB with Qty 16 (System memory 256GB x 16 : HBM memory 64GB = 64:1)
      4. Duplication of DDR5 system memory is required in two sockets configuration

Intel Xeon-Platinum 8490H 1.9GHz 60-core 350W Processor for HPE P49630-B21

Notes:

- XCC die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with "Perfromance Fan Kit".
- If selected with Closed Loop Liquid cooling , then Maximum 10x SFF NVMe or 20xEDSFF drive can be selected.

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Core Options

Intel Xeon-Platinum 8480+ 2.0GHz 56-core 350W Processor for HPE P49607-B21

Notes:

- XCC die
- Max 2
- If Processor Wattage is more than 270W, then "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module".
- EDSFF CTO Model: If 350W CPU is selected with Closed Loop Liquid cooling, then 256GB DIMM cannot be selected.

Intel Xeon-Platinum 8470 2.0GHz 52-core 350W Processor for HPE P49606-B21

Notes:

- XCC die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with "Performance Fan Kit".
- With Closed Loop Liquid cooling , then Maximum 8 quantity of SFF drive can be selected.
- EDSFF CTO Model: If 350W CPU is selected with Closed Loop Liquid cooling, then 256GB DIMM cannot be selected.

Intel Xeon-Platinum 8470Q 2.1GHz 52-core 350W Processor for HPE P49609-B21

Notes:

- XCC die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with "Performnace Fan Kit".
- If Open-loop Liquid Cooling processor 8470Q is selected with Closed-loop Liquid Cooling, then backplan and drive cannot be selected in the 8SFF CTO server. Only NS204i-u can be selected.
- If 8470Q Processor is selected with Closed-loop Liquid Cooling, then 4LFF and 20EDSFF CTO Server cannot be selected as backplane is embedded as default. Or DLC module with Performance Fan Kit must be selecetd.
- If selected with InfiniBand HDR/EN 200Gb 1p/2p QSFP56 OCP 3 Adapter, then NVMe drive cannot be selected.

Intel Xeon-Platinum 8470N 1.7GHz 52-core 300W Processor for HPE P49649-B21

Notes:

- XCC die
- Max 2
- Requires Closed-loop LC Heat Sink Fan Bundle FIO Kit must be selected (P48906-B21) in two-socket configurations.
- In one socket configuration, Performance Heatsinks & Performance Fan Kits can be supported (configurable in HPE One Config Advanced from CQ3 2023). Field upgrade to two socket is not supported with air cooling solution.
- With two socket configuration, then "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with "Performance Fan Kit".

Intel Xeon-Platinum 8468 2.1GHz 48-core 350W Processor for HPE P49605-B21

Notes:

- XCC die
- Max 2

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Core Options

- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with "Performance Fan Kit".
- With Closed Loop Liquid cooling , then Maximum 8 quantity of SFF drive can be selected.
- EDSFF CTO Model: If 350W CPU is selected with Closed Loop Liquid cooling, then 256GB DIMM cannot be selected.

Intel Xeon-Platinum 8468V 2.4GHz 48-core 330W Processor for HPE P49631-B21

Notes:

- XCC die
- Max 2
- Requires Closed-loop LC Heat Sink Fan Bundle FIO Kit must be selected (P48906-B21).
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with "Performance Fan Kit".

Intel Xeon-Platinum 8462Y+ 2.8GHz 32-core 300W Processor for HPE P49603-B21

Notes:

- MCC die
- Max 2
- With two socket configuration, then "Closed Loop Liquid Cooling" or "DLC Module" must be selected in two-socket configuration. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with "Performance Fan Kit".
- In one socket configuration, the air cooling with Performance Heatsinks & Performance Fan Kits can be supported (configurable in HPE One Config Advanced from CQ3 2023). Field upgrade to two socket is not supported with air cooling solution.

Intel Xeon-Platinum 8460Y+ 2.0GHz 40-core 300W Processor for HPE P49604-B21

Notes:

- XCC die
- Max 2
- With two socket configuration, then "Closed Loop Liquid Cooling" or "DLC Module" must be selected in two-socket configuration. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with "Performance Fan Kit".
- In one socket configuration, the air cooling with Performance Heatsinks & Performance Fan Kits can be supported (configurable in HPE One Config Advanced from CQ3 2023). Field upgrade to two socket is not supported with air cooling solution.

Intel Xeon-Platinum 8458P 2.7GHz 44-core 350W Processor for HPE P49632-B21

Notes:

- XCC die
- Max 2
- Requires Closed-loop LC Heat Sink Fan Bundle FIO Kit must be selected (P48906-B21).
- With Closed Loop Liquid cooling , then Maximum 8 quantity of SFF drive can be selected.
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with "Performance Fan Kit".
- EDSFF CTO Model: If 350W CPU is selected with Closed Loop Liquid cooling, then 256GB DIMM cannot be selected.

Intel Xeon-Platinum 8452Y 2.0GHz 36-core 300W Processor for HPE P49616-B21

Notes:

- XCC die
- Max 2

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Core Options

- Requires Closed-loop LC Heat Sink Fan Bundle FIO Kit must be selected (P48906-B21) in two-socket configuration.
- With two socket configuration, then "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with "Performance Fan Kit".
- In one socket configuration, the air cooling with Perfromance Heatsinks & Perfrmance Fan Kits can be supported (configurable in HPE One Config Advanced from CQ3 2023). Field upgrade to two socket is not supported with air cooling solution.

Intel Xeon-Platinum 8444H 2.9GHz 16-core 270W Processor for HPE P49625-B21

Notes:

- XCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customer should be allowed to remove and select DLC Module (shipment available in CQ3 2023) and Performance Heatsink.

4th Generation Intel Xeon-Gold 6

Notes: All SKUs below ship with processor only. Adequate fans and heatsinks must be selected.

Intel Xeon-Gold 6458Q 3.1GHz 32-core 350W Processor for HPE P49608-B21

Notes:

- MCC die
- Max 2
- "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module" with "Performance Fan Kit".
- If Open-loop Liquid Cooling processor 6458Q is selected with Closed-loop Liquid Cooling, then backplan and drive cannot be selected in the 8SFF CTO server. Only NS204i-u can be selected.
- With Closed-loop Liquid Cooling, then 4LFF and 20EDSFF CTO Server cannot be selected as backplane is embedded as default, or DLC Module with Performance Fan Kit must be selected.
- If selected with InfiniBand HDR/EN 200Gb 1p/2p QSFP56 OCP 3 Adapter, then NVMe drive cannot be selected.

Intel Xeon-Gold 6454S 2.2GHz 32-core 270W Processor for HPE P49654-B21

Notes:

- XCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customer should be allowed to remove and select DLC Module (shipment available in CQ3 2023) and Performance Heatsink.

Intel Xeon-Gold 6448Y 2.1GHz 32-core 225W Processor for HPE P49600-B21

Notes:

- MCC die
- Max 2.
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customer should be allowed to remove and select DLC Module (shipment available in CQ3 2023) and Performance Heatsink.

Intel Xeon-Gold 6448H 2.4GHz 32-core 250W Processor for HPE P49622-B21

Notes:

- MCC die
- Max 2.

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Core Options

- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customer should be allowed to remove and select DLC Module (shipment available in CQ3 2023) and Performance Heatsink.

Intel Xeon-Gold 6444Y 3.6GHz 16-core 270W Processor for HPE P49602-B21

Notes:
- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customer should be allowed to remove and select DLC Module (shipment available in CQ3 2023) and Performance Heatsink.

Intel Xeon-Gold 6442Y 2.6GHz 24-core 225W Processor for HPE P49599-B21

Notes:
- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customer should be allowed to remove and select DLC Module (shipment available in CQ3 2023) and Performance Heatsink.

Intel Xeon-Gold 6438Y+ 2.0GHz 32-core 205W Processor for HPE P49615-B21

Notes:
- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customer should be allowed to remove and select DLC Module (shipment available in CQ3 2023) and Performance Heatsink.

Intel Xeon-Gold 6438N 2.0GHz 32-core 205W Processor for HPE P49638-B21

Notes:
- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customer should be allowed to remove and select DLC Module (shipment available in CQ3 2023) and Performance Heatsink.

Intel Xeon-Gold 6434 3.7GHz 8-core 195W Processor for HPE P49601-B21

Notes:
- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customer should be allowed to remove and select DLC Module (shipment available in CQ3 2023) and Performance Heatsink.

Intel Xeon-Gold 6430 2.1GHz 32-core 270W Processor for HPE P49614-B21

Notes:
- XCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customer should be allowed to remove and select DLC Module (shipment available in CQ3 2023) and Performance Heatsink.

Intel Xeon-Gold 6426Y 2.5GHz 16-core 185W Processor for HPE P49598-B21

Notes:
- MCC die
- Max 2

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- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" (shipment availale CQ3 2023) and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 6421N 1.8GHz 32-core 185W Processor for HPE P49641-B21

Notes:

- MCC die
- Max 1
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" (shipment availale CQ3 2023) and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 6418H 2.1GHz 24-core 185W Processor for HPE P49621-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" (shipment availale CQ3 2023) and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 6416H 2.2GHz 18-core 165W Processor for HPE P49620-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" (shipment availale CQ3 2023) and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 6414U 2.0GHz 32-core 250W Processor for HPE P49619-B21

Notes:

- XCC die
- Max 1
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customer should be allowed to remove and select DLC Module (shipment available in CQ3 2023) and Performance Heatsink.

4th Generation Intel Xeon-Gold 5

Intel Xeon-Gold 5420+ 2.0GHz 28-core 205W Processor for HPE P49613-B21

Notes:

- MCC die
- Max 2
- "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customer should be allowed to remove and select DLC Module (shipment available in CQ3 2023) and Performance Heatsink.

Intel Xeon-Gold 5418Y 2.0GHz 24-core 185W Processor for HPE P49612-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" (shipment availale CQ3 2023) and "Performance Fan" upon Processor selection.

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Intel Xeon-Gold 5418N 1.8GHz 24-core 165W Processor for HPE P49640-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" (shipment availale CQ3 2023) and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 5416S 2.0GHz 16-core 150W Processor for HPE P49653-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" (shipment availale CQ3 2023) and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 5415+ 2.9GHz 8-core 150W Processor for HPE P49597-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" (shipment availale CQ3 2023) and "Performance Fan" upon Processor selection.

Intel Xeon-Gold 5411N 1.9GHz 24-core 165W Processor for HPE P49639-B21

Notes:

- MCC die
- Max 1
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" (shipment availale CQ3 2023) and "Performance Fan" upon Processor selection.

4th Generation Intel Xeon-Silver

Intel Xeon-Silver 4416+ 2.0GHz 20-core 165W Processor for HPE P49611-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" (shipment availale CQ3 2023) and "Performance Fan" upon Processor selection.

Intel Xeon-Silver 4410Y 2.0GHz 12-core 150W Processor for HPE P49610-B21

Notes:

- MCC die
- Max 2
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" (shipment availale CQ3 2023) and "Performance Fan" upon Processor selection.

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4th Generation Intel Xeon-Bronze

Intel Xeon-Bronze 3408U 1.8GHz 8-core 125W Processor for HPE P49617-B21

Notes:

- MCC die
- Max 1
- "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" (shipment availale CQ3 2023) and "Performance Fan" upon Processor selection.
- If 500W Power supply is selected, then Processor Wattage that is equal to or less than 125W must be selected.

Heatsinks (incl. Liquid Cooling module)

For more details, plseae refer to the support matrix in Power and Cooling solutions (Additional Option section)

HPE ProLiant DL360 Gen11 Cold Plate Module FIO Kit from External NS204i-u P62026-B21

HPE ProLiant DL3XX Gen11 Cold Plate Module FIO Kit from PCIe P62029-B21

Notes:

- If Performance Heatsink or DLC Module is selected, then Performance Fan must be selected and vice versa.
- If DLC Module is selected, then "HPE ProLiant Direct Liquid Cooling 450mm Female-male Connection Quick Disconnect Tube Set FIO Kit (P62046-B21)" must be selected. (See Power and Cooling solutions).
- If Processor Wattage is more than 185W and less than or equal to 270W, then "Performance Heatsink" and "Performance Fan" must be selected. Configurator to default "Performance Heatsink" and "Performance Fan" upon Processor selection. But customer should be allowed to remove and select DLC Module and Performance Heatsink.
- If Processor Wattage is more than 270W, then "Closed Loop Liquid Cooling" or "DLC Module" must be selected. Configurator to default "Closed Loop Liquid Cooling" upon Processor selection and allow the customer to remove and select "DLC Module".
- For one socket processor only configuration at 300W, Perfrmance Heatsink & Performnace Fan Kit can be supported together.
- Max 1 of Liquid cooling can be selected from the below: "Closed Loop Liquid Cooling", or "DLC CPM from external NS204i-u cage" or "DLC CPM from PCIe Slot".
- If 8470Q/ 6458Q Processor is selected with SAS drive/ NVMe drive in 4LFF or 20EDSFF CTO Server, then DLC Module must be selected. 4LFF & 20EDSFF cannot be selected as backplane is embedded in chassis as default.
- If 8470Q/ 6458Q Processor is selected with Closed-loop Liquid Cooling Module, then no backplane and drive can be selected in 8SFF CTO Server. Only NS204i-u can be selected.
- HPE ProLiant DL3XX Gen11 Direct Liquid Cooling (DLC) solution requires at least one liquid cooling infrastructure items as follows: HPE Rack in 800mmx1200mm (options listed below), Rack Manifold, CDU, Primary Hose Kit and Secondary Hose Kit in order to function. Without above rack infrastructure to be selected, an unbuildable configuration will be triggered in this order.
    - DLC Rack options
        - Rack 42U 800mm x 1200mm Ent G2 (applicable for DL3XX Gen11 DLC)
        - Rack 48U 800mm x 1200mm Ent G2 (applicable for DL3XX Gen11 DLC)
- The DLC Rack Infrastructure setting is relatively complex, and needs to be conducted by HPE Service with a complete enablement of DLC Rack solution. Major factors impact the DLC Rack Infrastructure setting are listed below.
    - The connectivity of server to manifold
    - The DLC rack capability (liquid supply temperature, flow rate in each loop and CDU capability)
    - The CDU parameter setting (liquid type, server units in rack, and any mixing servers)

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- If customer has ordered from HPE previously and already has this basic infrastructure on site, pls get unbuildable exception approval from ProLiant Product Management Team. We can ship a standalone unit as an upgrade as exception, without this infrastructure the server DLC solution will not function.
- If customer selects "PCIe DLC Module" or "NS204i-u Cage DLC Module" which is a Direct Liquid Cooled solution (DLC) then below Warning Message to be displayed in the configurators/ CLIC: **Warning:** "DLC Solution is supported with specific Racks only.
- If customer selects "PCIe DLC Module" or "NS204i-u Cage DLC Module" which is a Direct Liquid Cooled solution (DLC) and server is ordered as Standalone (without any HPE Rack), then below Warning Message to be displayed in the configurators/ CLIC:
- Warning Message: "DL360 Gen11 DLC support requires liquid cooling infrastructure items as follows: HPE Rack, Rack Manifold, CDU, Primary Hose Kit and Secondary Hose Kit in order to function. If customer already has the infrastructure to support DLC on site, then server can be shipped as a standalone unit as an upgrade. Server will not function without the infrastructure for DLC.
- If NVMe/ SAS4 is selected, then Performance Heatsink or Closed Loop Liquid cooling Heatsink or DLC Module must be selected.
- If Networking/ InfiniBand that is 100G or more, then Performance Heatsink or Closed Loop Liquid cooling Heatsink or DLC Module must be selected.
- If 256GB DIMM is selected, then Performance Heatsink or Closed Loop Liquid cooling or DLC Module must be selected.
- If external NS204i-u OS Boot Device is selected, then Performance Heatsink or Closed Loop Liquid cooling or DLC Module must be selected.
- [1]"NS204i-u Cage DLC Module" contains 2 Cold Plate Module and 1 Quick Disconnect Module.
- [1]If "NS204i-u Cage DLC Module" is selected, then "HPE DL360 Gen11 NS204i-u Rear Cbl Kit" cannot be selected.
- [1]If "NS204i-u Cage DLC Module" is selected, then "Secondary FH Riser" cannot be selected.
- [1]"PCIe DLC Module" contains 2 Cold Plate Module and 1 Quick Disconnect Module.
- [1]If "PCIe DLC Module" is selected, then either "Secondary LP Riser" must be selected or "Secondary FH Riser" needs to be selected. PCIe Slot 2 is still available for external NS204i-u OS Boot device, or available for other HH PCIe adapters, when the "SecondaryLP Riser" is sected for the "PCIe DLC Module" installation.
- [1]If "PCIe DLC Module" is selected, then PCIe slot# 3 cannot be used. This must be considered for all PCIe card selection.

HPE ProLiant DL360 Gen11 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit P48906-B21

Notes:

- Closed-Loop Liquid Cooling Heat Sink is subject to maximum usage limitation as 5 years of operation
- The HPE DL360 Gen11 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle kit contains paried (2) cold plates (1 per CPU) each with a pump, Tubes, (7) 4028 fans and a radiator. The LC Heat Sink option is designed to cool down the processor effectively using cooled inlet air. It would benefit to the Processor temperature yet the internal radiator would increase the flow resistance and reduce the airflow to downstream components inside the server
- Maximum quantity for Closed-loop Liquid Cooling (CL LC) Heat Sink Fan FIO Bundle Kit is one kit per system.
- If Processor Wattage is more than 185W and less than or equal to 270W, then "Performance Hatsink" and "Performance Fan" must be selected.
- If Processor Wattage is more than 270W, then LC Heat Sink Kit must be selected. This applies to all processor SKUs for DL360 Gen11 including High Bandwidth Memory (HBM) processors.
- One processor configuration can be supported without filed upgrade to the 2nd processor.

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- If Closed Loop Liquid Cooling (CL LC) or Direct Liquid Colling (DLC) Module is selected, then Minimum 1 (for CL LC) or minimum 2 (for DLC) quantity of Processor must be selected. (DLC module shipment will be availabel in CQ3 2023)
- If Closed-loop Liquid Cooling HeatSink Fan FIO Bundle Kit is selected, then any Fans (Standard Fan Kit or High Performance Fan Kit) cannot be selected.
- If Liquid Cooling HeatSink Fan FIO Bundle Kit is selected, then "Standard heat Sink" or "High Perf Heat Sink" cannot be selected.
- Max 1 of Liquid cooling can be selected from the below:
  - Closed Loop Liquid Cooling
  - DLC Module from NS204i-u Cage
  - DLC Module from PCIe slot
- If Closed Loop Liquid cooling is selected with specific high speed Networking/ InfiniBand, then EDSFF or SFF NVMe drive cannot be selected.
- If Closed Loop Liquid Cooling is selected with 256GB DIMM and Rear NS204i-u, then Maximum NVMe drive limit will be reduced from 10 to 4.
- EDSFF CTO Model: If 350W CPU is selected with Closed Loop Liquid cooling, then 256GB DIMM cannot be selected.
- EDSFF Model: If 256GB DIMM and Rear NS204i-u are selected, then DLC Module must be selected.
- For 8SFF CTO Model: If "HPE IB NDR 1p OSFP MCX75310AAS Adptr" is selected with Closed Loop Liquid cooling, then Maximum of 8 NVMe can be selected.
- For EDSFF CTO Model: If "HPE IB NDR200 1p OSFP MCX75310AAS Adptr" is selected with Closed Loop Liquid cooling, then EDSFF drives cannot be selected.
- For 8SFF CTO Model: If the Nvidia Graphics Option is selected with Closed Loop Liquid cooling, then Maximum 8 quantity of NVMe/ SAS/ SATA drives can be selected.
- EDSFF CTO Model: If the Nvidia Graphics Option is selected with Closed Loop Liquid cooling, then EDSFF drives cannot be selected.
- The HPE DL360 Gen11 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle kit is designed as Factory Installation only & is not designated as a Customer Self-Repair (CSR) part to prevent damage to CPUs when customer is conducting the field upgrade on the Liquid Cooling modular itself or CPUs.
- The cooling liquid used in the liquid cooling heatsink is a mixture of purified water and ethylene with additional additives for corrosion resistance. The cooling liquid is not corrosive for human body, but to avoid the risk of connection or damages in a longer term, it is recommended to use hand protection in the form of chemically resistant gloves and to wash hands with plenty of water after contact. Be sure to avoid any eye contact. If eye contact occurs accidentally, immediately flush eye with plenty of water or seek for medical attention of any discomfort persists.
- There is no leak detection capability, yet the pumps inside of the system are redundant. If a pump or any of the components inside the solution fail, the CPU temperature or internal server temperature may increase leading to a iLO alert message.

HPE Warranty

- The HPE DL360 Gen11 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle kit is offered with Standard (3/3/3) Warranty support along with the server. Customers are able to purchase extended support for years (4) and (5).
- This Closed-loop Liquid Cooling Solution is subject to a maximum usage (operational) limitation not to exceed (5) years and required to be replaced when this time limit has been reached. Parts and components that Hewlett Packard Enterprise determines have surpassed the standard (3) years warranty* will not be

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provided, repaired, or replaced under warranty coverage. Contact your local HPE sales representative for additional information.

In addition:

*: Or to the extended (4) or (5) years if warranty contract purchased, and subject to the maximum usage (operation) limitation of (5) years. For more details, please refer to the warranty terms for other options available from Hewlett Packard Enterprise.

HPE Tech Care

- Tech Care contract supersedes the warranty terms
- The (6) and (7) year support is provided as a duration choice under Tech Care instead of Warranty. Cutomer buys Tech Care with equal or greater than 4 years, covers the (6) and (7) -year scenario.
  - Customers with <= (3) year Tech care or Warranty-only
    - If the CL LC Heat Sink fails <= (3) year, HPE will have to provide service to customers.
    - If the CL LC Heat Sink fails > (3) yearr, the cost is on the customer and te service & material expense will be charged if the customer calls
  - Customers with >= (4) year Tech care, or current Tech Care support contract of any kind
    - If the CL LC Heat Sink fails inside the Tech care period, HPE will provide service & cover the expense for customers, except the stated limitation on Maximum Usage Limitation.
    - If the Heat Sink works properly and reaches (5) year of usage time, customer can call the HPE representative for the replacement starting from (6) months piror to the (5) year.
    - If customer decides to ignore the maximum usage limitation notification and without contact HPE, customer will ow the liability & expense associated.

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HPE ProLiant DL3XX/560 Gen11 High Performance Heat Sink Kit P48905-B21

Notes:

- Quantity of Processor and Quantity of Heatsink must match.
- If Processor Wattage is more than 185W and less than or equal to 270W, then "Performance Heatsink" and "Performance Fan" must be selected.
- In 300Watt processor one socket configuration, the air cooling with Performance Heatsinks & Performance Fan Kits can be supported (configurable in HPE One Config Advanced from CQ3 2023). Field upgrade to two socket is not supported with air cooling solution. If Performance Heatsink is selected, then Standard fan cannot be selected, and Perfromance Fan Kit must be selected
- For processors below 185W TDP, customers are able to configure with High Performane Heatsinks & Perfromnace Fan Kit in HPE One-Configuration-Advanced. With firstly deselect the Standard Heatsink and Standard Fan, then reselect High Performance Heatsink and Performance Fan Kit.
- If Closed-loop Liquid Cooling HeatSink or DLC module is selected, then "High Perf Heat Sink" cannot be selected.
- If Performance Heatsink or DLC Module is selected, then Performance Fan must be selected and vice versa.
- If NVMe/ SAS4 is selected, then Performance Heatsink or Closed Loop Liquid cooling Heatsink or DLC Module must be selected.

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- If Closed Loop Liquid Cooling is selected with 256GB DIMM or Internal NS204i-u or rear NS204i-u, then Maximum EDSFF drive limit will be reduced from 20 to 10.
- If Networking/ InfiniBand that is 100G or more, then Performance Heatsink or Closed Loop Liquid cooling Heatsink or DLC Module must be selected.
- If 256GB DIMM is selected, then Performance Heatsink or Closed Loop Liquid cooling or DLC Module must be selected.
- If NS204i-u is selected, then Performance Heatsink or Closed Loop Liquid cooling or DLC Module must be selected.

HPE ProLiant DL3X0 Gen11 1U Standard Heat Sink Kit P48904-B21

Notes:

- Quantity of Processor and Quantity of Heatsink must match.
- If Processor Wattage is less than or equal to 185W, then "Standard Heatsink" and "Standard Fan" must be selected. Configurator to default "Standard Heatsink" and "Standard Fan ". But Customer is allowed to remove and select "Performance Heatsink or DLC Module" and "Performance Fan" upon Processor selection.
- If Standard Heatsink is selected, then Performance fan cannot be selected.
- If Standard Heatsink is selected in 1 processor configuration, then "HPE DL3X0 Gen11 1U Stnd Fan Kit" must be selected.
- If Standard Heatsink is selected in 2 processor configuration, then both "HPE DL3X0 Gen11 1U Stnd Fan Kit" and "HPE DL3X0 Gen11 1U 2P Std Fan Kit" must be selected.

Memory

Please select one or more memory DIMMs from below.
For new Gen11 memory population rule whitepaper and optimal memory performance guidelines, please go to:
http://www.hpe.com/docs/memory-population-rules
Server memory population rules for HPE Gen11 servers with 4th Gen Intel Xeon Scalable processors

For more information, please see the **HPE DDR5 Smart Memory QuickSpecs**

Notes:

- The maximum memory speed and capacity is a function of the memory type, memory configuration, and processor model.
- Quantity of memory DIMMs selected per socket must be 1, 2, 4, 6, 8, 12 or 16.
- x8 and x4 cannot be mixed.
- 3DS and non-3DS Memory cannot be mixed.
- Mixing of different Rank Memory is not allowed if less than 16 quantity of Memory is selected for 1 Processor configuration.
- Mixing of different Rank Memory is not allowed if less than 32 quantity of Memory is selected for 2 Processor configuration.
- If different Rank Memory are mixed, then quantity of each Memory part number must be same.
- If 256GB Memory is selected, will be limited to 1P1D, thus Maximum of 8 can be selected per Processor.
- If 256GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP), that is 100G or more, cannot be selected.
- Long boot time may be introduced because of DDR5 initialization takes much longer than last generation DDR4, as an industry impact. HPE ProLiant server boot times will go through multiple reboots during POST for default restore.
- If 256GB Memory is selected, will be limited using 7x performance fan or CLC fan (not allow standard fan), and limit at 25C.

Registered DIMMs DDR5 (RDIMMs)

HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43322-B21
HPE 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43328-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43331-B21
HPE 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	P43334-B21

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HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit[1] P43377-B21

Notes:

- x8 and x4 cannot be mixed.
- 3DS and non-3DS Memory cannot be mixed.
- 4800 MT/s memory SKUs offer a transfer rate of 4800 MT/s at 1 DIMM per channel and 4400 MT/s at 2 DIMMs per channel.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model
- Mixing of different Rank Memory is not allowed if less than 16 quantity of Memory is selected for 1 Processor configuration.
- Mixing of different Rank Memory is not allowed if less than 32 quantity of Memory is selected for 2 Processor configuration.
- If different Rank Memory are mixed, then quantity of each Memory part number must be same.
- Below Warning message to be displayed in the configurators upon selection;
  "More detailed information about Memory population rules can be found in Server Memory ShorePoint **https://www.hpe.com/docs/server-memory**"
- [1]If 256GB Memory is selected, then Maximum 8 quantity of Memory can be selected per Processor.
- [1]If 256GB Memory is selected without DLC Module, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- [1]If Closed Loop Liquid Cooling is selected with 256GB DIMM or Internal NS204i-u or rear NS204i-u, then Maximum EDSFF drive limit will be reduced from 20 to 10
- [1]If 256GB DIMM is selected, then Performance Heatsink or Closed Loop Liquid cooling or DLC Module must be selected.
- [1]If Closed Loop Liquid Cooling is selected with 256GB DIMM and Rear NS204i-u, then Maximum NVMe drive limit will be reduced from 10 to 4.
- [1]EDSFF CTO Model: If 350W CPU is selected with Closed Loop Liquid cooling, then 256GB DIMM cannot be selected.
- [1]EDSFF Model: If 256GB DIMM and Rear NS204i-u are selected, then DLC Module must be selected.
- A longer lead-time would be expected in high capacity DIMMs depending on vender supply.

HPE DIMM blanks

HPE DDR4 DIMM Blank Kit P07818-B21

Notes: Embbeded and shipped as default in all DL360 Gen11 CTO Servers, to enhance thermal condition. Leverage the same DIMM blanks from DL360 Gen10 Plus.

Storage Devices

Hardware Storage Controller

HPE SR932i-p Gen11 x32 Lanes 8GB Wide Cache PCI SPDM Plug-in Storage Controller	P47184-B21
HPE MR416i-p Gen11 x16 Lanes 8GB Cache PCI SPDM Plug-in Storage Controller	P47777-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 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 Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21

Notes:

- Max 1 of PCIe internal controller can be selected per server.
- Max 2 of PCIe and OROC internal controller can be selected per server.

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- If any of this controller is selected, then "HPE 96W Smart Stg Li-ion Batt 145mm Kit" or "HPE Smart Hybrid Capacitor w/ 145mm Cbl" must be selected. Vice versa.
- Internal MR-series and Internal SR-series controller cannot be selected together. Below message to be displayed in configurator: "MegaRAID Tools cannot be used to script and configure SmartRAID (formerly known as SmartArray) controllers used on HPE Gen9/10/10 Plus/11 servers".
- Below warning message to be displayed in the configurator if Microchip external controller (E208e) is selected with MR Internal (MR216i/MR416i/MR408i) controllers in the configuration: "Notice: When selecting SR RAID controllers for external storage and MR RAID controllers for internal storage please be aware these two products use different RAID configuration tools. Therefore, there will be a RAID configuration tool for the SR external controller and another for the MR internal controller."
- For 8SFF CTO Model: If MR408i-o is the only controller selected, then 8SFF cable kit cannot be selected for 8SFF x4 drive cages.
- Except MR408i-o, all internal controllers are supported with 8SFF CTO Model only.
- If both 4P Networking (Base-T and Full-Height) and Half-Height Internal PCIe controller (MR416i-p and MR216i-p) are selected, then Secondary FH riser cannot be selected.
- For 8SFF x4 U.3 drive cage selection with 25FF Drive cage: If MR416i-p/ MR216i-p and MR416i-o/ MR216i-o/ MR408i-o are selected, then both "HPE DL360 Gen11 8SFF PCIe Cbl Kit/ P48909-B21 or HPE DL360 Gen11 OROC TM Cbl Kit/ P52416-B21" and "HPE DL360 Gen11 25FF TM Cbl Kit/ P48910-B21" must be selected.
- Prioritization list for Primary controller selection in HPE ProLiant DL360 Gen11 8SFF NC CTO Server (P52499-B21) is as follows:
  - HPE SR932i-p Gen11 24G Controller Kit
  - HPE MR416i-o Gen11 12G Controller Kit
  - HPE MR416i-p Gen11 12G Controller Kit
  - HPE MR408i-o Gen11 SPDM Storage Cntlr
  - HPE MR216i-o Gen11 12G Controller Kit
  - HPE MR216i-p Gen11 12G Controller Kit
  - Intel® VROC
  - Direct Attach
- For additional details, pls visit:
  HPE Compute MR Gen11 Controllers Quick Spec
  HPE Compute SR Gen11 Controllers Quick Spec

Storage Battery

HPE 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit	P01366-B21
HPE Smart Storage Hybrid Capacitor with 145mm Cable Kit	P02377-B21
HPE ProLiant DL360 Gen11 Storage Controller Enablement Cable Kit	P48918-B21

Notes:

- If "HPE 96W Smart Stg Li-ion Batt 145mm Kit" or "HPE Smart Hybrid Capacitor w/ 145mm Cbl" is selected, then "HPE DL360 Gen11 Stg Cntrl Enable Cbl Kit" must be selected. Vice versa.
- Max 1 of Storage Battery can be selected per server.

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Internal Storage Controller Cables

HPE ProLiant DL360 Gen11 8SFF PCIe Controller Cable Kit P48909-B21

HPE ProLiant DL360 Gen11 2SFF Tri-Mode Controller Cable Kit P48910-B21

HPE ProLiant DL360 Gen11 LFF Internal Cable Kit P48913-B21

Notes:

- When SAS or NVMe storage is selected.
- There are two independent cables support PCIe RAID controller and OCP RAID controller in this LFF internal cable kit. If 4LFF internal cable kit is selected, then at least one MR408i-o/ MR216i-o/ MR416i-o/ MR216i-p/ MR416i-p must be selected.
- If there is no Hardware controller selected, the DL360 Gen11 4LFF SATA Signal Cable Kit (P51897-B21) must be selected in order to support embedded SATA (Direct attach) configuration.

HPE ProLiant DL360 Gen11 OROC Tri-Mode Cable Kit P52416-B21

Notes:

- Max 1 of 8SFF cable can be selected per server.
- Max 1 of 2SFF cable can be selected per server.
- Max 1 LFF cable can be selected for 4LFF CTO Model.
- If 8SFF PCIe cable is selected, then any one of 8SFF Drive cage and PCIe form factor internal controller must be selected.
- If 8SFF OROC cable is selected, then any one of 8SFF Drive cage and OCP form factor controller (OROC) must be selected.
- If 2SFF TM cable is selected, then any one of 2SFF Drive cage and any controller (PCIe or OCP form factor) must be selected.
- For 8SFF x4 U.3 drive cage selection with 2SFF Drive cage: If MR416i-p/ MR216i-p and MR416i-o/ MR216i-o/ MR408i-o are selected, then both "HPE DL360 Gen11 8SFF PCIe Cbl Kit/ P48909-B21 or HPE DL360 Gen11 OROC TM Cbl Kit/ P52416-B21" and "HPE DL360 Gen11 2SFF TM Cbl Kit/ P48910-B21" must be selected.

HPE ProLiant DL360 Gen11 4LFF SAS/SATA Signal Cable Kit P51897-B21

Notes:

- Max 1 cable can be selected for 4LFF CTO Model in between P48913-B21 & P51897-B21.
- Supported with 4LFF CTO Model only.
- If this 4LFF SATA signal cable (P48913-B21) is selected, then no RAID controllers can be selected, MR408i-o/ MR216i-o/ MR416i-o/ MR216i-p/ MR416i-p. As the cable works for embedded SATA configuration.
- If LFF SATA drive is selected without MR408i-o/ MR216i-o/ MR416i-o/ MR216i-p/ MR416i-p controller, then this cable must be selected.

HPE ProLiant DL360 Gen11 2SFF slimSAS to MLB Cable FIO Trigger System Setting P61535-B21

Notes:

- This is a virtual trigger part for instruction upon factory installation of SATA or SAS drive in the 2SFF drive cage, not a physical part or component.
- Max 1 of 2SFF cable can be selected per server.
- Supported with 8SFF CTO Model only.
- If 2SFF slimSAS to MLB FIO is selected, then 2SFF x4 U.3 drive cage must be selected.
- 8SFF x1 U.3 or 8SFF x4 U.3 drive cage is selected with 2SFF U.3 and both are connected to Motherboard (without any internal controller) and SATA drive is selected in 2SFF cage, then "HPE DL360 G11 2SFF slimSAS to MLB FIO" is required.
- If "HPE DL360 G11 2SFF slimSAS to MLB FIO" is selected, then NVMe drive cannot be installed in 2SFF U.3 drive cage.
- If "HPE DL360 G11 2SFF slimSAS to MLB FIO" is selected, then NS204i-u cannot be selected.

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RAID Settings

HPE RAID 0 Drive 1 FIO Setting	339777-B21
HPE RAID 1 Drive 1 FIO Setting	339778-B21
HPE RAID 5 Drive 1 FIO Setting	339779-B21
HPE Raid 5 w/SP Drive 1 FIO Setting	339780-B21
HPE RAID FIO Advanced Data Guarding Option	339781-B21
HPE Customer Defined RAID Setting Service	389692-B21

Notes:

- General RAID rules:
- Only a single set of RAID will be offered and will only be applied to all applicable drives installed in a server.
- RAID requires selection of a Smart Array controller and a specific number of matching drives. (i.e same part number)
- If RAID is selected, and only SAS OR SATA OR NVMe drives are configured, then all drives must be the same part number. (i.e., matching drives)
- If RAID is selected and both SAS AND SATA drives are configured, then only the SAS drives will be used in the RAID set. (SAS drives must be the same part number; SATA drives can vary in part numbers)
- If RAID is selected and NVMe, SAS AND SATA drives are configured, then only the NVMe drives will be used in the RAID set. (NVMe drives must be the same part number; SAS & SATA drives can vary in part numbers)
- RAID must be selected if both Factory Installed OS and Smart Array controller (embedded or otherwise) are present.
- RAID 0 requires at least 1 drive.
- RAID 1 requires at least 2 or even number of drives.
- RAID 1 with Spare requires at least 3 drives.
- RAID 5 requires at least 3 drives.
- RAID 5 with Spare requires at least 4 drives.
- RAID 6 requires at least 4 drives.
- If SR932i-p/ MR416i-p/ MR416i-o/ MR408i-o is the Primary controller, then all RAID levels are allowed.
- If MR216i-o/MR216i-p/ Intel® VROC Standard is the primary controller, then only following RAID levels are allowed: 0, 1 (available from RAID FIO settings at HPE factory).
- The Intel® VROC Standard is available for RAID support 0, 1, 5 at the field.
- If Intel® VROC Premium is the primary controller, then the following RAID levels are allowed: 0, 1, 5 (available from RAID FIO settings at HPE factory).
- The Intel® VROC Premium is available for RAID support 0, 1, 5, 10 at the field.
- If Direct Attach is the Primary controller, then RAID is NOT allowed.
- If RAID is being selected in a configuration with Intel® VROC and internal controller, then Customer Defined RAID Setting (389692-B21) must be selected.
- For HPE Customer Defined RAID Setting (389692-B21) only:
    - If this part number is selected then the following RAID rules do not apply:
        - Max of 1 RAID level per server.
        - All integrated hard drives must match
        - Minimum drive quantity requirement for each RAID level.
        - RAID level must be selected if Factory Installed OS is present and Smart Array SAS controller (embedded or otherwise) is the primary controller.
    - If this part number is selected, then at least 1 hard drive must be on the order.
    - If this part number is selected, then preinstalled OS must be on the order.
    - A Customer Intent Document must be supplied if this part number is ordered. This Customer Intent Document should include all details about the desired RAID custom configuration. (This includes drive part #s and quantities, RAID levels desired, which drives should be applied to each RAID level, and if a preinstalled OS has been ordered - which RAID set it should be installed on.)

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- Warning message to be displayed in the configurators if "HPE Customer Defined RAID Setti ALL" is selected with one Internal controller. HPE Recommends using below standard RAID Settings.
  - 339777-B21 - HPE RAID 0 Drive 1 FIO Setting
  - 339778-B21 - HPE RAID 1 Drive 1 FIO Setting
  - 339779-B21 - HPE RAID 5 Drive 1 FIO Setting
  - 339780-B21 - HPE RAID 5 w/SP Drive 1 FIO Setting
  - 339781-B21 - HPE Raid Adv Data Guarding FIO
- If RAID is being selected in a configuration with Intel® VROC and internal controller, then Customer Defined RAID Setting (389692-B21) must be selected.

Drive cage and backplane (8 SFF CTO server only)

User Selection: Min 0 // Max 2 . If front drives are needed in the 8 SFF server, please select one backplane from list below.

Notes: No optional backplanes available for LFF models. 4-bay 12G x1 SAS/SATA already included with server.

HPE DL360 Gen11 Basic Carrier (BC) drive cages and drive backplanes

Notes: For all backplanes below:

- Supports Basic Carrier Drives.
- Includes cabling.

HPE ProLiant DL360 Gen11 8SFF x1 U.3 Tri-Mode Backplane Kit P48895-B21

Notes:

- Supports SATA, SAS and NVMe Basic Carrier (BC) drives.
- NVMe SSDs must be U.3.
- No NVMe Direct Attach support.
- Not supported with SR932i-p Tri-Mode controller.
- Supports HPE Gen11 SAS/SATA controller if only SAS/SATA drives are installed

HPE ProLiant DL360 Gen11 8SFF x4 U.3 Tri-Mode Backplane Kit P48896-B21

Notes: For 8SFF x4 U.3 drive cage selection with 2SFF Drive cage: If MR416i-p/ MR216i-p and MR416i-o/ MR216i-o/ MR408i-o are selected, then both "HPE DL360 Gen11 8SFF PCIe Cbl Kit or HPE DL360 Gen11 OROC TM Cbl Kit" and "HPE DL360 Gen11 2SFF TM Cbl Kit" must be selected.

HPE ProLiant DL360 Gen11 2SFF x4 U.3 BC Tri-Mode Enablement Kit P48899-B21

Notes:

- Supports SATA, SAS and NVMe Basic Carrier (BC) drives.
- NVMe SSDs must be U.3.
- Supports NVMe Direct Access and slotted Tri-Mode controllers.
- Includes Direct Access cables and backplane power cables
- Mixing SR and MR internal controllers is not allowed
- Requires 8 SFF cables (P48909-B21 HPE ProLiant DL360 Gen11 8SFF PCIe Controller Cable Kit) for Tri-Mode PCIe standup controllers.
- Requires 8 SFF cables (P52416-B21 HPE ProLiant DL360 Gen11 OROC Tri-Mode Cable Kit) for OCP3.0 controllers.
- Requires 2 SFF cables (P48910-B21 HPE ProLiant DL360 Gen11 2SFF Tri-Mode Controller Cable Kit) for Tri-Mode PCIe standup and OCP3.0 controllers.
- Max 1 of 8SFF Drive cage can be selected per server.
- If 8SFF drive cage is selected without 2SFF Drive cage, then Max 1 of internal controller can be selected.
- If 2SFF drive cage is selected, then 8SFF Drive cage must be selected.
- Drive cages will be connected to Motherboard (Direct Attach) if no Internal controller is selected. Direct Attach is capable of supporting all the drives (SATA or NVMe).

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- If 8SFF x1 drive cage is connected to Direct Attach (without internal controller and 8SFF cable), then only SATA drive can be selected in this drive cage.
- If 8SFF x4 drive cage is connected to Direct Attach (without internal controller and 8SFF cable), then only NVMe drive can be selected in this drive cage.
- If 2SFF U.3 drive cage is connected to Direct Attach (without internal controller and 2SFF cable), then either SATA or NVMe drive can be selected in this drive cage.
- For 2SFF U.3 drive cage selection in 1 Processor configuration: If 2SFF Drive cage is connected to Direct Attach (without Internal controller and 2SFF cable) and NVMe drive is selected, then "CPU1 to OCP2 x8" and "OCP1 x16" OCP upgrade kit cannot be selected.
- For 8SFF x1 U.3 drive cage alone selection without 2SFF Drive cage: If SR932i-p/ MR416i-p/ MR216i-p is selected, then "HPE DL360 Gen11 8SFF PCIe Cbl Kit" must be ordered.
- For 8SFF x1 U.3 drive cage selection with 2SFF Drive cage:
- If SR932i-p/ MR416i-p/ MR216i-p is alone selected, then both "HPE DL360 Gen11 8SFF PCIe Cbl Kit" and "HPE DL360 Gen11 2SFF TM Cbl Kit" must be selected.
- For 8SFF x1 U.3 drive cage selection with 2SFF Drive cage: If MR416i-o/ MR216i-o is alone selected, then both "HPE DL360 Gen11 OROC TM Cbl Kit" and "HPE DL360 Gen11 2SFF TM Cbl Kit" must be selected.
- For 8SFF x1 U.3 drive cage selection with 2SFF Drive cage: If 1 quantity of MR408i-o is alone selected, then "HPE DL360 Gen11 OROC TM Cbl Kit" must be selected.
- For 8SFF x1 U.3 drive cage selection with 2SFF Drive cage: If 2 quantity of MR408i-o is selected, then both "HPE DL360 Gen11 OROC TM Cbl Kit" and "HPE DL360 Gen11 2SFF TM Cbl Kit" must be selected.
- For 8SFF x1 U.3 drive cage selection with 2SFF Drive cage: If 1 quantity of MR408i-o is alone selected, then "HPE DL360 Gen11 2SFF TM Cbl Kit" cannot be selected.
- For 8SFF x1 U.3 drive cage selection with 2SFF Drive cage: If SR932i-p, MR416i-p, MR216i-p, MR416i-o, MR216i-o controller is selected, then max 1 of the internal controllers can be selected per server.
- For 8SFF x4 U.3 drive cage alone selection without 2SFF Drive cage: If SR932i-p/ MR416i-p/ MR216i-p is selected, then "HPE DL360 Gen11 8SFF PCIe Cbl Kit" must be selected.
- For 8SFF x4 U.3 drive cage alone selection without 2SFF Drive cage: If MR416i-o/ MR216i-o is selected, then "HPE DL360 Gen11 OROC TM Cbl Kit" must be selected.
- For 8SFF x4 U.3 drive cage alone selection without 2SFF Drive cage: MR408i-o cannot be selected.
- For 8SFF x4 U.3 drive cage selection with 2SFF Drive cage:
- If SR932i-p is alone selected, then "HPE DL360 Gen11 8SFF PCIe Cbl Kit" or both "HPE DL360 Gen11 8SFF PCIe Cbl Kit" and "HPE DL360 Gen11 2SFF TM Cbl Kit" must be selected.
- For 8SFF x4 U.3 drive cage selection with 2SFF Drive cage:
- If one quantity of MR416i-p/ MR216i-p is alone selected, then either "HPE DL360 Gen11 8SFF PCIe Cbl Kit" or "HPE DL360 Gen11 2SFF TM Cbl Kit" must be selected. Both the cables cannot be selected.
- For 8SFF x4 U.3 drive cage selection with 2SFF Drive cage: If 1 quantity of MR416i-o/ MR216i-o is selected, then either "HPE DL360 Gen11 OROC TM Cbl Kit" or "HPE DL360 Gen11 2SFF TM Cbl Kit" must be selected. Both the cables cannot be selected.
- For 8SFF x4 U.3 drive cage selection with 2SFF Drive cage: If 2 quantity MR416i-o/ MR216i-o is selected, then both "HPE DL360 Gen11 OROC TM Cbl Kit" and "HPE DL360 Gen11 2SFF TM Cbl Kit" must be selected.
- For 8SFF x4 U.3 drive cage selection with 2SFF Drive cage: If MR408i-o is alone selected, then "HPE DL360 Gen11 2SFF TM Cbl Kit" must be selected.
- For 8SFF x4 U.3 drive cage selection with 2SFF Drive cage: If MR408i-o is alone selected, then 8SFF cable kit cannot be selected.
- For 8SFF x4 U.3 drive cage selection with 2SFF Drive cage: If MR416i-p/ MR216i-p and MR416i-o/ MR216i-o/ MR408i-o are selected, then both "HPE DL360 Gen11 8SFF PCIe Cbl Kit or HPE DL360 Gen11 OROC TM Cbl Kit" and "HPE DL360 Gen11 2SFF TM Cbl Kit" must be selected.

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- For 8SFF x4 U.3 drive cage selection with 2SFF Drive cage: If 2 quantities of MR416i-o/ MR216i-o are selected, then both "HPE DL360 Gen11 OROC TM Cbl Kit" and "HPE DL360 Gen11 2SFF TM Cbl Kit" must be selected.
- If 2SFF U.3 drive cage is connected to Direct Attach (without internal controller & 2SFF cable), then SATA drive cannot be selected in 2SFF drive cage when "NS204i-u Gen11 Ht Plg Boot Opt Dev" is selected.

HPE ProLiant DL3X0 Gen11 1U 8SFF Display Port/USB/Optical Drive Blank Kit P48926-B21

Notes:

- Universal Media Bay.
- For 8SFF CTO Svr only.
- Max 1 of 2SFF Drive cage or ODD cage can be selected per server.
- 8SFF CTO Model: If Optical drive is selected, then ODD Cage " HPE ProLiant DL3X0 Gen11 1U 8SFF Display Port/USB/Optical Drive Blank Kit " must be selected.

Display Port

HPE ProLiant DL3X0 Gen11 1U LFF Display Port/USB Kit P48928-B21

Notes: Supported with 4LFF CTO Model only.

Optical Cable

HPE ProLiant DL360 Gen11 LFF Optical Cable Kit P48914-B21

Optical Drive

HPE Mobile USB DVD-RW Optical Drive 701498-B21

Notes: This kit is supported on USB 3.0 ports only.

HPE 9.5mm SATA DVD-ROM Optical Drive 726536-B21

Notes:

- Requires Universal Media Bay Kit (P48926-B21) to install on 8 SFF models.
- Requires cable for optical drive (P48914-B21) to install on 4 LFF models.

HPE 9.5mm SATA DVD-RW Optical Drive 726537-B21

Notes:

- Requires Universal Media Bay Kit (P48926-B21) to install on 8 SFF models.
- Requires cable for optical drive (P48914-B21) to install on 4 LFF models.

HPE ProLiant DL360 Gen10 Plus LFF Optical Cable P26459-B21

Notes: Max 1

HDD Blank Kit

HPE Small Form Factor Hard Drive Blank Kit 666987-B21

HPE Gen9 LFF HDD Spade Blank Kit 807878-B21

Storage

- Maximum limit for SAS/ SATA/ NVMe will vary depending upon the selected drive cage, controller and cable combination.
- User may select any combination of SAS or SATA Hard Drives. However, if RAID is selected and both SAS and SATA Hard Drives have been selected, then only the SAS Drives will be used in the RAID set.
- User may select any combination of SAS or SATA or NVMe Drives on U.3 cage with Tri-Mode controller. However, if RAID is selected with SAS, SATA and NVMe Drives, then only the NVMe Drives will be used in the RAID set.
- Direct Attach supports only SATA or NVMe drives. If SAS drive is selected, then Internal controller must be selected.
- If SAS drive is selected, then 8SFF drive cage must be selected.
- If 8SFFx1 drive cage is connected to Direct Attach (without internal controller and 8SFF cable), then only SATA drive can be selected in this drive cage.
- For SSD selection guidance, please visit: **http://ssd.hpe.com/**

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Core Options

NVMe Gen5 - Read Intensive (max 20)

Read Intensive - NVMe - EDSFF - Solid State Drives

HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF PM1743 SSD	P57807-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF PM1743 SSD	P57803-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF PM1743 SSD	P57799-B21

Notes:

- In 20EDSFF CTO server only.
- These drives cannot be used as boot drives with VMware software. Therefore, when these drives are selected with VMware OS, then the internal or external NS204i-u OS Boot device must be selected to run VMware.
- For detail configuration limitaion, please refer to the 20EDSFF CTO Server section, CPU selection, 256GB memory section and Networking card above 100GbE section.

HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF CD7 SSD	P56587-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF CD7 SSD	P56586-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF CD7 SSD	P56585-B21

NVMe Gen4 - SSD and AIC - Read Intensive (max 10)

Read Intensive - NVMe - SFF - SED Solid State Drives

HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC Self-encrypting FIPS U.3 CM6 SSD	P41403-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC Self-encrypting FIPS U.3 CM6 SSD	P41402-B21

Read Intensive - NVMe - SFF - Solid State Drives

HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50224-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50222-B21
HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor SSD	P47847-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50219-B21
HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor SSD	P47846-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50216-B21
HPE 1.9TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor SSD	P47845-B21
HPE 960GB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor SSD	P47844-B21

Mixed Use - NVMe - SFF - Solid State Drives

HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC Self-encrypting FIPS U.3 CM6 SSD	P41405-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC Self-encrypting FIPS U.3 CM6 SSD	P41404-B21

Mixed Use - NVMe - SFF - Solid State Drives

HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50233-B21
HPE 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static Multi Vendor SSD	P47840-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50230-B21
HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static Multi Vendor SSD	P47839-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50227-B21
HPE 1.6TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static Multi Vendor SSD	P47838-B21
HPE 800GB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static Multi Vendor SSD	P47837-B21

SSD - Read Intensive (max 10)

Read Intensive - 24G SAS - SFF - Self-encrypting Solid State Drives

HPE 7.68TB SAS 24G Read Intensive SFF BC Self-encrypting FIPS PM6 SSD	P41399-B21
HPE 3.84TB SAS 24G Read Intensive SFF BC Self-encrypting FIPS PM6 SSD	P41398-B21

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Read Intensive - 12G/24G SAS - SFF - Solid State Drives	
HPE 15.36TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49045-B21
HPE 7.68TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40509-B21
HPE 7.68TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49041-B21
HPE 3.84TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40508-B21
HPE 3.84TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49035-B21
HPE 1.92TB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40507-B21
HPE 1.92TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49031-B21
HPE 960GB SAS 12G Read Intensive SFF BC Value SAS Multi Vendor SSD	P40506-B21
HPE 960GB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49029-B21
Read Intensive – 6G SATA – SFF - Self-encrypting Solid State Drives	
HPE 1.92TB SATA 6G Read Intensive SFF BC Self-encrypting 5400P SSD	P58240-B21
HPE 480GB SATA 6G Read Intensive SFF BC Self-encrypting 5400P SSD	P58236-B21
Very Read Optimized - 6G SATA - SFF - Solid State Drives	
HPE 7.68TB SATA 6G Very Read Optimized SFF BC 5400 SSD	P58228-B21
Read Intensive - 6G SATA - SFF - Solid State Drives	
HPE 7.68TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40501-B21
HPE 3.84TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40500-B21
HPE 3.84TB SATA 6G Read Intensive SFF BC S4520 SSD	P47322-B21
HPE 3.84TB SATA 6G Read Intensive SFF BC PM893 SSD	P44010-B21
HPE 1.92TB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40499-B21
HPE 1.92TB SATA 6G Read Intensive SFF BC S4520 SSD	P47320-B21
HPE 1.92TB SATA 6G Read Intensive SFF BC PM893 SSD	P44009-B21
HPE 480GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40497-B21
HPE 480GB SATA 6G Read Intensive SFF BC PM893 SSD	P44007-B21
HPE 960GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40498-B21
HPE 960GB SATA 6G Read Intensive SFF BC PM893 SSD	P44008-B21
HPE 240GB SATA 6G Read Intensive SFF BC Multi Vendor SSD	P40496-B21
Read Intensive - 24G SAS - LFF –Solid State Drives	
HPE 7.68TB SAS 24G Read Intensive LFF LPC Multi Vendor SSD	P49040-B21
Read Intensive - 6G SATA - LFF - Solid State Drives	
HPE 960GB SATA 6G Read Intensive LFF LPC Multi Vendor SSD	P47808-B21
Very Read Optimized – 6G SATA – LFF – Solid State Drives	
HPE 7.68TB SATA 6G Very Read Optimized LFF LPC 5400 SSD	P58232-B21
SSD – Mixed Use (max 10)	
Mixed Use - 24G SAS - SFF – Self-encrypting Solid State Drives	
HPE 1.6TB SAS 24G Mixed Use SFF BC Self-encrypting FIPS PM6 SSD	P41401-B21
HPE 800GB SAS 24G Mixed Use SFF BC Self-encrypting FIPS PM6 SSD	P41400-B21
Mixed Use - 12G/24G SAS - SFF - Solid State Drives	
HPE 6.4TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49057-B21
HPE 3.84TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40512-B21
HPE 3.2TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49053-B21
HPE 1.92TB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40511-B21
HPE 1.6TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49049-B21

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HPE 960GB SAS 12G Mixed Use SFF BC Value SAS Multi Vendor SSD	P40510-B21
HPE 800GB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49047-B21
Mixed Use – 6G SATA – SFF - Self-encrypting Solid State Drives	
HPE 1.92TB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD	P58248-B21
HPE 960GB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD	P58244-B21
Mixed Use - 6G SATA - SFF - Solid State Drives	
HPE 3.84TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40505-B21
HPE 3.84TB SATA 6G Mixed Use SFF BC S4620 SSD	P47327-B21
HPE 3.84TB SATA 6G Mixed Use SFF Spl BC Multi Vender SSD	P47032-B21
HPE 1.92TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40504-B21
HPE 1.92TB SATA 6G Mixed Use SFF BC PM897 SSD	P44013-B21
HPE 1.92TB SATA 6G Mixed Use SFF Spl BC Multi Vender SSD	P47028-B21
HPE 960GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40503-B21
HPE 960GB SATA 6G Mixed Use SFF BC PM897 SSD	P44012-B21
HPE 480GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40502-B21
HPE 480GB SATA 6G Mixed Use SFF BC S4620 SSD	P47324-B21
HPE 480GB SATA 6G Mixed Use SFF BC PM897 SSD	P44011-B21
Mixed Use - 12G SAS - LFF –Solid State Drives	
HPE 960GB SAS 12G Mixed Use LFF LPC Value SAS Multi Vendor SSD	P37009-B21
HDD- Enterprise 15K/10K -SFF (max 10)	
Mission Critical - 12G SAS – SFF SED Drives	
HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Self-encrypting FIPS HDD	P28618-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Self-encrypting FIPS HDD	P28622-B21
Enterprise - 12G SAS - SFF Drives	
HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P28352-B21
HPE 1.8TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P53562-B21
HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P28586-B21
HPE 1TB SAS 12G Business Critical 7.2K SFF BC 1-year Warranty HDD	P53563-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 300GB SAS 12G Mission Critical 15K SFF BC 3-year Warranty Multi Vendor HDD	P28028-B21
HPE 300GB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P40430-B21
HDD – Midline – 7.2K - SFF (max 10)	
Midline - 12G SAS - SFF Drives	
HPE 2TB SAS 12G Business Critical 7.2K SFF BC 1-year Warranty 512e HDD	P28505-B21
Midline - 6G SATA - SFF Drives	
HPE 2TB SATA 6G Business Critical 7.2K SFF BC 1-year Warranty 512e HDD	P28500-B21
HPE 1TB SATA 6G Business Critical 7.2K SFF BC 1-year Warranty HDD	P28610-B21
HDD – Midline – 7.2K – LFF (max 4)	
Midline - 12G SAS - LFF Drives	
HPE 20TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53553-B21
HPE 18TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P37669-B21
HPE 16TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23608-B21
HPE 14TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	P09155-B21
HPE 12TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881781-B21

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HPE 10TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e ISE Multi Vendor HDD	P53556-B21
HPE 8TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834031-B21
HPE 6TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	861746-B21
HPE 4TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833928-B21
HPE 2TB SAS 12G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	833926-B21
Midline - 6G SATA - LFF Drives	
HPE 20TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P53554-B21
HPE 18TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P37678-B21
HPE 16TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e ISE Multi Vendor HDD	P23449-B21
HPE 14TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	P09165-B21
HPE 12TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Helium 512e Multi Vendor HDD	881787-B21
HPE 10TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e ISE Multi Vendor HDD	P53557-B21
HPE 8TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	834028-B21
HPE 6TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty 512e Multi Vendor HDD	861742-B21
HPE 4TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861683-B21
HPE 2TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861681-B21
HPE 1TB SATA 6G Business Critical 7.2K LFF LP 1-year Warranty Multi Vendor HDD	861686-B21

Factory Configuration Settings

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

Battery Upgrade Removal Setting

HPE FIO No Smart Storage Battery	P06141-B21

Notes:

- If "HPE FIO No Smart Storage Battery" is selected, then SR932/ MR416/ MR408 controller does not require selection of Battery.
- If "HPE FIO No Smart Storage Battery" is selected, then SR932/ MR416/ MR408 controller must be selected.
- If "HPE FIO No Smart Storage Battery" is selected, then Battery cannot be selected.

BIOS Mode

HPE ProLiant DL300 Gen10 Plus Platform RAS OS Control FIO Setting	P27078-B21

Notes: OS First – RAS Setting Trigger.

Cray Compute Node Identifier

HPE Cray Compute Node FIO Configuration	R9H92A

Notes: Can only be selected or configured for a Cray or Slingshot Solution. Not allowed for Non-Cray or Non-Slingshot Solutions.

Cray User-Defined Non-Compute Node Identifier

HPE Cray EX Service Node 1 FIO Configuration	R4L49A
HPE Cray EX Service Node 2 FIO Configuration	R4L50A
HPE Cray EX Service Node 3 FIO Configuration	R4L51A
HPE Cray EX Service Node 4 FIO Configuration	R4L52A
HPE Cray EX Service Node 5 FIO Configuration	R4L53A
HPE Cray EX Service Node 6 FIO Configuration	R4L54A
HPE Cray EX Service Node 7 FIO Configuration	R4L55A
HPE Cray EX Service Node 8 FIO Configuration	R4L56A
HPE Cray EX Service Node 9 FIO Configuration	R4L57A
HPE Cray EX Service Node 10 FIO Configuration	R4L58A
HPE Cray EX Service Node 11 FIO Configuration	R4L59A

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HPE Cray EX Service Node 12 FIO Configuration	R4L60A
HPE Cray EX Service Node 13 FIO Configuration	R4L61A
HPE Cray EX Service Node 14 FIO Configuration	R4L62A
HPE Cray EX Service Node 15 FIO Configuration	R4L63A
HPE Cray EX Service Node 16 FIO Configuration	R4L64A
HPE Cray EX Service Node 17 FIO Configuration	R4L65A
HPE Cray EX Service Node 18 FIO Configuration	R4L66A
HPE Cray EX Service Node 19 FIO Configuration	R4L67A
HPE Cray EX User Access Node FIO Configuration	R4L68A

Identifier/Tracking SKUs

HPE ProLiant for Microsoft Azure Stack HCI Configure-to-order Tracking	P64062-B21

iLO Common Password

HPE iLO Common Password FIO Setting	P08040-B21

Notes:

- It is advisable to match the order quantity of this SKU matching the quantity of servers being ordered.
- Below Warning message to be displayed in the configurators upon the selection of this SKU:
- "Use of iLO Common Password SKU sets the initial iLO password to be a well-known string rather than a random password. It is advisable to match the order quantity of this SKU matching the quantity of servers being ordered."
- HPE highly recommends changing this password immediately after the initial onboarding process.
- Customers who want to choose their own custom iLO default password should use the HPE Factory Express Integration Services

Logical Size Settings

HPE 200GB Logical Size FIO Setting	436007-B21

Notes: If "HPE 200GB Logical Size FIO Setting" is selected, then RAID level must be selected.

Memory Setting

HPE Smart Memory Fast Fault Tolerance FIO Setting	875293-B21

Notes:

- If Memory Fast Fault Tolerance kit is selected with 1 Processor and Single Rank memory, then Memory Min = 2 and Max= 16.
- If Memory Fast Fault Tolerance kit is selected with 1 Processor and Dual/Quad/ Octal Rank memory then, Memory Min = 1 and Max= 16.
- If Memory Fast Fault Tolerance kit is selected with 2 Processors and Single Rank memory, then Memory Min = 4 and Max= 32.
- If Memory Fast Fault Tolerance kit is selected with 2 Processors and Dual/Quad/ Octal Rank memory, then Memory Min = 2 and Max= 32

OEM Configuration Setting

HPE OEM FIO Server Unbranding Service	P44105-B21

Trusted Supply Chain

HPE Trusted Supply Chain for HPE ProLiant	P36394-B21

Notes:

- If "HPE Trusted Supply Chain FIO Config" is selected then "Gen11 Intrusion Cbl Kit" must be selected.
- If HPE Trusted Supply Chain FIO Config is selected, then Configurator should default "Gen11 Intrusion Cbl Kit".

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- If "HPE Trusted Supply Chain FIO Config" is selected, then "HPE iLO Adv 1-svr Lic 3yr Support" or "HPE OneView for DL 3y 24x7 FIO Phys 1 Svr Lic" or "HPE iLO Adv 1-svr Lic 1yr Support" must be selected.
- If HPE Trusted Supply Chain FIO Config is selected then Configurator should default 1Qty of "HPE iLO Adv 1-svr Lic 3yr Support" and customer will be allowed to deselect. If deselects then either "HPE OneView for DL 3y 24x7 FIO Phys 1 Svr Lic" or "HPE iLO Adv 1-svr Lic 1yr Support" must be selected.
- If HPE Trusted Supply Chain FIO Config is selected, configurator to display the following Warning Message: "Logistics delivery speeds/services are available, please select within NGQ"
- If "HPE Trusted Supply Chain FIO Config" is selected then HPE Trusted Supply Chain E-LTU Software is required per order (not per server).
- If HPE Trusted Supply Chain FIO Config is selected then Configurator should default Trusted Supply Chain E-LTU Software.
- Display the following note for the Trusted Supply Chain section in OCA Menu view: "If Trusted Supply Chain section is selected, only one instance of the following E-LTU software option is required per order (not per server): HPE Trusted Supply Chain E-LTU."

Riser Cards

Standard Primary (Butterfly) Riser: (embedded in all CTO and BTO Server)

- Slot 1 - 1x PCIe 5.0 x16 Full-height, up to 9.5" length (or Half-length card)
- Slot 2 - 1x PCIe 5.0 x16 Low-profile, up to 9.5" length (or Half-length card)

Notes: If Hot-plug NS204i-u is installed, the Slot 2 cage need to be removed

HPE ProLiant DL360 Gen11 x16 Full Height Riser Kit P48901-B21

Notes:

- Referred as Secondary FH riser.
- 2nd Processor is required.
- Slot 3: 1x PCIe5.0 x 16 Full-length, up to 9.5" length (or Half-length card)
- If both 4P Networking (Base-T and Full-Height) and Half-Height Internal PCIe controller are selected, then Secondary FH riser cannot be selected.

HPE ProLiant DL360 Gen11 x16 LP Riser Kit P48903-B21

Notes:

- Referred as Secondary Low Profile (LP) riser.
- 2nd Processor is required.
- Slot 3: 1xPCIe5.0 x 16 Low-profile, up to 9.5" length (or Half-length card)

Riser Information

Part number	Description	Riser position		Slot Bus width (Gen5 lanes)			GPU Support	NVMe Direct Connect		M.2 Connec.
		Prim.	Sec.	#1	#2	#3		Connectors	Max SSDs	
(default in chassis)	HPE DL360 Gen11 x16/x16 Primary Riser	D	N/A	x16	x16	N/A	Y	N/A	N/A	N/A
P48901-B21	HPE ProLiant DL360 Gen11 x16 Full Height Riser Kit	N/A	O	N/A	N/A[1]	x16	Y	N/A	N/A	N/A
P48903-B21	HPE ProLiant DL360 Gen11 x16 LP Riser Kit	N/A	O	N/A	N/A	x16	Y	N/A	N/A	N/A

Notes:

- D = Default on server; O = Optional; N/A = not supported or slot/connector not present.
- Quantity of Processor and Quantity of Heatsink must match.

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- [1]When secondary full height kit is installed, then primary PCIe Slot 2 cannot be used. Only 2 full height slots are supported.
- [2]GPU max 75W
- If Secondary riser is selected, then 2 Processor must be selected.
- If secondary riser is not selected and "NS204i-u Rear Cbl Kit" is not selected, then maximum 2 quantity of PCIe cards can selected.
- If secondary FH riser is not selected, then maximum 1 quantity of FH PCIe cards can selected.
- If secondary riser is not selected and "NS204i-u Rear Cbl Kit" is selected, then maximum 1 quantity of PCIe cards can selected.
- If Secondary FH riser is selected, then maximum 2 quantity of PCIe cards can be selected.
- If Secondary LP riser is selected and "NS204i-u Rear Cbl Kit" is not selected, then maximum 3 quantity of PCIe cards can selected.
- If Secondary LP riser and "NS204i-u Rear Cbl Kit" are selected, then maximum 2 quantity of PCIe cards can selected.
- 4 ports base-T Low Profile NIC adpaters are not allowed to be installed at Slot 2 (P51178-B21, P21106-B21)
- All DL360 Gen11 Riser cards are designed in x16 PCIe slot form factor (physical length) as well as in full x16 lanes of PCIe5.0 as electrical bandwidth.

PCIe Slotting

Configuration 1: Primary Riser only (default in chassis)		
Riser	**(Primary as default)**	
Slot Number	**Slot 1**	**Slot 2**
Bus Width	x16	x16
Form Factor	FHHL	HHHL (LP)
PCIe adapter		**Slot Priority**
-PCIe x16	1	2
-PCIe x8	1	2
-PCIe x4	1	2
-PCIe x1	1	2

Configuration 2: Primary Riser (default in chassis) & Secondary FH Riser, 2 CPUs			
Riser	**(Primary as default)**		**Secondary (P48901-B21)**
Slot Number	**Slot 1**	No support	**Slot 3**
Bus Width	x16		x16
Form Factor	FHHL		FHHL
PCIe adapter	**Slot Priority**		
-PCIe x16	1	No support	2
-PCIe x8	1		2
-PCIe x4	1		2
-PCIe x1	1		2

Configuration 3: Primary Riser (default in chassis) & Secondary HH/LP Riser, 2 CPUs			
Riser	**(Primary riser as default)**		**Secondary (P48903-B21)**
Slot Number	**Slot 1**	**Slot 2 (not available for EDSFF CTO Svr)**	**Slot 3**
Bus Width	x16	x16	x16
Form Factor	FHHL	HHHL (LP)	HHHL (LP)
PCIe adapter		**Slot Priority**	
-PCIe x16	1	3	2

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-PCIe x8	1	3	2
-PCIe x4	1	3	2
-PCIe x1	1	3	2
-2xControllers	1	2	N No support

PCIe Adapters Slotting Rules

General	
Priority	**Description & Rules**
1	SR932i-p (P47184-B21) as a FH adapter, can only be slotted in PCIe Slot 1 (fixed cable length)
2	HPE ProLiant DL360 Gen11 x16 LP Riser Kit (P48903-B21) can only be slotted in HHHL (LP) PCIe Slot
3	If PCIe Standup Tri-Mode Controller adapter is ordered, can only be slotted in PCIe Slot 1 or Slot2. HHHL (LP) GPGPU card should be slotted in PCIe Slot 3.
4	PCIe Slot 2 supports HHHL (LP) cards only.
5	4-Port Base-T NIC card is not available in Slot2 (Mechinical constraint)
6	If NS204i-u Rear Cbl Kit (P54702-B21) is ordered, Slot 2 will be unavailable.

Installation Rules	
Priority	**Description & Rules**
1	x16 electrical bandwidth card to x16 electric slot
2	x8 electricical card to x8 electric slot
3	x8 electrical card to x16 electric slot

Priority from Card Types	
Priority	**Description & Rules**
1	HPE SR932i-p Gen11 x32 Lanes 8GB Wide Cache PCI SPDM Plug-in Storage Controller (P47182-001)
2	4-Port Networking PCIe Adapter (restricted in Slot 2)
3	HHHl (LP) Internal PCIe Controllers
4	GPGPU Adapters
5	Others

Notes:

- All PCIe slots are featured with Wake-on-Lane (WoL)
- Prioritization list for Primary controller selection in HPE ProLiant DL360 Gen11 8SFF NC CTO Server (P52499-B21) is as follows:
  - HPE SR932i-p Gen11 24G Controller Kit
  - HPE MR416i-o Gen11 12G Controller Kit
  - HPE MR416i-p Gen11 12G Controller Kit
  - HPE MR408i-o Gen11 SPDM Storage Cntlr
  - HPE MR216i-o Gen11 12G Controller Kit
  - HPE MR216i-p Gen11 12G Controller Kit
  - Intel VROC
  - Direct Attach

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OS Boot Device

HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device	P48183-B21
HPE ProLiant DL360 Gen11 NS204i-u Internal Cable Kit	P48920-B21
HPE ProLiant DL360 Gen11 NS204i-u Rear Cable Kit	P54702-B21

DL360 Gen11 NS204i-u Enablement Kit Support Matrix

Enablement Kit	Description	Field Inst.	NS204i-u Location	Hot-plug Capability
P54702-B21	HPE ProLiant DL360 Gen11 NS204i-u Rear Cable Kit	Yes	PCIe Slot 2[2]	Yes
P48920-B21	HPE ProLiant DL360 Gen11 NS204i-u Internal Cable Kit	Yes	Internal	No support

Notes:

- [1]x4 PCIe Gen3.0 OS Boot device includes 2x 480GB M.2 NVMe SSDs, with preconfigured hardware RAID1.
- [2]With removing the original PCIe Slot 2 cage and re-install the dedicated DL360 Gen11 NS204i-u cage, latch and cables in the P54702-B21. The NS204i-u will take up PCIe Slot 2 space only. The PCIe Slot 1 (FHHL) and PCIe Slot 3 (to be Low Profile) are available in the system with the selection of optional "HPE ProLiant DL360 Gen11 x16 LP Riser Kit (P48903-B21)".
- If NS204i-u is selected, then either NS204i-u Internal or Rear cable must be selected and vice versa.
- Both NS204i-u Internal and Rear cable cannot be selected together.
- If Secondary FH riser is selected, then "NS204i-u Rear Cbl Kit" cannot be selected.
- If 2SFF U.3 drive cage is connected to Direct Attach (without internal controller & 2SFF controller cable), then SATA drive cannot be selected in 2SFF drive cage when "NS204i-u Gen11 Ht Plg Boot Opt Dev" is selected.
- For additional information, please see the **HPE OS Boot Device QuickSpecs**

NS204i-u thermal Information -4LFF & 8+2 SFF

Location	Qty	Cooling	4LFF (14W SAS/SATA)	8+2 SFF (25W NVMe)	8+2 SFF (10W SAS/SATA)	8SFF (25W NVMe)
Internal NS204i-u	1	High Performance Fan Kit (P48908-B21)	30C	Up to 2x270W CPU, 32x 128GB DIMMs 30C	30C	30C
	1	Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit, (P48906-B21)	30C	Up to 2x350W CPU, 32x 128 GB DIMMs 30C	30C	30C
External Hot-plug NS204i-u (at rear)	1	High Performance Fan Kit (P48908-B21)	30C	Up to 2x 270W CPU, 32x 128 GB DIMM 30C	30C	30C
	1	Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit, (P48906-B21)	30C	Up to 2x 350W CPU, 32x128 GB DIMM 25C[1]	25C	30C

Notes:

- [1]If 256GB DIMM is selected, will require limit of ambiant at 25C
- [2]If 256GB DIMM is selected with up to 10SFF NVMe, will need to operated at 23C. Will not be a feshible configuration to support.
- If NS204i-u is selected, then either NS204i-u Internal or Rear cable must be selected and vice versa.
- Both NS204i-u Internal and Rear cable cannot be selected together.
- If Secondary FH riser is selected, then "NS204i-u Rear Cbl Kit" cannot be selected.

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Networking

The thermal conditions variate as a combination of types of Networking PCIe OR OCP adapter in different DL360 Gen11 CTO Servers. In general:

- Standard Fan Kit cannot be selected when above 100GbE
- 256GB DIMM is not allowed when above 100GbE
- Ambient limitation will variate in the combination of Networking Adapter OR OCP bandwidth, DIMM capacity and cable type, incl. Direct Attach Copper (DAC) cable and Active Optical Cable (AOC)

A detailed ambient temperature recommendation upon high-speed networking adapters is described in later session.

Default settings in 8SFF CTO Server and 4LFF CTO Server

- In 1 Processor configuration, "CPU1 to OCP2 x8 Enablement Kit" will be selected as default as "BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter" is pre-selected at OCP Slot 2, to be defaulted in the configurator if 1 Processor is selected. Customer is allowed to remove if OCP NIC is not selected but need to be replaced by a PCIe standup NIC. Meanwhile, the "CPU1 to OCP2 x8 Enablement Kit" will be removed.
- "CPU2 to OCP2 x8 Enablement Kit" or "CPU2 to OCP2 x16 Enablement Kit" must be selected if OCP NIC is selected in 2 Processors configuration. "CPU2 to OCP2 x8 Enablement Kit" to be defaulted in the configurator if 2 Processors are selected. User should be allowed to remove "CPU2 to OCP2 x8 Enablement Kit" and should be forced select "CPU2 to OCP2 x16 Enablement Kit" if OCP NIC is selected. Customer is allowed to remove if OCP NIC is not selected but need to be replaced by a PCIe standup NIC. Meanwhile, the "CPU2 to OCP2 x8 Enablement Kit" will be removed.

Notes: Exception: Only x8 PCIe5.0 lanes each in the 2 OCP Slots from 20EDSFF CTO Server.

InfiniBand PCIe

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

Recommended Ambient Temperature & Cooling Solution	
System Config	**P23664-B21 or P31324-B21**
4LFF or 8SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 271-350W: support 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling CPU TDP 0-350W: 30C / DLC solution
10SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 0-350W: 30C / DLC solution
20EDSFF	Not Supported. if CPU TDP 271-350W: Not supported. (or special approval is required with DAC cable, 30C) / Closed-loop Liquid Cooling CPU TDP 0-350W: 30C / DLC solution
	Not supported. If CPU TDP 0-270W: it requires <20C (or special approval with DAC cable at 30C) / Air Cooling If CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Other Restrictions:

1. High Performance Fan Kit is required for above 100GB NIC
2. 256GB DIMMs are not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

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

Recommended Ambient Temperature & Cooling Solution	
System Config	**P23665-B21 or P23666-B21**
4LFF or	CPU TDP 0-270W: 30C / Air Cooling

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8SFF NVMe/SAS/SATA	CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling CPU TDP 0-350W: 30C / DLC solution
10SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling CPU TDP 0-350W: 30C / DLC solution
20EDSFF	CPU TDP 0-270W: 25C (or with DAC cable 30C) / Air Cooling CPU TDP 0-350W: 30C/ DLC solution
	Not supported. CPU TDP 271-350W: N/A, requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Other Restrictions:

1. High Performance Fan Kit is required for above 100GB NIC
2. 256GB DIMMs are not supported if this adapter is selected. (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

HPE InfiniBand NDR 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Adapter P45641-B21

Recommended Ambient Temperature & Cooling Solution	
System Config	**P45641-B21**
4LFF or 8SFF NVMe/SAS/SATA	CPU TDP 0-270W: 27C (or with DAC cable 30C) / Air Cooling CPU TDP 0-350W: 30C / DLC solution
	Not supported. CPU TDP 271-350W: It requires 22C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling
10SFF NVMe/SAS/SATA	CPU TDP 0-270W: 27C (or with DAC cable 30C) / Air Cooling CPU TDP 0-350W: 30C / DLC solution
	Not supported. CPU TDP 271-350W: Not supported (or special approval with DAC cable 30C) / Closed-loop Liquid Cooling
20EDSFF	CPU TDP 0-270W: 25C (or with DAC cable 30C) / Air Cooling CPU TDP 0-350W: 30C / DLC solution
	Not supported. CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Other Restrictions

1. High Performance Fan Kit is required for above 100GB NIC
2. 256GB DIMMs not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

HPE InfiniBand NDR200 1-port OSFP PCIe5 x16 MCX75310AAS-HEAT Adapter P45642-B21

Recommended Ambient Temperature & Cooling Solution	
System Config	**P45642-B21**
4LFF or 8SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 0-350W: 30C/ DLC solution
	Not supported. CPU TDP 271-350W: It requires 23C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling
10SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 0-350W: 30C / DLC solution
	Not supported. CPU TDP 271-350W: It requires 23C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

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20EDSFF	CPU TDP 0-270W: 25C (or with DAC cable 30C) / Air Cooling CPU TDP 0-350W: 30C / DLC solution
	Not supported CPU TDP 271-350W: It requires ≤ 20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Other Restrictions

1. High Performance Fan Kit is required for above 100GB NIC
2. 256GB DIMMs not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

Notes:

- If 256GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- If 500W Power supply is selected, then x16 Networking/ InfiniBand cannot be selected.
- If configured for a Cray or Slingshot Solution, option to be used as the Slingshot 10 networking card.
- With 2xCPU in the range of 186-270 Watt and NVMe storages, Performance Fan Kit and DAC must be selected; if AOC is selected, can only work below 27C ambient temperature
- With 2xCPU go beyond 271 Watt and NVMe storages, Closed-loop Liquid Cooling Heatsink & Fan bundle kit and DAC must be selected; AOC cannot be supported.
- The InfiniBand HDR Adapters are in PCIe 4.0 x16// FH or LP
- InfiniBand NDR Adapter is in PCIe 5.0 x16// HL/ HH
- If above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.
- If Closed Loop Liquid cooling is selected with specific high speed Networking/ InfiniBand HDR 200Gb / InfiniBand NDR 1-port/InfiniBand NDR200 1-port, then SFF NVMe/ EDSFF drive cannot be selected.
- For InfiniBand NDR 1-port OSFP Adapter, in 8SFF CTO Model: If this card is selected with Closed Loop Liquid cooling, then Maximum of 8 NVMe can be selected.
- For InfiniBand NDR200 1-port OSFP Adapter, in 20EDSFF CTO Model: If this card is selected with Closed Loop Liquid cooling, then EDSFF drives cannot be selected."
- "HPE InfiniBand NDR 1x400Gb OSFP Multi-mode 50m HCA-side Transceiver" is available for "InfiniBand NDR 1-port" & "InfiniBand NDR200 1-port".

Ethernet PCIe

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

Notes: PCIe 4.0 x8// HH or LP

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

Notes:

- PCIe 4.0 x16// FH/ HL
- If secondary FH riser is not selected, then maximum 1 quantity of FH PCIe cards can be selected.
- If both 4P Networking (Base-T and Full-Height) and Half-Height Internal PCIe controller are selected, then Secondary FH riser cannot be selected.

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

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

HPE Slingshot SA2105 Ethernet 200Gb 1-port PCIe NIC — R4K46A

Recommended Ambient Temperature & Cooling Solution	
System Config	**P10180-B21 or P25960-B21 or R4K46A**
4LFF or 8SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling CPU TDP 0-350W: 30C / DLC solution
10SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 0-350W: 30C / DLC solution

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20EDSFF	Not supported. CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling CPU TDP 0-350W: 30C / DLC solution
	Not supported. CPU TDP 0-270W: It requires <20C (or special approval with DAC cable at 30C) / Air Cooling CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Other Restrictions

1. High Performance Fan Kit is required for above 100GB NIC
2. 256GB DIMMs not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

Notes:

For P10180-B21 or P25960-B21:

- If 256GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- If configured for a Cray or Slingshot Solution, option to be used as the Slingshot 10 networking card.
- PCIe 4.0 x16// HL/ HH/LP

For R4K46A:

- If above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.
- Can only be selected or configured for a Cray or Slingshot Solution. Not allowed for a Non-Cray or Non-Slingshot Solution
- Cannot have the following networking options configured within the same server: Slingshot 11 or Slingshot 22.
- PCIe 4.0 x16// LP
- If above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.

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

Notes:

- Max 1 of 4 port card can be selected if secondary riser is not selected. Cannot be installed in Slot# 2.
- Max 2 of 4 port card can be selected if secondary riser is selected. Cannot be installed in Slot# 2.
- If both 4P Networking (Base-T and Full-Height) and Half-Height Internal PCIe controller are selected, then Secondary FH riser cannot be selected.
- PCIe 2.0 x4 // HH /HL/ LP

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

Recommended Ambient Temperature & Cooling Solution	
System Config	**P21112-B21**
4LFF or 8SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling CPU TDP 0-350W: 30C / DLC solution
10SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling CPU TDP 0-350W: 30C / DLC solution
20EDSFF	CPU TDP 0-270W: 25C (or with DAC cable 30C) / Air Cooling CPU TDP 0-350W: 30C / DLC solution
	Not supported.

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Core Options

	CPU TDP 271-350W: It; requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Other Restrictions

1. High Performance Fan Kit is required for above 100GB NIC
1. 256GB DIMMs not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

Notes:

- If 256GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- PCIe 4.0 x16// HL/ HH
- If above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.

Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE	P26253-B21
Notes: PCIe 3.0 x8// HH/ HL/ LP	
Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE	P26259-B21
Notes: PCIe 3.0 x8// HH/ HL/ LP	
Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P26262-B21
Notes: PCIe 3.0 x8// HH/ HL/ LP	
Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE	P26264-B21
Notes: PCIe 4.0 x16// HH/ HL/ LP	
Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P42044-B21
Notes: PCIe 4.0 x8// HH/ HL/ LP	
Broadcom BCM5719 Ethernet 1Gb 4-port BASE-T Adapter for HPE	P51178-B21

Notes:

- Max 1 of 4 port card can be selected if secondary riser is not selected. Cannot be installed in Slot# 2.
- Max 2 of 4 port card can be selected if secondary riser is selected. Cannot be installed in Slot# 2.
- If both 4P Networking (Base-T and Full-Height) and Half-Height Internal PCIe controller are selected, then Secondary FH riser cannot be selected.
- PCIe 2.0 x4// HH/ HL/ LP

Ethernet OCP

2 OCP slots in Motherboard additionally. Does not consume PCIe slot

Intel I350-T4 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE	P08449-B21
Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE	P10097-B21
Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10106-B21
Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10115-B21

Recommended Ambient Temperature & Cooling Solution	
System Config	**P10115-B21**
4LFF or 8SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling CPU TDP 0-350W: 30C / DLC solution
10SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling CPU TDP 0-350W: 30C / DLC solution:
20EDSFF	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 0-350W: 30C / DLC solution
	Not supported

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Core Options

	CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

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

Recommended Ambient Temperature & Cooling Solution	
System Config	**P22767-B21**
4LFF or 8SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 0-350W: 30C / DLC solution
	Not supported. CPU TDP 271-350W: It requires 22C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling
10SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 0-350W: 30C / DLC solution
	Not supported. CPU TDP 271-350W: It requires 22C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling
20EDSFF	CPU TDP 0-270W: 25C (with DAC cable 30C) / Air Cooling CPU TDP 0-350W: 30C / DLC solution
	Not supported. CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Other Restrictions

1. High Performance Fan Kit is required for above 100GB NIC
2. 256GB DIMMs not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

Notes:

- If 256GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- If no OCP enablement kit is selected, then x16 OCP cannot be selected.
- If any one of "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" is selected, then Max 1 of x16 (>=100G) card can be selected per server.
- If both "CPU1 to OCP1 x16" and "CPU2 to OCP2 x16" are selected, then Maximum 2 of x16 (>=100G) card can be selected per server.
- If selected with 350W Processor with low Tcase (6458Q/ 8470Q), Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit must be selected, only 8x SATA drive can be selected. And limit ambient temperature at 25C is required.
- If above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.

Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE P26256-B21

Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE P26269-B21

Notes:

- Warning Message has to be displayed in the configurator any time this OCP card is selected: "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" OCP Upgrade kit can be selected with this OCP card if customer wants to have OCP x16 connectivity. With below restriction:
  - OCP Slot 2 is the default OCP networking slot with the Share NIC & Wake-on-Lane features. The "CPU1 to OCP1 x16" will be available in only one OCP Networking card configuration, after April 2023.
  - Yet the "CPU2 to OCP2x16" OCP Upgrade kit will be only available in two processor configurations.

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

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

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Notes: "BCM 5719 1Gb 4p BASE-T OCP Adptr" to be defaulted in the configurator. Customer is allowed to remove and select other cards (PCIe of OCP) from Networking OR InfiniBand OR Smart IO (HW) OR Storage Offload category.

Fibre Channel HBA

HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter	R2E08A
HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter	R2E09A
HPE SN1610E 32Gb 1-port Fibre Channel Host Bus Adapter	R2J62A
HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter	R2J63A
Notes: PCIe 3.0 x8// FH or LP for SN1610Q/1610E	
HPE SN1700E 64Gb 1-port Fibre Channel Host Bus Adapter	R7N77A
HPE SN1700E 64Gb 2-port Fibre Channel Host Bus Adapter	R7N78A
Notes: PCIe 4.0 x8// FH or LP for SN1700QE 1-port and 2-port	

Transceiver

HPE BladeSystem c-Class Virtual Connect 1G SFP SX Transceiver	453151-B21
HPE BladeSystem CClass Virtual Connect 1G SFP RJ45 Transceiver	453154-B21
HPE BladeSystem c-Class 10Gb SFP+ SR Transceiver	455883-B21
HPE BladeSystem c-Class 10Gb SFP+ LR Transceiver	455886-B21
HPE 25Gb SFP28 SR 100m Transceiver	845398-B21
HPE 100Gb QSFP28 MPO SR4 100m Transceiver	845966-B21
HPE QSFP28 to SFP28 Adapter	845970-B21
HPE InfiniBand NDR/Ethernet 1x400Gb OSFP Multi-mode 50m HCA-side Transceiver	P49764-B21
Notes: Requires selection of NDR InfiniBand card, "HPE IB NDR 1p OSFP MCX75310AAS Adptr" or "HPE IB NDR200 1p OSFP MCX75310AAS Adptr".	
HPE 100GbE QSFP28 SR4 100m Transceiver	Q2F19A

Notes:

- Each storage offload card requires selection of 2 QTY (Min/Max=2 per card) of either "100GbE QSFP28 PSM4 500m XCVR" OR "100GbE QSFP28 SR4 100m XCVR" transceivers or Q9571A "HPE 100GbE QSFP28 to QSFP28 5m AOC".
- Configurator has to default 2 QTY of "100GbE QSFP28 SR4 100m XCVR" per storage offload card selection. However, customer is allowed to deselect "100GbE QSFP28 SR4 100m XCVR" and must select "100GbE QSFP28 PSM4 500m XCVR" OR Q9571A "HPE 100GbE QSFP28 to QSFP28 5m AOC".
- If these transceivers selected, then Storage offload card must be selected.
- Selection of this transceiver must be in multiples of 2.

HPE 100GbE QSFP28 500m 1310mm PSM4 Transceiver	Q8J73A

Notes:

- Each storage offload card requires selection of 2 QTY (Min/Max=2 per card) of either "100GbE QSFP28 PSM4 500m XCVR" OR "100GbE QSFP28 SR4 100m XCVR" transceivers OR Q9571A "HPE 100GbE QSFP28 to QSFP28 5m AOC".
- Configurator has to default 2 QTY of "100GbE QSFP28 SR4 100m XCVR" per storage offload card selection. However, customer is allowed to deselect "100GbE QSFP28 SR4 100m XCVR" and must select "100GbE QSFP28 PSM4 500m XCVR" OR Q9571A "HPE 100GbE QSFP28 to QSFP28 5m AOC".
- If these transceivers selected, then Storage offload card must be selected.
- Selection of this transceiver must be in multiples of 2.

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HPE 100GbE QSFP28 to QSFP28 5m Active Optical Cable Q9S71A

Notes:

- Each storage offload card requires selection of 2 QTY (Min/Max=2 per card) of either "100GbE QSFP28 PSM4 500m XCVR" OR "100GbE QSFP28 SR4 100m XCVR" transceivers" OR Q9S71A "HPE 100GbE QSFP28 to QSFP28 5m AOC".
- Configurator has to default 2 QTY of "100GbE QSFP28 SR4 100m XCVR" per storage offload card selection. However, customer is allowed to deselect "100GbE QSFP28 SR4 100m XCVR" and must select "100GbE QSFP28 PSM4 500m XCVR" OR Q9S71A "HPE 100GbE QSFP28 to QSFP28 5m AOC".
- If these transceivers selected, then Storage offload card must be selected.
- Category max is not applicable. However, 2 QTY (Min/ Max=2) per storage offload card to be selected.
- Selection of this AOC cable must be in multiples of 2.

OCP3.0 Slot Priority Support Matrix – 4LFF, 8+2 SFF & 20EDSFF CTO Server

DL360 Gen11 Rear wall		Selected OCP cards (Qty & type)				
		2	1	1	1	2
OCP Slots #	Share NIC Feature	1xOROC[1] + 1x NIC[2]	1xNIC	2xNICs	1xOROC	2x OROCs
1	N/A	OROC	(Secondary) NIC	NIC	OROC (Primary)	OROC[3] (Primary)
2	Available (Incl. Wake-on-Lane)	NIC	NIC (Primary)	NIC (Primary)	No support[4]	OROC[3]

Notes:

- [1]OCP form factor internal controller
- [2]OCP Networking card
- [3]If only 1 OROC card is selected, by default connected from 8SFF backplane to OCP Slot1. And there is no controller cable can connect from 8SFF Backplane to OCP Slot 2.
- [4]If 2 OROC cards are selected, by default the 8SFF controller cable is connected to OCP Slot1 (the comparably higher-end OROC card to be selected by default) and the 2SFF backplane is connected to OCP Slot2 with another OROC card selected (comparably less high-end one) with 2FF controller cable.

OCP3.0 Enablement Kits – 4LFF & 8+2 SFF CTO Server

PCIe signal	Upgrade Cable Kits		PCIe5.0 lanes availability	
	Orderable SKU	Description	OCP Slot #1	OCP Slot #2
CPU1		(x8 PCIe5.0 embedded from MLB)	(default x8)	No support
	P51911-B21[5]	HPE ProLiant DL360 Gen11 CPU1 to OCP2 x8 Enablement Kit	(default x8)	X8
	P48827-B21[6]	HPE ProLiant DL3XX Gen11 OCP1 x16 Enablement Kit	x16	No support
	P48828-B21	HPE ProLiant DL3XX Gen11 OCP2 x16 Enablement Kit	(default x8)	x16
CPU1 & CPU2	P48827-B21 & P48828-B21	HPE ProLiant DL3XX Gen11 OCP1 x16 Enablement Kit HPE ProLiant DL3XX Gen11 OCP2 x16 Enablement Kit	x16	x16
	P48830-B21	HPE ProLiant DL3XX Gen11 CPU2 to OCP2 x8 Enablement Kit	(default x8)	x8
	P51911-B21[7]	HPE ProLiant DL360 Gen11 CPU1 to OCP2 x8 Enablement Kit	(default x8)	x8
	P48827-B21 & P48830-B21	HPE ProLiant DL3XX Gen11 OCP1 x16 Enablement Kit HPE ProLiant DL3XX Gen11 CPU2 to OCP2 x8 Enablement Kit	x16	x8

Notes:

- [5]OCP Slot 2 is the primary slot for OCP NIC card for its Share NIC (incl. WoL) feature. When only 1 OCP NIC is selected, the P51911-B21 will be populated.
- [6]In 1 CPU configuration, to offer flexibility for customers to assign OCP NIC to Slot 1 (if Share NIC & WoL are not required), the P48827-B21 can be manually selected, and P51911-B21 will be removed when P48827-B21 is selected. (The 2 cables cannot co-exist in 1 CPU configuration)
- [7]In 2 CPUs Configuration, to connect all OCP Slots from CPU1, the P51911-B21 can be selected.

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OCP Slotting - 4LFF & 8+2 SFF CTO Server		
Configuration 1: No OCP enablement kit or only P48827-B21 is selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-Lane)**
OCP Enablement	N/A or P48827-B21	No support
Bus Width	x8 (default) or x16	No support
OCP adapter		**Slot Priority**
-Controller	1	No support
-Networking	1	No support

Configuration 2: Only P51911-B21 is selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-Lane)**
OCP Enablement	N/A	P51911-B21
Bus Width	x8 (default)	x8
OCP adapter		**Slot Priority**
-Controller	1	2
-Networking	2	1

Configuration 3: Only P48830-B21 is selected, or both P48827-B21 & P48830-B21 are selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-Lane)**
OCP Enablement	N/A or P48827-B21	P48830-B21
Bus Width	x8 (defult) or x16	x8
OCP adapter		**Slot Priority**
-Controller	1	2
-Networking	2	1

Configuration 4: Only P48828-B21 is selected, or both P48827-B21 & P48828-B21 are selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-Lane)**
OCP Enablement	N/A or P48827-B21	P48828-B21
Bus Width	x8 (default) or x16	x16
OCP adapter		**Slot Priority**
-Controller	1	2
-Networking	2	1

OCP3.0 Enablement Kits – 20EDSFF CTO Server				
PCIe signal	**Upgrade Cable Kit**		**PCIe5.0 lanes availability**	
	Orderable SKU	**Description**	**OCP Slot #1**	**OCP Slot #2**
CPU1 & CPU2		(x8 PCIe5.0 embedded from MLB)	(default x8)	No support
	P48830-B21	HPE ProLiant DL3XX Gen11 CPU2 to OCP2 x8 Enablement Kit	(default x8)	x8

Notes: "CPU1 to OCP1 x16" (P48827-B21)/ "CPU2 to OCP2 x16" (P48828-B21)/ "CPU1 to OCP2 x8" (P51911-B21) cannot be selected, as the Port 9, 10, 11 are by default connected to front storages.

OCP Slotting - 20EDSFF CTO Server		
Configuration: No OCP enablement kit or P48830-B21 is selected		
Slot Number	**Slot 1**	**Slot 2 (Share NIC, incl. Wake-on-Lane)**
OCP Enablement	N/A	NA or P48830-B21
Bus Width	x8 (defult)	x8
OCP adapter		**Slot Priority**
-Controller	1	2
-Networking	2	1

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Core Options

OCP Cards Slotting Rules – 4LFF, 8+2 SFF & 20EDSFF CTO Server	
General	
Priority	**Description & Rules**
1	OCP Networking card to be installed in Slot 2 as priority, as the Slot 2 supports ShareNIC (incl. Wake-on-Lane).
2	2x OCP Controllers (OROC): Tri-Mode Controllers are in higher priority than SAS Controllers.
3	2x OCP Networking cards: High Speed NIC is in higher priority yo be installed in Slot 2.
4	If no OCP Slot 2 Enablement Kit is slected, the OCP Slot 2 is occupied.
5	If no OCP Slot 1 Enablemet Kit is selected, the OCP Slot 1 is default in x8 electrical lanes (embedded from MLB)

OCP3.0 Enablement Kit details

- In 1 Processor configuration, "CPU1 to OCP2 x8 Enablement Kit" will be selected as default as "BCM5719 Ethernet 1Gb 4-port BASE-T OCP3 Adapter" is pre-selected at OCP Slot 2, to be defaulted in the configurator if 1 Processor is selected. Customer is allowed to remove if OCP NIC is not selected but need to be replaced by a PCIe standup NIC. Meanwhile, the "CPU1 to OCP2 x8 Enablement Kit" will be removed.
- "CPU2 to OCP2 x8 Enablement Kit" or "CPU2 to OCP2 x16 Enablement Kit" must be selected if OCP NIC is selected in 2 Processors configuration. "CPU2 to OCP2 x8 Enablement Kit" to be defaulted in the configurator if 2 Processors are selected. User should be allowed to remove "CPU2 to OCP2 x8 Enablement Kit" and should be forced select "CPU2 to OCP2 x16 Enablement Kit" if OCP NIC is selected. Customer is allowed to remove if OCP NIC is not selected but need to be replaced by a PCIe standup NIC. Meanwhile, the "CPU2 to OCP2 x8 Enablement Kit" will be removed.
- Exception: Only x8 PCIe5.0 lanes each in the 2 OCP Slots from 20EDSFF CTO Server.

HPE ProLiant DL3XX Gen11 OCP1 x16 Enablement Kit P48827-B21

Notes:

- For 2SFF U.3 drive cage selection in 1 Processor configuration:
- If 2SFF Drive cage is connected to Direct Attach (without Internal controller and 2SFF cable) and NVMe drive is selected, then "CPU1 to OCP2 x8" and "OCP1 x16" OCP upgrade kit cannot be selected.
- For 2SFF U.2 drive cage selection in 1 Processor configuration:
- If 2SFF Drive cage is connected to Direct Attach (without Internal controller and 2SFF cable), then"CPU1 to OCP2 x8" and "CPU1 to OCP1 x16" OCP upgrade kit cannot be selected.
- If no OCP enablement kit is selected, then x16 OCP cannot be selected.
- If no OCP enablement kit is selected, then Max 1 of OCP/ OROC can be selected.
- "CPU1 to OCP2 x8" and "CPU1 to OCP1 x16" cannot be selected together.
- If any one of "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" is selected, then Max 1 of x16 (>=100G) card can be selected per server.
- If both "CPU1 to OCP1 x16" and "CPU2 to OCP2 x16" are selected, then Maximum 2 of x16 (>=100G) card can be selected per server.
- If 8SFF x4 and 2SFF Drive cages are selected without controller, then "CPU1 to OCP1 x16" and "CPU1 to OCP2 x8" cannot be selected.
- Warning Message has to be displayed in the configurator any time this OCP card is selected:
- "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" OCP Upgrade kit can be selected with this OCP card if customer wants to have OCP x16 connectivity.
- Not available for 20EDSFF CTO Server.

HPE ProLiant DL3XX Gen11 OCP2 x16 Enablement Kit P48828-B21

Notes:

- If no OCP enablement kit is selected, then x16 OCP cannot be selected.
- If no OCP enablement kit is selected, then Max 1 of OCP/ OROC can be selected.
- "CPU2 to OCP2 x16" and "CPU2 to OCP2 x8" cannot be selected together.
- If "CPU2 to OCP2 x16" or "CPU2 to OCP2 x8" is selected, then 2 Processor must be selected.

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Director
ITCS S.A.

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- If any one of "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" is selected, then Max 1 of x16 (>=100G) card can be selected per server.
- If both "CPU1 to OCP1 x16" and "CPU2 to OCP2 x16" are selected, then Maximum 2 of x16 (>=100G) card can be selected per server.
- Warning Message has to be displayed in the configurator any time this OCP card is selected:
- "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" OCP Upgrade kit can be selected with this OCP card if customer wants to have OCP x16 connectivity.
- Not available for 20EDSFF CTO Server.

HPE ProLiant DL3XX Gen11 CPU2 to OCP2 x8 Enablement Kit P48830-B21

Notes:

- To be defaulted in the configurator if 2 Processor is selected. Customer is allowed to remove if OCP card is not selected.
- If no OCP enablement kit is selected, then x16 OCP cannot be selected.
- If no OCP enablement kit is selected, then Max 1 of OCP/ OROC can be selected.
- "CPU2 to OCP2 x16" and "CPU2 to OCP2 x8" cannot be selected together.
- If "CPU2 to OCP2 x16" or "CPU2 to OCP2 x8" is selected, then 2 Processor must be selected.
- Available for 20EDSFF CTO Server.

HPE ProLiant DL360 Gen11 CPU1 to OCP2 x8 Enablement Kit P51911-B21

Notes:

- For 2SFF U.3 drive cage selection in 1 Processor configuration:
- If 2SFF Drive cage is connected to Direct Attach (without Internal controller and 2SFF cable) and NVMe drive is selected, then "CPU1 to OCP2 x8" and "OCP1 x16" OCP upgrade kit cannot be selected.
- For 2SFF U.2 drive cage selection in 1 Processor configuration;
- If 2SFF Drive cage is connected to Direct Attach (without Internal controller and 2SFF cable), then"CPU1 to OCP2 x8" and "CPU1 to OCP1 x16" OCP upgrade kit cannot be selected.
- To be defaulted in the configurator if 1 Processor is selected. Customer is allowed to remove if OCP card is not selected.
- If no OCP enablement kit is selected, then x16 OCP cannot be selected.
- "CPU1 to OCP2 x8" and "CPU1 to OCP1 x16" cannot be selected together.
- "CPU1 to OCP2 x8" cannot be selected if 2 Processor is selected.
- If 8SFF x4 and 2SFF Drive cages are selected without controller, then "CPU1 to OCP1 x16" and "CPU1 to OCP2 x8" cannot be selected.
- Not available for 20EDSFF CTO Server.

OCP Infiniband

HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 OCP3 MCX653435A-HDAI Adapter P31323-B21

Recommended Ambient Temperature & Cooling Solution	
System Config	**P31323-B21**
4LFF or 8SFF NVMe/SAS/SATA	CPU TDP 0-270W: 25C (or with DAC cable 30C) / Air Cooling CPU TDP 0-350W: 25C / DLC solution
	Not supported. CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 25C) / Closed-loop Liquid Cooling
10SFF NVMe/SAS/SATA	CPU TDP 0-350W: 25C / DLC solution
	Not supported. CPU TDP 0-270W: It requires <20C (or special approval with DAC cable at 30C) / Air Cooling CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 25C) / Closed-loop Liquid Cooling
20EDSFF	CPU TDP 0-270W: 25C (or with DAC cable 30C) / Air Cooling CPU TDP 0-350W: 25C / DLC solution

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	Not supported. CPU TDP 271-350W: It requires <20C / Closed-loop Liquid Cooling

Other Restrictions

1. High Performance Fan Kit is required for above 100GB NIC
2. 256GB DIMMs not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 OCP3 MCX653436A-HDAI Adapter P31348-B21

Recommended Ambient Temperature & Cooling Solution	
System Config	**P31348-B21**
4LFF or 8SFF NVMe/SAS/SATA	CPU TDP 0-270W: 25C (with DAC cable 30C) / Air Cooling CPU TDP 0-350W: 25C / DLC solution
	Not supported. CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 25C) / Closed-loop Liquid Cooling
10SFF NVMe/SAS/SATA	CPU TDP 0-350W: 25C / DLC solution
	Not supported. CPU TDP 0-270W: It requires <20C (or special approval with DAC cable at 30C) / Air Cooling CPU TDP 271-350W: It requires <20C (or special approval with DAC cable 30C) / Closed-loop Liquid Cooling
20EDSFF	CPU TDP 0-165W: 25C (or with DAC cable 30C) / Air Cooling CPU TDP 0-350W: 25C / DLC solution
	Not supported. CPU TDP 166W-270W: It requires 24C/Air cooling CPU TDP 166W-270W: It requires <20 C/ with Closed-loop LC CPU TDP 271-350W: It requires <20C / Closed-loop Liquid Cooling

Other Restrictions

1. High Performance Fan Kit is required for above 100GB NIC
2. 256GB DIMMs not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

Notes:

- If 256GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- If configured for a Cray or Slingshot Solution, option to be used as the Slingshot 10 networking card.
- If selected with 350W Processor with low Tcase (6458Q/ 8470Q), Closed-loop Liquid Cooling Heatsink Fan FIO Bundle Kit must be chosen, and NVMe and SAS drive cannot be selected. Only max 8SFF SATA drive can be supported.
- If no OCP enablement kit is selected, then x16 OCP cannot be selected.
- If any one of "CPU1 to OCP1 x16" or "CPU2 to OCP2 x16" is selected, then Max 1 of x16 (>=100G) card can be selected per server.
- If both "CPU1 to OCP1 x16" and "CPU2 to OCP2 x16" are selected, then Maximum 2 of x16 (>=100G) card can be selected per server.
- If above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.
- If the selected processor(s) is/are in the range of 271W to 350W TDP, and AOC cable is also selected, the ambient temperature would be limit at 25C

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Storage Offload

HPE NV60100M 100Gb 2-port Storage Offload Adapter R8M41A

Recommended Ambient Temperature & Cooling Solution	
System Config	**R8M41A**
4LFF or 8SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 271-350W: 25C (or with DAC cable 30C) / Closed-loop Liquid Cooling CPU TDP 0-350W: 30C / DLC solution
10SFF NVMe/SAS/SATA	CPU TDP 0-270W: 30C / Air Cooling CPU TDP 0-350W: 30C / DLC solution
	Not supported CPU TDP 271-350W: Not supported (or with DAC cable 30C) / Closed-loop Liquid Cooling
20EDSFF	CPU TDP 0-350W: 30C / DLC solution
	Not supported CPU TDP 0-270W: It requires <20C (or special approval with DAC cable 30C) / Air Cooling CPU TDP 271-350W: It requires <20C (or special approval with DAC cable at 30C) / Closed-loop Liquid Cooling

Other Restrictions

1. High Performance Fan Kit is required for above 100GB NIC
2. 256GB DIMMs not supported if this adapter is selected (or with DLC, support 1DPC, up to 8 DIMMs/per socket)

Notes:

- If 256GB Memory is selected, then high speed Networking/ InfiniBand card (PCIe and OCP) that is 100G or more cannot be selected.
- Category max is not applicable. However, 2 QTY (Min/ Max=2) per storage offload card to be selected.
- Each storage offload card requires selection of 2 QTY (Min/Max=2 per card) of either Q8J73A "100GbE QSFP28 PSM4 500m XCVR" OR Q2F19A "100GbE QSFP28 SR4 100m XCVR" transceivers OR "HPE 100GbE QSFP28 to QSFP28 5m AOC"
- Configurator has to default 2 QTY of "100GbE QSFP28 SR4 100m XCVR" per storage offload card selection. However, customer is allowed to deselect "100GbE QSFP28 SR4 100m XCVR" and must select "100GbE QSFP28 PSM4 500m XCVR" OR Q9S71A "HPE 100GbE QSFP28 to QSFP28 5m AOC".
- PCIe 3.0 x16// HL/ HH
- If above 100GbE Networking PCIe adapter or OCP adapter is selected, Standard Fan Kit cannot be configured.
- If the selected processor(s) is/are in the range of 271W to 250W TDP, and AOC cable is also selected, the ambient temperature would be limit at 25C

Thermal condition for High Speed Networking Adapter

Networking PCIe adapter beyond 100GbE vs Maximum drive Qty						
Part number	**Qty**	**Cooling**	**4LFF (14W SAS/SATA)**	**8+2 SFF (25W NVMe)**	**8+2 SFF (10W SAS/SATA)**	**8SFF (25W NVMe)**
P25960-B21[1], P10180-B21[2], R8M41A[3], P31324-B21[4], P21112-B21[5], P23665-B21[6], P23666-B21[7] P23664-B21[8][9]	3	High Perf. Fan Kit, (P48908-B21)	Up to 2x270W CPU, 32x 128GB DIMMs			
			30C	30C	30C	30C
	3	Closed-loop LC Heat Sink Fan FIO Bundle Kit, (P48906-B21)	Up to 2x350W CPU, 32x 128GB DIMMs			
			30C with DAC[5]; 25C with AOC[5]	No support 30C with DAC[6]; 20C with AOC[6]	30C with DAC[7]; 25C with AOC[7]	30C, [10]30C with DAC, 25C with AOC[10]

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	3	Direct LC + Perf. Fan Kit (P48908-B21)	Up to 2x350W CPU, 32x 128 GB or 16x 256GB DIMMs (1DPC, 16DIMMs per socket)			
			30C	30C	30C	30C

Notes:

- [1] Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE
- [2] Mellanox MCX623105AS-VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE
- [3] HPE NV60100M 100Gb 2-port Storage Offload Adapter
- [4] HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 MCX653106A-HDAT Adapter
- [5] Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE
- [6] HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe4 x16 MCX653105A-ECAT Adapter
- [7] HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe4 x16 MCX653106A-ECAT Adapter
- [8] Direct Attach Copper cable
- [9] Active Optical Cable
- 256GB DIMM cannot be selected if above 100GbE Networking Adapter or OCP Adapter is selected.
- [10] HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 MCX653105A-HDAT Adapter
- For 20EDSFF CTO Server thermal condition, please refer to the "Recommended Ambient Temperature" section under each part number.

Networking PCIe adapter beyond 100GbE

Part number	Qty	Cooling	4LFF (14W SAS/SATA)	8+2 SFF (25W NVMe)	8+2 SFF (10W SAS/SATA)	8SFF (25W NVMe)
P45641-B21[1] P45642-B21[2]	3	High Performance Fan Kit, (P48908-B21)		Up to 2x270W CPU, 32x 128GB DIMMs		
			30C	30C with DAC; 27C with AOC	30C	30C
	3	Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit, (P48906-B21)		Up to 2x350W CPU, 32x 128GB DIMMs		
			No support, 22C; (30C with DAC)	No support <20C (30C with DAC)	Not support, <20C (30C with DAC)	No support, 22C (30C with DAC)

Notes:

- [1] HPE InfiniBand NDR 1-port OSFP PCIe5 x16 MCX75310AAS-NEAT Adapter
- [2] HPE InfiniBand NDR200 1-port OSFP PCIe5 x16 MCX75310AAS-HEAT Adapter
- For 20EDSFF CTO Server thermal condition, please refer to the "Recommended Ambient Temperature" section under each part number.

Networking OCP adapter beyond 100GbE

Part number	Qty	Cooling	4LFF (14W SAS/SATA)	8+2 SFF (25W NVMe)	8+2 SFF (10W SAS/SATA)	8SFF (25W NVMe)
P31323-B21[1] P31348-B21[2]	2	High Performance Fan Kit, (P48908-B21)		Up to 2x270W CPU, 32x 128GB DIMMs		
			30C with DAC; 25C with AOC	No support, <20C (30C with DAC)	No support, <20C (30C with DAC)	30C with DAC; 25C with AOC
	2	Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit, (P48906-B21)		Up to 2x350W CPU, 32x 128GB DIMMs		
			No support, <20C (30C with DAC)	No support, <20C (25C with DAC)	No support, <20C; (30C with DAC)	No support, <20C (30C with DAC)

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Notes:

- [1] HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 OCP3 MCX653435A-HDAI Adapter
- [2] HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 OCP3 MCX653436A-HDAI Adapter
- For 20EDSFF CTO Server thermal condition, please refer to the "Recommended Ambient Temperature" section under each part number.

Networking OCP adapter 10/25GbE

Part number	Qty	Cooling	4LFF (14W SAS/SATA)	8+2 SFF (25W NVMe)	8+2 SFF (10W SAS/SATA)	8SFF (25W NVMe)
P10115-B21[1]	2	High Performance Fan Kit, (P48908-B21)	30C	Up to 2x270W CPU, 32x 128GB DIMMs 30C	30C	30C
	2	Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit, (P48906-B21)	30C with DAC; 25C with AOC	Up to 350W CPU, 32x 128GB DIMMs 30C with DAC; 25C with AOC	30C with DAC; 25C with AOC	30C with DAC; 25C with AOC

Notes:

- [1] Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
- For 20EDSFF CTO Server thermal condition, please refer to the "Recommended Ambient Temperature" section under each part number.

Power and Cooling

Power Supplies

Please select one or two power supplies from below.

Notes:

- Mixing of 2 different power supplies is NOT supported.
- Warning to be displayed in the Configurator upon selection: In order to select the right size power supply for your ProLiant Server it is highly recommended to use "HPE Power Advisor" located at **https://poweradvisorext.it.hpe.com/?Page=Index**

HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit 865408-B21

Notes:

- Supported with 4LFF CTO Model only.
- If 500W Power supply is selected, then Processor Wattage that is equal to or less than 125W must be selected.
- If 500W Power supply is selected, then 2 Processors cannot be selected.
- If 500W Power supply is selected, then "HPE DL3X0 Gen11 1U 2P Std Fan Kit" cannot be selected.
- If 500W Power supply is selected, then Maximum of 2 Networking/ InfiniBand can be selected.
- If 500W Power supply is selected, then x16 Networking/ InfiniBand cannot be selected.
- If 500W Power supply is selected, then Maximum 8 Memory can be selected.

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

HPE 800W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit 865438-B21

Notes:

- Only supports high line voltage (200 VAC to 240 VAC).
- Before April 17, 2023, OCA Error /CLIC Unbuildable when the non-certified PSU is selected along with the model if selected Country in OCA is India: Trigger OCA Error /CLIC Unbuildable with below message while selecting this Power Supply as Factory Integrated Option(0D1/FIO)for the Model-X and if the ship to Country is India: "This Power Supply is not compliant with India BIS Certification for selected Model -X and SHOULD NOT BE SELECTED. This is a regulatory compliance and hence the user cannot select this

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combination(Power Supply+ Model-X) if order is shipping to India. Please Select alternate PSU." Or contact Product Management Team for approval after March 01, 2023.

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

Notes: For EMEA Region: Commission Regulation (EU) 2019/424 laying down ecodesign requirements for servers and data-storage products applies from 1 March 2020. A more stringent (compared to the currently applicable values) value for the minimum power efficiency at 96% of PSUs will apply latest from, 1 January 2024, after defferal. For more details, please refer to Lot9 enforcement deferral notice "**European Union law Document 52022XC1209 (01)**"

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

Notes: If 1600W DC Power supply is selected, then either "HPE 1600W DC PSU Power Cable Kit" or "HPE 1600W DC PSU Power Lug Option Kit" must be selected and quantity must match, vice versa

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

Notes: Only supports high line voltage (200 VAC to 240 VAC).

Notes:
According to The Bureau of Indian Standards Act, 2016, BIS certification is required by every manufacturer (Indian or foreign) of those who are manufacturing products under Compulsory Certification.
DL360 Gen11 CTO Servers menufactured in Singapore with below Power Supplies are certified with BIS: 865408-B21, P38995-B21, P03178-B21, P17023-B21 and P38997-B21.

For information on BIS Certification requirment visit **BIS Certification - BIS Certificate for Import (indianchemicalregulation.com)**

Accessory

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

Notes: Both "HPE 1600W DC PSU Power Lug Option Kit" and "HPE 1600W DC PSU Power Cable Kit" cannot be selected together.

Power Cords

For more Power Cords options, please refer to "HPE One Config Advance".

If any of these "Optional" Power Cords are ordered, then quantity must be equal to total number of Power Supplies on the order.

- All Regions (Except Japan) - OCA/CLIC UNB
- For Japan - OCA/CLIC Warning"

HPE 1600W -48VDC 600V 3.5m Power Cable Kit P22173-B21

Notes: Both "HPE 1600W DC PSU Power Lug Option Kit" and "HPE 1600W DC PSU Power Cable Kit" cannot be selected together.

HPE Flexible Slot (Flex Slot) Power Supplies share a common electrical and physical design that allows for hot plug, tool-less installation into HPE ProLiant Gen11 Performance Servers. Flex Slot power supplies are certified for high-efficiency operation and offer multiple power output options, allowing users to "right-size" a power supply for specific server configurations. This flexibility helps to reduce power waste, lower overall energy costs, and avoid "trapped" power capacity in the data center.

Prior to making a power supply selection it is highly recommended that the HPE Power Advisor is run to determine the right size power supply for your server configuration. The HPE Power Advisor is located at: **HPE Power Advisor**

HPE ProLiant servers ship with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs). Visit **HPE power cords** for a full list of optional power cords. The standard 6-foot IEC C-13/C-14 jumper cord (A0K02A) is included with each standard AC power supply option kit. If a different power cord is required, please check the **ProLiant Power Cables** web page.

For information on power specifications and technical content visit **HPE Server power supplies**

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Power Cooling Options

Heatsinks

HPE ProLiant DL3XX/560 Gen11 High Performance Heat Sink Kit	P48905-B21
HPE ProLiant DL3X0 Gen11 1U Standard Heat Sink Kit	P48904-B21
HPE ProLiant DL360 Gen11 Cold Plate Module FIO Kit from External NS204i-u	P62026-B21
HPE ProLiant DL3XX Gen11 Cold Plate Module FIO Kit from PCIe	P62029-B21

Notes: For more detail information, refer to Heastink section above

DLC Enablement

HPE ProLiant Direct Liquid Cooling 450mm Female-Male Connection Quick Disconnect Tube Set FIO Kit P62046-B21

Notes:

- Shipment will be available CQ3 2023 with DLC module
- Min/ Max is not applicable. However Maximum One quantity of Tube set can be selected per server.
- If DLC Module is selected, then "HPE DLC Hose 450mm FtM FIO KIT" must be selected, as extension tube from rear wall of the server.

HPE ProLiant DL360 Gen11 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit P48906-B21

Notes:

- The HPE DL360 Gen11 Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle kit contains (2) cold plates (1 per CPU) each with a pump, Tubes, (7) 4028 fans and a radiator. The LC Heat Sink option is designed to cool down the processor effectively using cooled inlet air.
- Maximum quantity for Closed-loop Liquid Cooling (CL LC) Heat Sink Fan FIO Bundle Kit is one kit per system.
- The DL360 CL LC can be configured in a single socket DL360 Gen1 sever as Factory Installation only. CPU Filed upgrade is not allowed. Please contact HPE Service if any request of upgrading CPU at field.

Fan Kits

HPE ProLiant DL3X0 Gen11 1U High Performance Fan Kit P48908-B21

Notes:

- Dual rotor 4056 performance fans (Qty 7)
- Two processors with a TDP equal or greater than 186W and below 270Watt
- For processors below 185Watt TDP, customers are able to configure with High Performane Heatsinks & Perfromnace Fan Kit in HPE One-Configuration-Advanced. With firstly deselect the Standard Heatsink and Standard Fan, then reselect High Performance Heatsink and Performance Fan Kit.

HPE ProLiant DL3X0 Gen11 1U Standard Fan Kit P48907-B21

Notes: Dual rotor 4056 standard fans (Qty 5)

HPE ProLiant DL3X0 Gen11 1U 2P Standard Fan Kit P54697-B21

Notes: Dual rotor 4056 standard fans (Qty 7)

Cooling Option selection in 8+2 SFF and 4LFF CTO Servers

CPU TDP (Watts)	125W – 185W		186W – 270W[1]	271W – 350W[1]		350W (LC CPU)[1]
CPU Q'ty	1	2	2	2	2	2
Heatsink	Standard (P48904-B21)		High Performance[2] (P48905-B21)	Closed-loop LC Heatsink and Fan FIO Bundle Kit[3] (P48906-B21)		Direct Liquid Cooling (DLC) Heatsink and High Performance Fan (P48908-B21) FIO solution
Fans	Standard Fan (P48907-B21)	Standard Fan (P48907-B21) & 2[2] Standard Fan (P54697-B21)	High Performance[2] (P48908-B21)			
Max DIMM	32x128GB			32x128 GB or 16x256GB[4]		16x256GB[4]

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Networking		10/25GbE PCIe adapter or OCP[1]			
Max Drive	4LFF SAS or 8+2 NVMe			8SFF CTO Svr with 0 backplane & 0 drive, 25C No support for 4LFF CTO Server	4LFF SAS or 10NVMe
Internal OS Boot		Available for internal NS204i-u			
External OS Boot[1]	Available		30C (4LFF SAS); 30C (8NVMe). No support, 23C (10 NVMe)	25C	Available
Alternatives	Direct Liquid Cooling (DLC) Heatsink and High Performance Fan FIO solution, for all processors in 2P Configuration. Support up to 32x256GB DIMM, Internal / external NS204i-u, 10x NVMe (DLC Shipment available in CQ3 2023)				
DIMM blanks	Required, embedded, and shipped as default in all CTO Servers				

Notes:

- [1]Both minimum and maximum limits included (e.g greater or equal to, and up to including).
- [2]Option driven (incl. CPU TDP, DIMM and NIC bandwidth). Options listed below would require Performance Fan kit or Direct Liquid Cooling bundle kit to be implemented.
  - CPU TDP (as above matrix)
  - 256GB DIMM
  - NIC and InfiniBand adapters and OCP cards that go beyond 100GbE/200GbE
  - NVMe storage (even Qty 1)
  - With GPU
  - With hot-plug (external) OS Boot Device NS204i-u
- [3]Recommended with
  A bundle kit supports at two processors configuration only. The kit incl. two processors heatsink, coldplates, closed-loop liquid cooling tubes, raditor and dedicated 4028 fan sets (7ea) as Factory Installation only kits.
- Below configuration are required to apply.
- [4]Intel Open-loop Liquid Cooling CPU (6458Q/ 8470Q) can be operated at or below 23C with Closed-loop Liquid cooling solution, yet only 8xSAS storage can be supported. Or operated at 25C with Closed-loop Liquid cooling solution with NS204i-u, without backplane and storage drives in 8SFF CTO Server.
- DLC solution is required if Intel CPU (6458Q/ 8470Q) are operated at or below 25C without drive support constraint.
- [5]256GB DIMM supports only 1DPC with up to 8 DIMMs per socket due to thermal condition from DIMMs. And 2DPC for 16 GB, 32GB, 64GB and 128GB DIMM with up to 16 DIMMs per socket
- [6]For NIC and InfiniBand PCIe adapters and OCP cards that go beyond 100GbE/200GbE, there will be additional configuration limit or ambient temperature requirements. Please refer to the Networking section.

Cooling Option selection in 20EDSFF CTO Servers						
CPU TDP (Watts)	**125W – 185W**	**186W – 270W**	**271W – 350W**	**271W – 350W**	**350W (LC CPU)[1]**	
CPU Qty (2P only)	2	2	2	2	2	2
Heatsink	Standard (P48904-B21)	High Performance (P48905-B21)	Closed-loop LC Heatsink and Fan FIO Bundle Kit[1] (P48906-B21) **Incl. dual roto r 4028 fans (Qty 7)	Direct Liquid Cooling Heatsink FIO Kit	No support, if Closed-loop LC Heatsink and Fan FIO Bundle Kit (P48906-B21)[1]	Direct Liquid Cooling Heatsink FIO Kit
Fans	High Performance[2] (P48908-B21)	High Performance (P48908-B21)		High Performance (P48908-B21)		High Performance (P48908-B21)
Max DIMM	32x128GB or 16x256GB[5] /1DPC		32x 128 GB	32x 256GB		32x256GB

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Core Options

Networking		Up to 10/25GbE PCIe Adapter or OCP[5]				Up to 10/25 GbE
External N5204i-u	Available		25C (10 EDSFF+10 blanks); 28C (4 EDSFF + 16 blanks) Not support, 20C (20 EDSFF);	Available	No support, 20C (20 EDSFF);	Available
Maximum Qty of E3.s 1T drive	20	20	10EDSFF +10blanks	20	No support, 0 drive	20
Support ambient	30C (no GPU); 25C (Nvidia A2 or L4)	30C (no GPU); 25C (Nvidia A2 or L4)	30C (up to 128GB DIMM, no GPU); No support, require 18C (if any Nvidia A2 or L4 GPU);	30C (256GB DIMM); 30C (Nvidia A2 or L4);	No support, < 20C	30C (256GB DIMM); 30C (Nvidia A2 or L4);
Limitation of EDSFF drive	Only P57807-B21 (HPE 15.36TB NVMe RI E3S EC1 PM1743 SSD) is limited at 25C					
Alternatives	Choice of Direct Liquid Cooling (DLC) Heatsink and Fan FIO solution for all processors in 2P Configuration (Shipment will be available CQ3 2023)					
DIMM Blanks	Required, embedded, and shipped as default in all CTO Servers					

Notes:

- [1]Intel Open-loop Liquid Cooling CPU (6458Q/ 8470Q)
- [2]Incl. dual rotor 4056 fans (Qty 7)
- [3]Incl. 4028 fans (Qty 7)
- [4]256GB DIMM supports only 1DPC with up to 8 DIMMs per socket due to thermal condition
- [5]For NIC and InfiniBand PCIe adapters and OCP cards that go beyond 100GbE/200GbE, there will be additional configuration limit or ambient temperature requirements. Please refer to the Networking section.

Security Options

Serurity Hardware

HPE Bezel Lock Kit — 875519-B21

Notes:

- Maximum 1 of each can be selected
- If Bezel lock is selected, then "HPE DL3XX Gen11 1U Bezel Kit" or "HPE OEM Gen11 1U Bezel KIT" must be selected.

HPE ProLiant DL3XX Gen11 Intrusion Cable Kit — P48922-B21

Notes:

- Maximum 1 of each can be selected.
- If "HPE Trusted Supply Chain FIO Config" is selected then "Gen11 Intrusion Cbl Kit" must be selected.
- If HPE Trusted Supply Chain FIO Config is selected, then Configurator should default "Gen11 Intrusion Cbl Kit".

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Core Options

HPE ProLiant DL3X5 Gen11 1U Common Bezel Kit	P50450-B21

Notes:

- Maximum 1 of each can be selected
- If Bezel lock is selected, then "HPE DL3XX Gen11 1U Bezel Kit" or "HPE OEM Gen11 1U Bezel KIT" must be selected.
- Both "HPE DL3XX Gen11 1U Bezel Kit" and "HPE OEM Gen11 1U Bezel KIT" cannot be selected together.

Software as a Service Management

HPE GreenLake for Compute Ops Management

Base SKU

HPE GreenLake for Compute Ops Management Enhanced 3-year Upfront ProLiant SaaS	R7A11AAE

Upgrade SKUS

HPE GreenLake for Compute Ops Management Enhanced 1-year Upfront ProLiant SaaS	R7A10AAE
HPE GreenLake for Compute Ops Management Enhanced 5-year Upfront ProLiant SaaS	R7A12AAE
HPE GreenLake for Compute Ops Management Enhanced 1-year Monthly ProLiant SaaS	R7A13AAE
HPE GreenLake for Compute Ops Management Enhanced 3-year Monthly ProLiant SaaS	R7A14AAE
HPE GreenLake for Compute Ops Management Enhanced 5-year Monthly ProLiant SaaS	R7A15AAE
HPE GreenLake for Compute Ops Management Enhanced 1-year Quarterly ProLiant SaaS	R7A16AAE
HPE GreenLake for Compute Ops Management Enhanced 3-year Quarterly ProLiant SaaS	R7A17AAE
HPE GreenLake for Compute Ops Management Enhanced 5-year Quarterly ProLiant SaaS	R7A18AAE
HPE GreenLake for Compute Ops Management Enhanced 3-year Annual ProLiant SaaS	R7A19AAE
HPE GreenLake for Compute Ops Management Enhanced 5-year Annual ProLiant SaaS	R7A20AAE

HPE OneView

HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU	E5Y35AAE
HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU	P8B26AAE

Notes: For customers purchasing HPE GreenLake for Compute Ops Management, without a hardware purchase or a BTO purchase, use this base SKU within ASO order:

HPE GreenLake for Compute Ops Management Base SaaS	R6Z73AAE

For more information, visit the HPE GreenLake for Compute Ops Management QuickSpecs:
https://www.hpe.com/psnow/doc/a50004263enw
Supported Servers – CTO only. No OEM. – Complete list can be found here: Latest Supported Server List:
https://www.hpe.com/info/com-supported-servers

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Additional Options

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.

Choose Additional Options

Accessories

Management Hardware

Maximum 1 of each can be selected.

HPE ProLiant DL36X Gen11 Rear Serial Port Cable Kit	P48921-B21
HPE ProLiant DL360 Gen11 SFF System Insight Display Power Module Kit	P48927-B21
Notes: Supported with 8SFF CTO Model only.	
HPE ProLiant DL3X0 Gen11 1U LFF Display Port/USB Kit	P48928-B21
Notes: Supported with 4LFF CTO Model only.	

Manufacturing Services

HPE Remove Standard Power Cords	469774-409

Notes: If "Remove Standard IEC-IEC Power Cords" is selected, then the following Warning message should be displayed: By selecting this option, you will not receive standard power cords with this server. Please verify that no power cords are needed for this server prior to proceeding with your order. If "Remove Standard Power Cords" is selected by mistake, then please make sure to de-select it.

Rack Options

HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit	P52341-B21
HPE Easy Install Rail 5 Kit	P52343-B21
HPE ProLiant DL300 Gen10 Plus 1U Cable Management Arm for Rail Kit	P26489-B21

Notes:

- HPE rail kits contain telescoping rails which allow for in-rack serviceability.
- Rail Kit does not include Cable Management Arm.
- Hewlett Packard Enterprise recommends that a minimum of two people is required for all Rack Server installations.
- Please refer to your installation instructions for proper tools and number of people to use for any installation.
- Maximum 1 of each can be selected.
- If CMA is selected, then Rail kit must be selected.
- [1]Supported with 8SFF CTO Model only.
- [2]Supported with 4LFF CTO & 20EDSFF CTO Models.

vSAN Tracking SKUs

HPE ProLiant vSAN Original Storage Architecture FIO Tracking	P63223-B21
HPE ProLiant vSAN ReadyNode Express Storage Architecture FIO Tracking	P63226-B21

Software RAID

Intel Virtual RAID on CPU Premium FIO Software for HPE	R7J57A

Notes:

- Intel® VROC Premium
- The Intel® VROC Premium is available for RAID support 0, 1, 5, 10 at the field.
- If Intel® VROC Premium is the primary controller, then the following RAID levels are allowed: 0, 1, 5 (available from RAID FIO settings at HPE factory). Requires selection of NVMe Drives through Direct Attach supported with 8SFF CTO Model only.
- If Intel® RAID is being selected in a configuration with VROC and internal controller, then Customer Defined RAID Setting (389692-B21) must be selected.

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Additional Options

Intel Virtual RAID on CPU Premium E-RTU for HPE R7J59AAE

Notes: Same as Intel Virtual RAID on CPU Premium FIO Software for HPE (R7J57A), but intended for field deployments.

Intel Virtual RAID on CPU Standard FIO Software for HPE S0E37A

Notes:

- Intel® VROC Standard
- The Intel® VROC Standard is available for RAID support 0, 1, 5 at the field.
- If Intel® VROC Standard is the primary controller, then only following RAID levels are allowed: 0, 1 (available from RAID FIO settings at HPE factory). Requires selection of NVMe Drives through Direct Attach
- Supported with 8SFF CTO Model only.
- If Intel® RAID is being selected in a configuration with VROC and internal controller, then Customer Defined RAID Setting (389692-B21) must be selected.

Intel Virtual RAID on CPU Standard E-RTU for HPE S0E38AAE

Notes: Same as Intel Virtual RAID on CPU Standard FIO Software for HPE (S0E37A), but intended for field deployments.

GPGPU

NVIDIA A2 16GB PCIe Non-CEC Accelerator for HPE R9H23C

Notes: PCIe 4.0

GPGPU Configuration

Part number	Qty	Cooling	4LFF (14W SAS/SATA)	8+2 SFF (25W NVMe)	8+2 SFF (10W SAS/SATA)	8SFF (25W NVMe)	20EDSFF
Nvidia A2 (R9H23C)	2	High Performance Fan Kit (P48908-B21)	Up to 2x270W CPU, 32x 128GB DIMMs				Up to 2x205W CPU, 32x 128GB DIMMs
			30C	30C	30C	30C	25C
	2	Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit (P48906-B21)	Up to 2x350W CPU, 32x 128GB DIMMs				Up to 2x350W CPU, 32x 128GB DIMMs,
			25C	No support[1]	No support[1]	25C[1]	No support[1]

Notes:

- Mixing of different Graphics Option is not allowed.
- Requires "Increased Cooling" to be selected in BIOS settings (default setting is "Optimal Cooling")
- There is no Energy Star certification with Graphic cards.
- Can support the GPU apapter with Max. length up to 9.5" (full length adapters are not supported) at PCIe Slot 1 and Slot 3. There is mechinal interference from the GPU bracket when installing A2 at Slot2.
- Nvidia GPU A2 will be abailable in all 3 slots (incl. Slot 2) expected in Q4 2023 with new low-profile bracket in the A2 kit.
- If GPU is selected, standard heatsink & stanrd fan kits are not supported.
- [1] Requires high performance fans
- [2] Can be installed at Slot 1 and Slot 3 (if 2nd processor is selected).
- [3] Max 2x350W CPU, 32x128GB DIMM, and max 10SFF, will need to operated at 20C. Will not be a festible configuration to support.
- [4] In 8SFF CTO Model, if the Graphics Option is selected with the Processor that is more than 270W, then Maximum of 8 NVMe/ SAS/ SATAdrives can be selected.
- [5] In EDSFF CTO Model, if the Graphics Option is selected with Processor Wattage is more than 270W, then DLC Module must be selected.

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Additional Options

- If GPU is selected for best performance across common workloads, HPE recommends system main memory at least twice the memory of all GPU.

NVIDIA L4 24GB PCIe Accelerator for HPE S0K89C

GPGPU Configuration

Part number	Qty	Cooling	4LFF (14W SAS/SATA)	8+2 SFF (25W NVMe)	8+2 SFF (10W SAS/SATA)	8SFF (25W NVMe)	20EDSFF
NvidiaLL4 (S0K9C) [1,3]	3	High Performance Fan Kit (P48908-B21)	Up to 2x270W CPU, 32x 128GB DIMMs 30C	30C	30C	30C	Up to 2x225W CPU, 32x 128GB DIMMs 28C
	3	Closed-loop Liquid Cooling Heat Sink Fan FIO Bundle Kit (P48906-B21)	Up to 2x350W CPU, 32x 128GB DIMMs 25C	No support [4]	No support [4]	25C [5]	Up to 2x350W CPU, 32x 128GB DIMMs No support [5]

Notes:

- Mixing of different Graphics Option is not allowed.
- Requires "Increased Cooling" to be selected in BIOS settings (default setting is "Optimal Cooling")
- There is no Energy Star certification with Graphic cards.
- Can support the GPU apapter with Max. length up to 9.5" (full length adapters are not supported) at PCIe Slot 1, 2 and 3. Nvidia GPU L4 will be abailable in all 3 slots.
- If GPU is selected, standard heatsink & stanrd fan kits are not supported.
- [1] Requires high performance fans
- [2] Can be installed at Slot 1, Slot2 and Slot 3 (if 2nd processor is selected).
- [3] Max 2x350W CPU, 32x128GB DIMM, and max 10SFF, will need to operated at 20C. Will not be a festible configuration to support.
- [4] In 8SFF CTO Model, if the Graphics Option is selected with the Processor that is more than 270W, then Maximum of 8 NVMe/ SAS/SATA drives can be selected.
- [5] In EDSFF CTO Model, if the Graphics Option is selected with Processor Wattage is more than 270W, then DLC Module must be selected.
- If GPU is selected for best performance across common workloads, HPE recommends system main memory at least twice the memory of all GPU.

Embedded Management

HPE iLO Advanced

HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features	512485-B21
HPE iLO Advanced Flexible Quantity License with 1yr Support on iLO Licensed Features	512486-B21
HPE iLO Advanced AKA Tracking License with 1yr Support on iLO Licensed Features	512487-B21
HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features	BD505A
HPE iLO Advanced Flexible Quantity License with 3yr Support on iLO Licensed Features	BD506A
HPE iLO Advanced AKA Tracking License with 3yr Support on iLO Licensed Features	BD507A
HPE iLO Advanced Electronic License with 1yr Support on iLO Licensed Features	E6U59ABE
HPE iLO Advanced Electronic License with 3yr Support on iLO Licensed Features	E6U64ABE

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Additional Options

HPE Converged Infrastructure Management Software

HPE OneView Advanced (with HPE iLO Advanced)

HPE OneView including 3yr 24x7 Support Physical 1-server LTU	E5Y34A
HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU	E5Y35AAE

HPE OneView Advanced (without HPE iLO Advanced)

HPE OneView w/o iLO including 3yr 24x7 Support 1-server LTU	P8B24A
HPE OneView w/o iLO including 3yr 24x7 Support Track 1-server LTU	P8B25A
HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU	P8B26AAE

Notes:

- Licenses ship without media. The HPE OneView Media Kit can be ordered separately, or can be downloaded at: **https://www.hpe.com/us/en/integrated-systems/software.html**
- Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.
- Licenses ship without media. The HPE OneView Media Kit can be ordered separately, or can be downloaded at: **https://www.hpe.com/us/en/integrated-systems/software.html**

HPE Racks

- Please see the **HPE Advanced Series Racks** QuickSpecs for information on additional racks options and rack specifications.
- Please see the **HPE Enterprise Series Racks QuickSpecs** for information on additional racks options and rack specifications.

HPE Power Distribution Units (PDUs)

- Please see the **HPE Basic Power Distribution Units (PDU) QuickSpecs** for information on these products and their specifications.
- Please see the **HPE Metered Power Distribution Units (PDU) QuickSpecs** for information on these products and their specifications. Please see the **HPE Intelligent Power Distribution Unit (PDU)** QuickSpecs for information on these products and their specifications.
- Please see the **HPE Metered and Switched Power Distribution Units (PDU)** QuickSpecs for information on these products and their specifications.

HPE Uninterruptible Power Systems (UPS)

- To learn more, please visit the **HPE Uninterruptible Power Systems (UPS)** web page.
- Please see the **HPE DirectFlow Three Phase Uninterruptible Power System QuickSpecs** for information on these products and their specifications.
- Please see the **HPE Line Interactive Single Phase UPS QuickSpecs** for information on these products and their specifications.

HPE Tape Backup

HPE StoreEver LTO-9 Ultrium 45000 External Tape Drive	BC042A

HPE Support Services

Installation & Start-up Services

HPE Install ProLiant DL3xx Service	U4506E
HPE Installation and Startup DL3xx Service	U4507E

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Additional Options

Tech Care

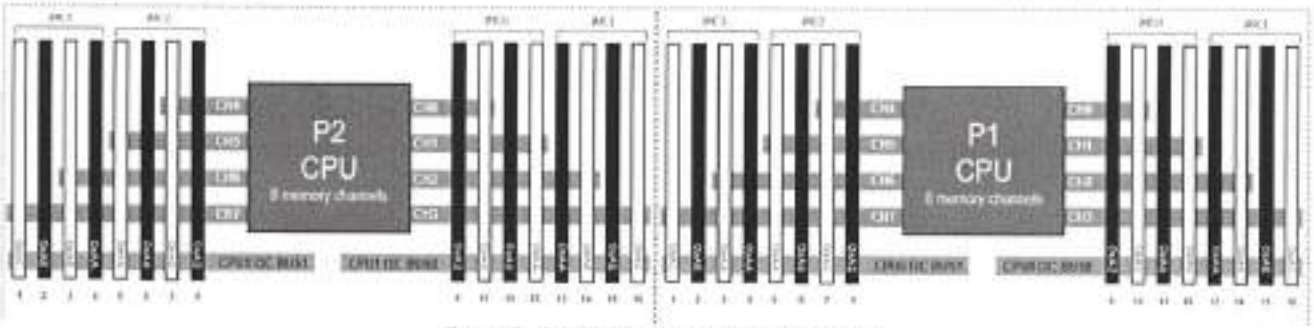
HPE 3 Year Tech Care Essential DL360 Gen11 HW Service	H93B6E
HPE 3 Year Tech Care Essential wDMR DL360 Gen11 HW Service	H93B7E
HPE 5 Year Tech Care Essential DL360 Gen11 HW Service	H93E0E
HPE 5 Year Tech Care Essential wDMR DL360 Gen11 HW Service	H93E1E

Notes: For a full listing of support services available for this server, please visit **http://www.hpe.com/services**.

Cesar Acosta
Director

Memory

Memory Population guidelines



Front End / HPE ProLiant DL360 Gen11

Notes:

- 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 either all DDR5 DIMMs or DDR5 and Crow Pass DIMMs.
- There should be at least one DDR5 DIMM per socket.
- When one DIMM is used in a channel, it must be populated in DIMM slot farthest away from the CPU (DIMM slot 0) of a given channel.
- For 1 6 + 0 configuration with 1R + 2R mixed rank population, on each channel always populated the higher electrical load (2R) in DIMM0 followed by single rank DIMM in DIMM1.
- A maximum of 8 logical ranks (ranks seen by the host) per channel is allowed.
- For a DDR5 DIMM and Crow Pass DIMM in a channel, the DDR5 DIMM must be populated in the farthest DIMM slot (0), while CPS has to be in the nearest slot (1).
- All DIMMs in a Processor socket must have the same number of ranks (unless explicitly specified otherwise).
- x8 DIMMs and x4 DIMMs can not be mixed in the same channel or same Processor socket.
- Mixing of non-3DS and 3DS RDIMMs is not allowed in the same channel, across different channels, and across different sockets.
- 9x4 RDIMMs can not be mixed with another DIMM types (Crow Pass 10x4RDIMMs or Non 9x4 RDIMMs).
- All DDR5 DIMMs must operate at the same speed per Processor socket.
- Rank mixing is not allowed on a channel except for Standard RDIMM 1 Rank + 2 Rank combination, when all 16 DIMMs for a Processor socket is populated.
- Mixing vendor is allowed for RDIMMs, but it is not allowed for 3DS RDIMMS

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Memory

HPE ProLiant Gen11 16 slot per CPU DIMM population order

DIMM population order

DIMM slot	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 DIMM										10						
2 DIMMs[2]			3							10						
4 DIMMs[1]			3				7			10				14		
6 DIMMs			3		5		7			10				14		16
8 DIMMs[1,2]	1		3		5		7			10		12		14		16
12 DIMMs	1	2	3		5	6	7			10	11	12		14	15	16
16 DIMMs[1,2]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Notes:

- Ommited DIMM counts/socket not qualified by Intel.
- [1] Supports SGX (Software Guard Extensions)
- [2] Support Hemi (hemisphere mode).

General Memory Population Rules and Guidelines

- DIMMs should be installed in quantities of even numbers.
- 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.
- When two processors are installed, balance the DIMMs across the two processors.
- White DIMM slots denote the first slot to be populated in a channel.
- Mixing of DIMM types (UDIMM, RDIMM, and LRDIMM) is not supported.
- 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 number of DIMM slots on the platform, the largest DIMM capacity qualified on the platform, and the number and model of installed processors qualified on the platform.
- For details on the HPE Server Memory Options Population Rules, visit:
  Server memory populations rules for HPE Gen11 servers with 4th Gen Intel Xeon Scalable processors

For additional information, please visit the **HPE Memory QuickSpecs and Technical White Papers** or **HPE DDR5 Smart Memory QuickSpecs.**

HPE SKU P/N	P43322-B21	P43328-B21	P43331-B21
SKU Description	HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	HPE 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	HPE 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit
DIMM Capacity	16GB	32GB	64GB
DIMM Rank	Single Rank (1R)	Dual Rank (2R)	Dual Rank (2R)
Voltage	1.1 V	1.1 V	1.1 V
DRAM Depth [bit]	2G	2G	4G
DRAM Width [bit]	x8	x8	x4
DRAM Density	16Gb	16Gb	16Gb
CAS Latency	40-39-39	40-39-39	40-39-39
DIMM Native Speed	4800 MT/s	4800 MT/s	4800 MT/s

Memory

HPE SKU P/N	P43334-B21	P43337-B21
SKU Description	HPE 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit
DIMM Capacity	128GB	256GB
DIMM Rank	Quad Rank (4R)	Octal Rank (8R)
Voltage	1.1 V	1.1 V
DRAM Depth [bit]	4G	4G
DRAM Width [bit]	x4	x4
DRAM Density	16Gb	16Gb
CAS Latency	40-39-39	40-39-39
DIMM Native Speed	4800 MT/s	4800 MT/s

Notes: The maximum memory speed is a function of the memory type, memory configuration, and processor model. For details on the HPE Server Memory speed, visit: **https://www.hpe.com/docs/memory-speed-table**

DDR5 memory options part number decoder

Notes:

- Capacity references are rounded to the common gigabyte (GB) values.
  - 8GB = 8,192 MB
  - 16GB = 16,384 MB
  - 32GB = 32,768 MB
  - 64GB = 65,536 MB
  - 128GB = 131072 MB
  - 256GB = 262144 MB
  - 512GB = 524288 MB

For more information on memory, please see the Memory QuickSpecs: **HPE DDR5 Smart Memory**

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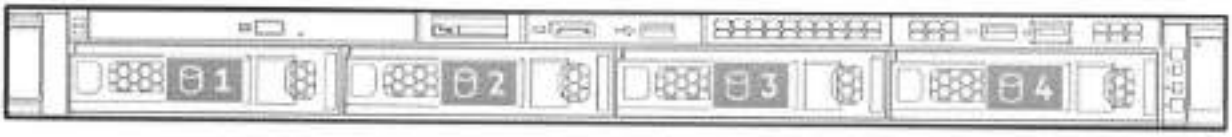
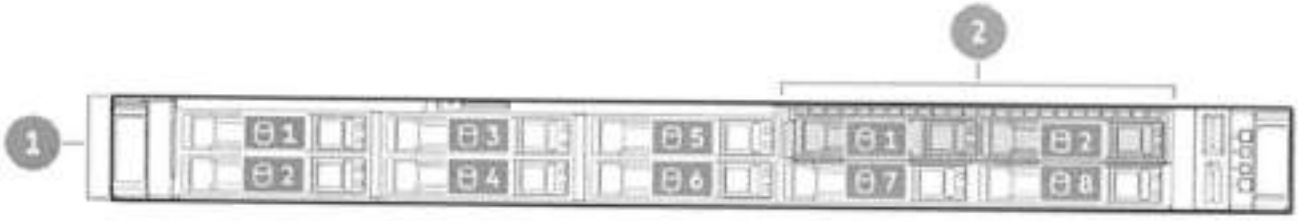
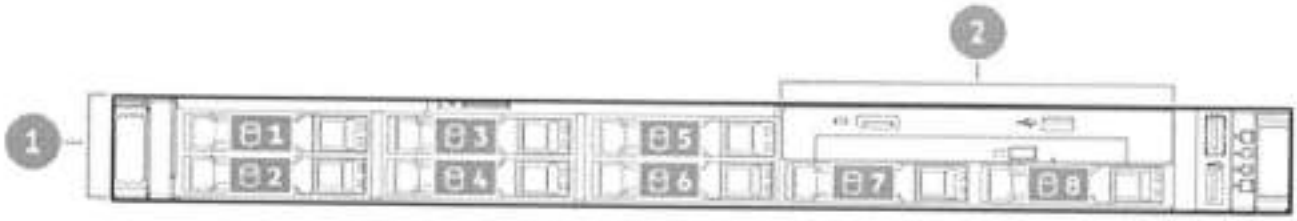
Storage



4 LFF device bay numbering

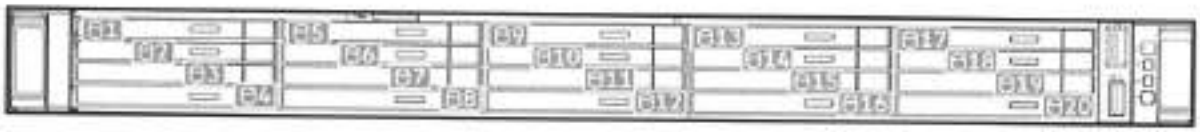


8 SFF + 2 SFF (optional) device bay numbering



8 SFF+ ODD device bay (optional through Media Bay)

Box	Description
1	Bays 1-8
2	Bays 1 and 2



20 EDSFF device bay numbering

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Technical Specifications

System Unit

Dimensions (Height x Width x Depth)

SFF Drives

- 4.29 x 43.46 x 75.31 cm
- 1.69 x 17.11 x 29.65 in

LFF Drives

- 4.29 x 43.46 x 77.31 cm
- 1.69 x 17.11 x 30.43 in

EDSFF Drives

- 4.29 x 43.46 x 77.31 cm
- 1.69 x 17.11 x 30.43 in

Weight (approximate)

- **14.56 kg (32.1 lb)**
  - **SFF minimum**: One drive, one processor, one power supply, two heatsinks, one Smart Array controller, and five fans.
- **20.44 kg (45.07 lb)**
  - **SFF maximum:** Ten drives, two processors, two power supplies, two heatsinks, one Smart Array controller and seven fans.
- **14.95 kg (32.96 lb)**
  - **LFF minimum:** One drive, one processor, one power supply, two heatsinks, one Smart Array controller and five fans.
- **21.58 kg (47.58 lb)**
  - **LFF maximum:** Four drives, two processors, two power supplies, two heatsinks, one Smart Array controller and seven fans.
- **14.75kg (32.51lb)**
  - **EDSFF minimum**: One drive, two processor, one power supply, two heatsinks, one Smart Array controller, and seven fans.
- **21.19kg (46.71lb)**
  - **EDSFF maximum:** Twenty drives, two processors, two power supplies, two heatsinks, one Smart Array controller and seven fans.

Input Requirements (per power supply)

Rated Line Voltage

- For 1600W (Platinum): 200 to 240 VAC
- For 1000W (Titanium): 100 to240 VAC
- For 800W (Platinum): 100 to 240 VAC
- For 800W (Titanium): 100 to 240 VAC
- For 500W (Platinum): 100 to 240 VAC
- For 1600W (-48 VDC): -40 to -72 VdC

British Thermal Unit (BTU) Rating

Maximum

- For 1600W (Platinum) Power Supply: 5918 BTU/hr (at 200 VAC), 5888 BTU/hr (at 220 VAC), 5884 BTU/hr (at 240 VAC)
- For 1000W (Titanium) Power Supply: 3741 BTU/hr (at 100 VAC), 3596 BTU/hr (at 200 VAC), 3582 BTU/hr (at 240 VAC)
- For 800W (Platinum) Power Supply: 3067 BTU/hr (at 100 VAC), 2958 BTU/hr (at 200 VAC), 2949 BTU/hr (at 240 VAC)

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Technical Specifications

- For 1600W (48VDC) Power Supply: 6026 BTU/hr (at -40 VDC), 6000 BTU/hr (at -48 VDC), 5989 BTU/hr (at -72 VDC)
- For 500W (Platinum) Power Supply: 1999 BTU/hr (at 100 VAC), 1912 BTU/hr (at 200 VAC), 1904 BTU/hr (at 240 VAC)

Power Supply Output (per power supply)

Rated Steady-State Power

- For 1600W (Platinum) Power Supply: 1600W (at 240 VAC), 1600W (at 240 VDC) input for China only
- For 1000W (Titanium) Power Supply: 1000W (at 100 VAC), 1000W (at 240 VAC), 1000W (at 240 VDC) input for China only
- For 800W (Platinum) Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 800W (Titanium) Power Supply: 800W (at 200 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 1600W (-48VDC) Power Supply: 1600W (at -40 Vdc), 1600W (at -72Vdc)
- For 500W (Platinum) Power Supply: 500W (at 100 VAC), 500W (at 240 VAC), 500W (at 240 VDC) input for China only

Maximum Peak Power

- For 1600W (Platinum) Power Supply: 1600W (at 240 VAC), 1600W (at 240 VDC) input for China only
- For 1000W (Titanium) Power Supply: 1000W (at 100 VAC), 1000W (at 240 VAC), 1000W (at 240 VDC) input for China only
- For 800W (Platinum) Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 800W (Titanium) Power Supply: 800W (at 200 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 1600W (-48VDC) Power Supply: 1600W (at -40 Vdc), 1600W (at -72Vdc)
- For 500W (Platinum) Power Supply: 500W (at 100 VAC), 500W (at 240 VAC), 500W (at 240 VDC) input for China only

Notes: For more information, pls visit **HPE Flexible Slot Power Supplies**

System Inlet Temperature

- **Standard Operating Support (Level 2 support)**
  10° to 35°C (50° 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 30°C (86°F) or above 27°C (81°F) at 900M.

  10° to 35°C (50° to 95°F) at 900M 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 27°C (81°F) at 900M and 30°C (86°F) at sea level.

  With Standard Operating Support, there shall be no processor performance drop. The approved hardware configurations for this system are listed at the URL **Extended Ambient Temperature Guidelines for HPE Gen11 servers**

- **Extended Ambient Operating Support (Level 3 & Level 4 support)**
  For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft).

  For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft).

Technical Specifications

With Extended Ambient Operating Support, Processor performance drop would be expetced. The approved hardware configurations for this system require the High Performance Fan Kit (P26477-B21) and are listed at the URL: **http://www.hpe.com/servers/ashrae**
System performance may be reduced if operating in the extended ambient operating range or with a fan fault.

- **Non-operating**
  -30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).

Relative Humidity (non-condensing)

- **Operating**
  8% to 90% - Relative humidity (Rh), 28°C maximum wet bulb temperature, non-condensing.
- **Non-operating**
  5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
- **Operating**
  -12°C DP and 8% Rh to 21°C DP 80% – Relative humidity (Rh), 21°C maximum wet bulb temperature, non-condensing.
- **Non-Operating**
  -12°C DP and 8% Rh to 21°C DP 80% - Relative humidity (Rh), 21°C maximum wet bulb temperature, non-condensing.

Altitude

- **Operating**
  3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
- **Non-operating**
  9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

Emissions Classification (EMC)

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center:
https://support.hpe.com/hpesc/public/docDisplay?docLocale=en_US&docId=c03471072

HPE Smart Array

For latest information please refer to the QuickSpecs.

- **HPE Compute MR Gen11 Controllers Quick Spec**
- **HPE Compute SR Gen11 Controllers Quick Spec**

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Technical Specifications

Acoustic Noise

Listed are the declared mean A-Weighted sound power levels (LWA,m), declared average bystander position A-Weighted sound pressure levels (LpAm), and the statistical adder for verification (Kv) is a quantity to be added to the declared mean A-weighted sound power level. LWA,m when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels. Please have your HPE representative provide information from the HPE EMESC website for further technical details regarding the configurations listed below.

Test case	1	2	3	4	5	6	7	8
Idle								
LWA,m	5.1 B	4.7 B	4.7 B	5.0 B	4.7 B	4.7 B	4.7 B	5.2 B
LpAm	37 dBA	35 dBA	36 dBA	37 dBA	36 dBA	36 dBA	36 dBA	38 dBA
Kv	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B
Operating								
LW,m	5.3 B	5.0 B	5.2 B	5.3 B	5.1 B	5.4 B	5.5 B	6.0 B
LpAm	40 dBA	37 dBA	39 dBA	41 dBA	37 dBA	41 dBA	41 dBA	49 dBA
Kv	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B	0.4 B

Notes:

- Acoustics levels presented here are generated by the test configuration only. Acoustics levels will vary depending on system configuration. Values are subject to change without notification and are for reference only.
- The declared mean A-weighted sound power level, LWA,m, is computed as the arithmetic average of the measured.
- A-weighted sound power levels for a randomly selected sample, rounded to the nearest 0.1 B.
- The declared mean A-weighted emission sound pressure level, LpA,m, is computed as the arithmetic average of the measured A-weighted emission sound pressure levels at the bystander positions for a randomly selected sample, rounded to the nearest 1 dB.
- The statistical adder for verification, Kv, is a quantity to be added to the declared mean A-weighted sound power level, LWA,m, such that there will be a 95 % probability of acceptance, when using the verification procedures of ISO 9296, if no more than 6.5 % of the batch of new equipment, has A-weighted sound power levels greater than (LWA,m + Kv).
- The quantity, LWA,c (formerly called LWAd), can be computed from the sum of LWA,m and Kv.
- All measurements made to conform to ISO 7779 / ECMA-74 and declared to conform to ISO 9296 / ECMA-109.
- B, dB, abbreviations for bels and decibels, respectively, where 1 B = 10 dB.
- The results in this declaration apply only to the model numbers listed above when operating and tested according to the indicated modes and standards. A system with additional configuration components or increased operating functionality may increase the noise emission values.
- System under abnormal conditions may increase the noise level, persons in the vicinity of the product [cabinet] for extended periods of time should consider wearing hearing protection or using other means to reduce noise exposure.

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.

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Summary of Changes

Date	Version History	Action	Description of Change
24-Jul-2023	Version 8	Changed	Overview, configuration Information and Core Options sections were updated.
05-Jun-2023	Version 7	Changed	Overview, Pre-configured Models, Additional Options, Storage and Technical Specification sections were updated.
01-May-2023	Version 6	Changed	Overview, Standard Features and Core Options sections were updated.
17-Apr-2023	Version 5	Changed	Overview, Standard features, Pre-configured Models, Core Options
03-Apr-2023	Version 4	Changed	Overview, Standard features, Pre-configured Models, Optional Features, Core Options, Storage, Technical Specifications
06-Mar-2023	Version 3	Changed	Standard features, Configuration Information and Core Options were updated.
06-Feb-2023	Version 2	Changed	Overview, Standard Features, Optional Features, Service Supports, Configuration Information, Core Options, Additional Options and Technical Specifications were updated.
10-Jan-2023	Version 1	New	New QuickSpecs

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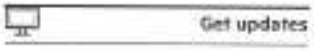
Contact our presales specialists.



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HPE Servers Support & OS Certification Matrices

Citrix XenServer

Support and Certification Matrix

Welcome to HPE's interactive Citrix XenServer Support and Certification webpage for ProLiant and BladeSystem Servers (x86).

Please Note:
Citrix XenServer and Hypervisor are Supported and Certified with in-distro drivers only. All model options and configurations are not necessarily supported. Please contact your HPE representative for more information.

Just click on the server to obtain driver downloads, certification and support information. HPE recommends that our customers update to the latest service packs and security releases from Citrix.

HPE is committed to supporting all customers that install the latest services packs and security releases from Citrix.

Click on the product to obtain product information, downloads, certifications, and documentation.

Legend

- ✓ HPE Supported
- ☑ HPE Supported & OS Partner Certified/Logo
- T HPE Tested: Either the OS or hypervisor was successfully installed on the server
- P Pending HPE support
- P Partner Certification Pending

◉ Current Products ○ Archived Products

Product series

- ▣ All Series
- ☐ [illegible]
- ☐ [illegible]
- ☐ [illegible]
- ☐ [illegible]
- ☐ [illegible]
- ☐ [illegible]
- ☐ [illegible]
- ☐ [illegible]
- ☐ [illegible]

Software version

◉ Hypervisor 8.0, 8.1, 8.2

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Edgeline

Product	Hypervisor 8.0, 8.1, 8.2	
	64-bit Dom0	Technical Requirements
m510 Server Cartridge	☑	
m710x Server Cartridge	☑	

PLEASE NOTE: Cartridge is included in an HPE Edgeline EL4000 or EL1000 Converged IoT System. Not all options used with the Edgeline Converged IoT Systems are supported on all operating systems. Please check the option information for the OS support.

Synergy

Product	Hypervisor 8.0, 8.1, 8.2	
	64-bit Dom0	Technical Requirements
480 Gen10	☑	No CNA adapter support for iSCSI or FCOE, Ethernet only
660 Gen10	☑	No CNA adapter support for iSCSI or FCOE, Ethernet only

BL Series

Product	Hypervisor 8.0, 8.1, 8.2	
	64-bit Dom0	Technical Requirements
BL460c Gen9	☑	No CNA adapter support for iSCSI or FCOE, Ethernet only
BL460c Gen10	☑	No CNA adapter support for iSCSI or FCOE, Ethernet only
BL660c Gen9	☑	No CNA adapter support for iSCSI or FCOE, Ethernet only

DL Series

Product	Hypervisor 8.0, 8.1, 8.2	
	64-bit Dom0	Technical Requirements
DL325 Gen10	☑	• AMD EPYC™ 7xx2 Series Processor Family requires minimum of Hypervisor 8.1 • AMD EPYC™ 7xx1 Series Processor Family requires minimum of Hypervisor 8.0

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Product	Hypervisor 8.0, 8.1, 8.2	
	64-bit Dom0	Technical Requirements
DL325 Gen10 Plus	☑	• Hypervisor 8.1 is the required minimum version for this server • AMD EPYC™ 7xx2 Series Processor Family requires minimum of Hypervisor 8.1
DL325 Gen11	☑	AMD EPYC™ 7xx4 Series Processors require a minimum of Hypervisor 8.2 LTSR CU1
DL325 v2 Gen10 Plus	☑	Hypervisor 8.2 is the required minimum version for this server
DL345 Gen11	☑	AMD EPYC™ 7xx4 Series Processors require a minimum of Hypervisor 8.2 LTSR CU1
DL360 Gen9	☑	certified with Hypervisor 8.2
DL360 Gen10	☑	
DL360 Gen10 Plus	☑	
DL360 Gen11	☑	• Intel® Fourth Generation Xeon® 84xx/64xx/54xx/44xx/34xx Scalable Processors require a minimum of Hypervisor 8.2 LTSR CU1. • Servers with 4 or more sockets, require Hypervisor 8.2 LTSR CU1 using an installation ISO released after Jun 1, 2023. • Requires HPE BIOS Version: 1.40_06-29-2023 (20 Jul 2023) or later. +
DL365 Gen10 Plus	☑	Hypervisor 8.2 is the required minimum version for this server
DL365 Gen11	☑	AMD EPYC™ 7xx4 Series Processors require a minimum of Hypervisor 8.2 LTSR CU1
DL380 Gen9	☑	
DL380 Gen10	☑	
DL380 Gen10 Plus	☑	
DL380 Gen11	☑	• Intel® Fourth Generation Xeon® 84xx/64xx/54xx/44xx/34xx Scalable Processors require a minimum of Hypervisor 8.2 LTSR CU1. • Servers with 4 or more sockets, require Hypervisor 8.2 LTSR CU1 using an installation ISO released after Jun 1, 2023. • Requires HPE BIOS Version: 1.40_06-29-2023 (20 Jul 2023) or later.
DL385 Gen10	☑	• AMD EPYC™ 7xx2 Series Processor Family requires minimum of Hypervisor 8.1

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Product	Hypervisor 8.0, 8.1, 8.2	
	64-bit Dom0	Technical Requirements
		• AMD EPYC™ 7xx1 Series Processor Family requires minimum of Hypervisor 8.0
DL385 Gen10 Plus	☑	• Hypervisor 8.1 is the required minimum version for this server • AMD EPYC™ 7xx2 Series Processor Family requires minimum of Hypervisor 8.1
DL385 Gen11	☑	AMD EPYC™ 7xx4 Series Processors require a minimum of Hypervisor 8.2 LTSR CU1
DL385 v2 Gen10 Plus	☑	Hypervisor 8.2 is the required minimum version for this server
DL560 Gen10	☑	
DL580 Gen10	☑	

ML Series

Product	Hypervisor 8.0, 8.1, 8.2	
	64-bit Dom0	Technical Requirements
ML350 Gen11	☑	• Intel® Fourth Generation Xeon® 84xx/64xx/54xx/44xx/34xx Scalable Processors require a minimum of Hypervisor 8.2 LTSR CU1. • Servers with 4 or more sockets, require Hypervisor 8.2 LTSR CU1 using an installation ISO released after Jun 1, 2023. • Requires HPE BIOS Version: 1.40_06-29-2023 (20 Jul 2023) or later.

Alletra Series

Product	Hypervisor 8.0, 8.1, 8.2	
	64-bit Dom0	Technical Requirements
Alletra 4110	☑	Intel® Fourth Generation Xeon® 84xx/64xx/54xx/44xx/34xx Scalable Processors require a minimum of Hypervisor 8.2 LTSR CU1.
Alletra 4120	☑	Intel® Fourth Generation Xeon® 84xx/64xx/54xx/44xx/34xx Scalable Processors require a minimum of Hypervisor 8.2 LTSR CU1.

WS Series

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Product	Hypervisor 8.0, 8.1, 8.2	
	64-bit Dom0	Technical Requirements
WS460c Gen9	☑	

XL Series (Apollo Family)

Product	Hypervisor 8.0, 8.1, 8.2	
	64-bit Dom0	Technical Requirements
XL170r Gen9 (Apollo 2000)	☑	
XL170r Gen10 (Apollo 2000)	☑	
XL190r Gen10 (Apollo 2000)	☑	
XL225n Gen10 Plus (Apollo 2000)	☑	• AMD EPYC™ 7xx2 Series Processor Family requires minimum of Hypervisor 8.1 • AMD EPYC™ 7xx3 Series Processor Family requires a minimum of Hypervisor 8.2
XL420 Gen10 Plus (Apollo 4200)	☑	

United States

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