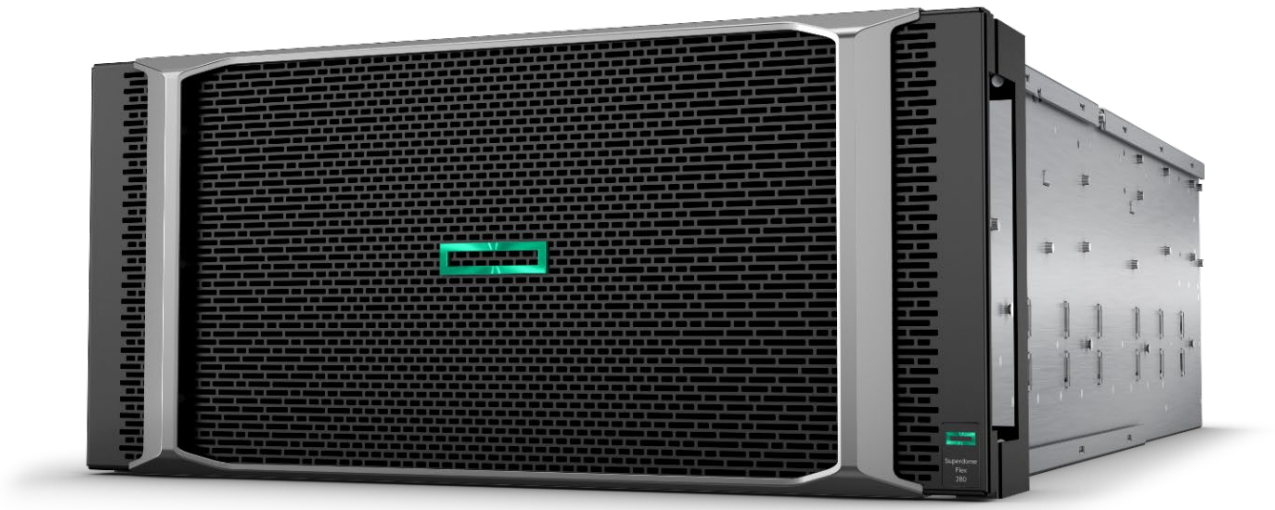
Overview

HPE Superdome Flex 280 Server

The Ultimate x86 based Mission-critical Platform

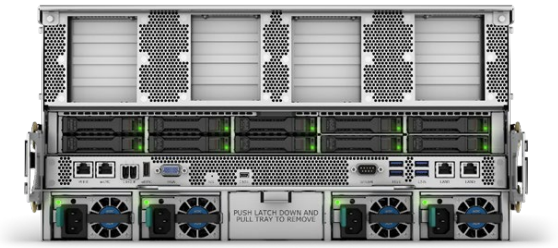
The HPE Superdome Flex 280 is a new model in the HPE Superdome Flex family of servers. It is a highly scalable, reliable and secure server that starts at 2 and scales up to 8 powerful 3rd generation Intel® Xeon® Scalable Processors. Its modular architecture scales cost-efficiently to meet future growth. With 6 UPI links per processor, it provides higher bandwidth and faster data rates than prior generations[1]. Designed to support 64GB–24TB of shared memory, it is an ideal choice for in-memory data analytics. Customers can choose between high-performance all-DRAM systems or a combination of DRAM and Persistent Memory with Intel® Optane™ persistent memory 200 series, depending on workload requirements. Extreme Superdome RAS including advanced memory resiliency, "firmware first", analysis engine, and auto self-healing ensures the highest reliability for mission critical apps. Superior security, including Silicon Root of Trust, protects your workloads and data against firmware attacks and malware. Optional deployment with HPE GreenLake provides flexible as-a-service consumption while maintaining on-premise control.

Notes: [1]The 3rd generation Intel Xeon Scalable processor architecture delivers six UPI links, twice than the 2nd generation Intel Xeon Scalable processor architecture. Maximum data rate is 3200 MT/s @ 1DPC, 9% higher than with 2nd generation Intel Xeon Scalable processors



HPE Superdome Flex 280 Server

Overview



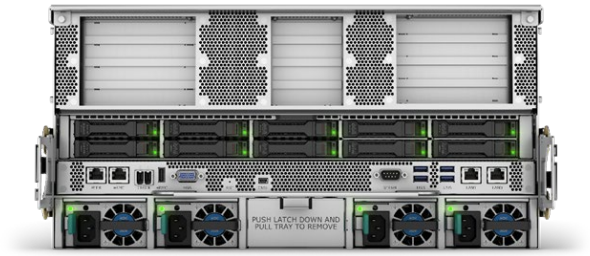
Base Chassis rear view (16-slot)

16 x LP PCIe I/O slots

10 x HDD/SSD bays

2 x 1GbE Ethernet ports

4 x Power supplies



Base Chassis rear view (12-slot)

12 x FH/LP PCIe I/O slots

10 x HDD/SSD bays

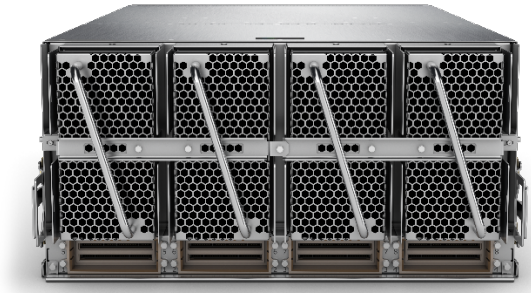
2 x 1GbE Ethernet ports

4 x Power supplies

Storage Backplane 10 x 2.5” SFF drive bays

Storage Backplane 8 x 2.5” SFF drive bays

Storage Backplane 8 x 2.5” SFF drive bays and optional DVD



Base chassis front view

8 x Cooling Fans with handles

8 x UPI Connectors

Overview

At a Glance Features

HPE Superdome Flex 280 is designed to power data-intensive departmental and edge applications, critical applications in the core, and specialized HPC and AI workloads. It offers:

- Support for 2 to 8-sockets of Intel Xeon Scalable processors in a single system with up to 28-cores per socket for a maximum of 224 cores
- 6 UPI links per socket providing unparalleled bandwidth and performance
- 48 DIMM slots of DDR4 memory per chassis
- 64GB – 24TB of shared memory
- Choice of high performance DRAM only, or with a combination of DRAM and Persistent Memory available in 128GB,256GB and 512GB kits featuring Intel® Optane™ Persistent Memory Series 200 to meet individual workload requirements. Superdome Flex 280 supports only App-direct Mode for Persistent Memory
- 16 half-height IO slots, or 8 full-height + 4 half-height IO slots, per four-socket chassis
- Base IO includes support for 8 SATA drives via VROC, two 1GbE NIC ports, four USB ports, Management LAN
- Internal storage up to 10 drive bays, or 8 drives and optional DVD
- Superdome Flex 280 Error Analysis Engine for better diagnostics and mission-critical reliability

General

The Superdome Flex 280 system is built using 4-socket capable, 5U chassis that are cabled together to create systems from 2/4-sockets (1 chassis) to 6/8 sockets (2 chassis). Each chassis supports 8 fans, 4 power supplies, associated power cords, and connecting UPI cables.

Power Supply (1600W)

80PLUS Titanium Power Supply		
Loading	100% maximum	50% of maximum
Minimum Efficiency	91%	96%

Rated Specifications	Value	Units
Input Voltage	100-127/200-240	Volts
Input Current	12/9.5	Amps
Input Frequency	47-63	Hz
Rated Output Power	1600	Watts

Notes:

- Absolute minimum efficiency at 50% of load = 96%
- System configuration defaults to a kit of that contains 2 power supplies. Additional kit with 2 power supplies is available and recommended if N=N is required
- Optional 2130W Premium Power Supply is available

Power Supply (2130W) Optional

80PLUS Titanium Power Supply		
Loading	100% maximum	50% of maximum
Minimum Efficiency	91%	96%

Rated Specifications	Value	Units
Input Voltage	200-240	Volts
Input Current	13	Amps
Input Frequency	47-63	Hz
Rated Output Power	2130	Watts

Notes:

- Premium Power supply output voltage will persist across 20ms AC Line Dropout
- Premium Power supply enables broader range of configurations at N+N redundancy

Overview

- System configuration defaults to a kit of that contains 2 power supplies. Additional kit with 2 power supplies is available and recommended if N=N is required
- Premium Power supply may be required for N+N support when adding GPUs

System

The system can support up to two (2) chassis.
Notes: Ordering rules can be found in the Superdome Flex 280 server menu and in the ordering and configuration tools.

Chassis

Each chassis has the following specifications:

- Support for four (4) Intel Xeon Scalable processors
- Supports 48 DDR4 DIMM slots (12 DIMMs per processor)
- Supports up to 16 PCIe Gen 3 slots
- Supports additional IO capability in a Base IO chassis

Base and expansion chassis

- Every Superdome Flex 280 system starts with one 4-socket capable Base Chassis (with boot support). Up to one (1)
- Expansion Chassis can be added to expand the system from 2/4-sockets to 6/8-sockets.

Standard Features

Processors

Each server chassis supports four (4) Intel® Xeon® Scalable processors:

- Intel Xeon-Platinum 8380H (2.9GHz/28-core/250W) Processor
- Intel Xeon-Platinum 8380HL (2.9GHz/28-core/250W) Processor
- Intel Xeon-Platinum 8376H (2.6GHz/28-core/205W) Processor
- Intel Xeon-Platinum 8376HL (2.6GHz/28-core/205W) Processor
- Intel Xeon-Platinum 8360H (3.0GHz/24-core/225W) Processor
- Intel Xeon-Platinum 8360HL (3/0GHz/24-core/225W) Processor
- Intel Xeon-Platinum 8356H (3.9GHz/8-core/190W) Processor
- Intel Xeon-Platinum 8354H (3.1GHz/18-core/205W) Processor
- Intel Xeon-Platinum 8353H (2.5GHz/18-core/150W) Processor
- Intel Xeon-Gold 6348H (2.3GHz/24-core/165W) Processor
- Intel Xeon-Gold 6330H (2.0GHz/24-core/150W) Processor
- Intel Xeon-Gold 6328H (2.8GHz/16-core/165W) Processor
- Intel Xeon-Gold 6328HL (2.8GHz/16-core/165W) Processor
- Intel Xeon-Gold 5320H (2.4GHz/20-core/150W) Processor
- Intel Xeon-Gold 5318H (2.5GHz/18-core/150W) Processor

Notes:

- Platinum processors are required to scale to 8 sockets
- All processors within a system and chassis must be identical
- "H" designation signifies maximum memory capacity is 1.125TB per socket. "HL" designation is used for memory maximum greater than 1.125TB per socket and up to 4.5TB per socket

Chipset

Intel C621 Chipset

Notes: For more information regarding Intel® chipsets, please see the following URL:
http://www.intel.com/products/server/chipsets/

Upgradability and scalability

Scalable from 2-socket configurations to 8-socket configurations.

Memory type Registered

- 32GB 2Rx4 DDR4-3200 Registered DIMM
- 64GB 2Rx4 DDR4-3200 Registered DIMM
- 64GB 4Rx4 DDR4-2933 Load Reduced DIMM
- 128GB 4Rx4 DDR4-3200 Load Reduced DIMM
- 256GB 8Rx4 DDR4-3200 3DS Load Reduced DIMM

Memory protection

- Error checking and correcting (ECC) on memory and caches; ADDDC is supported.
- Fast Fault Tolerance (custom enhanced ADDDC)

Operating System

- Red Hat Enterprise Linux (RHEL) including KVM support
- SUSE Linux Enterprise Server (SLES) including KVM Support
- Oracle Linux/Oracle UEK

Standard Features

- VMware
- Microsoft Windows Server 2016 Standard and Datacenter including Hyper-V Support
- Microsoft Windows Server 2019 Standard and Datacenter including Hyper-V Support
- Microsoft Windows Server 2022 Standard and Datacenter including Hyper-V Support
- Microsoft Windows Server 2025 Standard and Datacenter including Hyper-V Support

Notes:

- HPE Foundation Software is required for all Linux O/S environments
- SLES, RHEL, and Oracle Linux certifications include KVM certification
- Minimum OS levels may be required for certain features and hardware options

For I/O support by Operating System see below table:

Product SKU	Description	Windows 2019	Windows 2022	Windows 2025	RHEL 8	RHEL 9	SLES 15	VMWare	Oracle/UEK
P06250-H21	HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe3 x16 MCX653105A-ECAT Adapter	-	E	E	X	X	X	-	-
P06251-H21	HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe3 x16 MCX653106A-ECAT Adapter	-	E	E	X	X	X	-	-
P06154-H21	HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe3 x16 MCX653105A-HDAT Adapter	-	E	E	X	X	X	-	-
817753-B21	HPE Ethernet 10/25Gb 2-port SFP28 MCX4121A-ACUT Adptr	X	X	X	X	X	X	X	-
P26262-B21	HPE Ethernet 10/25Gb 2-port SFP28 BCM57414 Adapter	X	X	X	X	X	X	X	X
813661-B21	HPE Ethernet 10Gb 2-port BASE-T BCM57416 Adapter	X	X	X	X	X	X	X	X
P08421-B21	HPE Ethernet 10Gb 2-port SFP+ BCM57414 Adapter	X	X	X	X	X	X	X	X
817738-B21	HPE Ethernet 10Gb 2-port BASE-T X550-AT2 Adapter	X	X	X	X	X	X	X	X
727055-B21	HPE Ethernet 10Gb 2-port SFP+ X710-DA2 Adapter	X	X	X	X	X	X	X	X
811546-B21	HPE Ethernet 1GbE 4p BASE-T I350 Adptr	X	X	X	X	X	X	X	X
874253-B21	HPE Ethernet 100Gb 1-port QSFP28 MCX515A-CCAT Adapter	X	X	X	X	X	X	X	-
Q0L13A	HPE SN1200E 16Gb Single Port Fibre Channel Host Bus Adapter	X	X	X	X	X	X	X	X
P9D93A	HPE SN1100Q 16Gb Single Port Fibre Channel Host Bus Adapter	X	X	X	X	X	X	X	X
P9D94A	HPE SN1100Q 16Gb Dual Port Fibre Channel Host Bus Adapter	X	X	X	X	X	X	X	X
Q0L14A	HPE SN1200E 16Gb Dual Port Fibre Channel Host Bus Adapter	X	X	X	X	X	X	X	X
R2J62A	HPE SN1610E 32Gb 1-port Fibre Channel Host Bus Adapter	X	X	X	X	X	X	X	X

Standard Features

Product SKU	Description	Windows 2019	Windows 2022	Windows 2025	RHEL 8	RHEL 9	SLES 15	VMWare	Oracle/UEK
R2E08A	HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter	X	X	X	X	X	X	X	X
R2J63A	HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter	X	X	X	X	X	X	X	X
R2E09A	HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter	X	X	X	X	X	X	X	X
R7N77A	HPE SN1700E 64Gb 1-port Fibre Channel Host Bus Adapter	X	X	X	X	X	X	X	X
R7N86A	HPE SN1700Q 64Gb 1-port Fibre Channel Host Bus Adapter	X	X	X	X	X	X	X	X
R5Y72A	HPE SD Flex 280 SR3162-8i/e Controller	X	X	X	X	X	X	X	X
R4R47A	HPE SD Flex 280 SR3154-16i Controller	X	X	X	X	X	X	X	X
R4R48A	HPE SD Flex 280 SR3154-24i Controller	X	X	X	X	X	X	X	X
R4R52A	HPE SR3258p-32i/e PCIe4 Controller	X	X	X	X	X	X	X	X
Q6M15A	HPE 3154-8e RAID Controller (external)	X	X	X	X	X	X	X	X
R4R49A	Broadcom MR 9560-16i Ctrl SD Flex 280	X	X	X	X	X	X	X	X
R5Y74A	Broadcom MR 9560-8i Ctrl SD Flex 280	X	X	X	X	X	X	X	X
R9S37C	NVIDIA A40 48GB GPU NONCEC Accelerator	-	X	-	X	X	X	X	-
R9S38C	NVIDIA A30 24GB PCIe NonCEC Accelerator	-	X	-	X	X	X	X	-
R9S41A	NVIDIA H100 80GB PCIe Accelerator	-	X	-	-	X	X	-	-
S0K90C	NVIDIA L40 48GB PCIe Accelerator	-	X	-	-	X	X	-	-
S0K89C	NVIDIA L4 24GB PCIe Accelerator	-	X	-	-	X	X	-	-
S2D86C	NVIDIA H100 NVL 94GB PCIe Accelerator for HPE	-	X	-	-	X	X	X	-

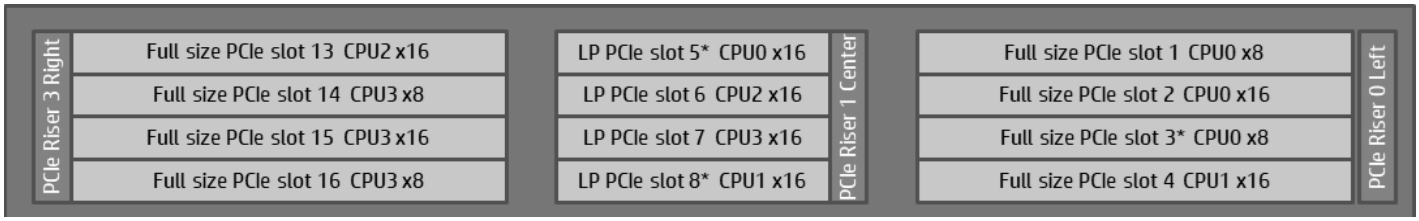
Notes:

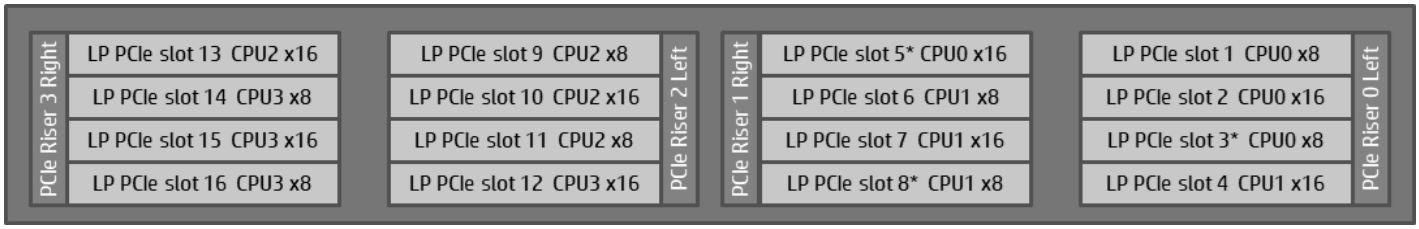
- X = Supported
- E = Ethernet Mode Only
- Minimum OS levels are required for support of some processors and options
- HPE Superdome Flex 280 I/O Oracle Linux Support: Hewlett Packard Enterprise only supports the use of in distribution drivers with Oracle Linux and UEK update releases. All controllers tested above used the driver located on the source media for their respective Oracle product. Out of distribution drivers are not supported with Oracle Linux, or UEK.
- HPE Superdome Flex 280 I/O VMware Support: I/O configurations with VMware must adhere to the “vSphere Configuration Maximums” as documented by VMware per controller type and manufacturer.
- For more information on the HPE Certified and Supported Hewlett Packard Enterprise servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: **http://www.hpe.com/info/ossupport**

Standard Features

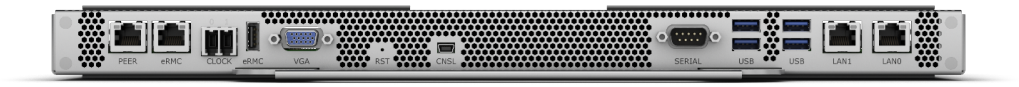
I/O Slots

Chassis support either 16 half-height PCIe slots (8 x16 slots and 8 x8 slots); 12 slots with eight-full height slots (4 x16 slots and 4 x8 slots) + 4 half-height slots (4 x16 slots); or a compute-only configuration (no PCIe slots). The compute-only configuration is only supported with the Expansion Chassis.





Base I/O



Base Chassis Base I/O

- One RJ45 GigE management port (PEER)
- One Reset switch
- One RJ45 GigE eRMC port
- One BMC console (mini USB-B)
- Two RJ.5 Clock ports
- One serial port (9-pin Dsub)
- One eRMC USB port
- Four external USB 3.0 ports
- One VGA port (15-pin Dsub
- Two 1GigE ports (LAN0 and LAN1)

Expansion Chassis BMC Tray

- One RJ45 RMC management port (PEER)
- One RST Port
- Two RJ.5 Clock ports
- One SMC/BMC console (mini USB-B)

Form Factor

5U Base Chassis or Expansion Chassis

Standard Features

High availability-standard server features

- 2N (N+N) redundant (1600W) power supplies reduced to N+1 when GPUs are included
  Notes: When using the 2130W Premium power supply N+N with GPU is available
- N+1 fans (or greater depending on the load)
- Hot-Swappable and redundant fans, power supplies
- Enhanced MCA Gen2 recovery
- ADDDC memory options
- SATA RAID 5 support
- ECC, re-tries, and Link Width Reduction on data paths
- Automatic de-configuration of DIMMs. Processor de-configuration
- I/O Advanced Error Recovery, and Live Error Recovery
- Redundant network paths
- Redundant Fibre Channel paths

Standard Warranty

Three-year parts, 3 Year Labor and 3 Year on-site limited global warranty.

Protected by HPE Services operational services and a worldwide network of Hewlett Packard Enterprise Authorized Channel Partners.

Hewlett Packard Enterprise branded hardware and options qualified for the HPE Superdome Flex 280 Server are covered by a global limited warranty and supported by HPE Services and a worldwide network of HPE Authorized Channel Partners. The HPE branded hardware and options diagnostic support and repair is available for three years from date of purchase, or the warranty length of the server they are attached to, whichever is greater. Additional support may be covered under the warranty or available through additional support packages. Enhancements to warranty services are available through HPE Services operational services or customized service agreements.

Additional information regarding worldwide limited warranty and technical support is available at:
https://support.hpe.com/hpsc/doc/public/display?docId=c01865770

Physical and Environmental Information

Systems are comprised of the following components: Base chassis plus Expansion chassis.

Enclosure

The system can be field racked. However, it is strongly recommended that customers order the systems racked from the factory. This provides the customer the benefit of extensive system testing and avoids possible premium service charges for field racking service. Field racking requires the use of an appropriate material lift capable of lifting 80+ lbs.

Systems are supported in the HPE 600mm wide and 800mm wide racks, and the HPE D-rack. Rack availability is dependent on size of system complex.

Other products may be placed in the same rack as the system. Placement of these other products must not result in moving the server chassis.

All racks in the same order must be the same height and width.

Standard Features

Hardware Configuration	
Number of chassis (min/max) per compute system	1/2
Number of processor modules per compute system (min/max)	2/4/6/8
Number of DIMMs (min/max)	1, 4, 6 or 12 per socket
Number of I/O slots	16 Low Profile per chassis Or 8 Full Height and 4 Low Profile per chassis Or Compute only 0-slot (Expansion Chassis only)
Number of eRMCs	1
Number of Base IO	1
SAS/SATA drives per Chassis	Up to 10
DVD module per Base IO	1 (depending on number of drives)
Fans	8 per chassis
Power Supplies (1600W or 2130W)	2N: 4 per chassis

The system is supported in the HPE 600mm and 800mm series racks and the HPE D-rack with a standard rack door.

Configuration Rules

The chassis is the basic building block.

- A single system can be supported in 1-Chassis to 2-Chassis configurations. An embedded Rack Management Controller (eRMC) is included with Base chassis.
- Each system starts with one (1) Base Chassis. Up to one (1) Expansion Chassis can be added to scale the system.
- There are single phase and three phase power distribution options.
- All processors within a system must be of the same processor type
- Boot devices should be in slot 3
- Alternate boot devices should be in slot 5 or 8

Racking Choices

Superdome Flex 280 can be racked in many of the HPE G2 Enterprise Series and Advanced Series racks, and the HPE D-Rack. Complete ordering rules can be found in the Superdome Flex 280 server menu and in the ordering and configuration tools.

The Superdome Flex 280 can also be rack mounted in 3rd party rack. Specific rules and guidelines for this are available here: **https://support.hpe.com/hpsc/doc/public/display?docId=emr_na-a00043156en_us&docLocale=en_US**

The following racks are supported with Superdome Flex 280—refer to the server menu for ordering and configuration rules:

- HPE 22U 600x1075mm Adv G2 Shck Rack
- HPE 36U 600x1075mm Adv G2 Kit Shock Rack
- HPE 42U 600x1200mm Adv G2 Kit Shock Rack
- HPE 42U 600x1075mm Adv G2 Kit Shck Rack
- HPE 42U 600x1075 Ent G2 Shock Rack
- HPE 42U 600x1200 Ent G2 Shock Rack
- HPE 42U 800x1075 Ent G2 Shock Rack
- HPE 42U 800x1200 Ent G2 Shock Rack
- HPE 48U 600x1075 Ent G2 Shock Rack
- HPE 48U 600x1200 Ent G2 Shock Rack
- HPE 48U 800x1075 Ent G2 Shock Rack
- HPE 48U 800x1200 Ent G2 Shock Rack
- HPE 42U 610mm x 1156mm D-Rack
- HPE D-Rack 42U 610mm x 1156mm Extended

Standard Features

The default assumption is that chassis are loaded in the rack at the bottom. It is recommended that 1U is left below the bottom of the compute enclosure in the 42U rack to provide PDU and cabling exit space.

Supported configurations have the system located at the bottom of the rack with peripherals located above all chassis.
Notes: On some rack and PDU combinations, a power bar rack mounting bracket (R9H01A or R9H02A) will be added automatically

HPE G2 Enterprise Series Racks QuickSpecs:
https://www.hpe.com/h20195/v2/GetDocument.aspx?docname=a00002907enw

HPE G2 Advanced Series Racks QuickSpecs:
https://www.hpe.com/h20195/v2/GetDocument.aspx?docname=c05324689

PDU Model	Region	Power Phase	Input Voltage Range	Input Current	Circuit Breakers	Input Plug Type	Input Cord Length	Outlet	Dimensions
H7C28A	NA/JP	Three	200 - 240V	48A derated	9 x 20A	IEC 60309/ 460P9W	12'	21 x IEC320 C13	32.5"H x 2.5"W x 6.25"D
H7C29A	INTL	Three	380 - 420V	32A	9 x 20A	IEC 60309/ 532C6W	12'	21 x IEC320 C13	32.5"H x 2.5"W x 6.25"D
H7C30A	NA/JP	Single	200 - 240V	24A derated	2 x 20A	NEMA L6-30	12'	8 x IEC320 C13	15"H x 1.75"W x 2.5"D
H7C31A	INTL	Single	200 - 240V	32A	2 x 20A	IEC 60309/ 332C6W	12'	8 x IEC320 C13	15"H x 1.75"W x 2.5"D
H7C32A	AUS	Single	200 - 240V	32A	2 x 20A	56PA332	12'	8 x IEC320 C13	15"H x 1.75"W x 2.5"D

HPE D-Rack

The HPE D-Rack is available for Superdome Flex 280 in two models:

- HPE 42U 610mm x 1156mm D-Rack (H7C27A)
- HPE D-Rack 42U 610mm x 1156mm Extended (Q2T97A) The extended rack includes a 2U extension for a total of 44 rack units (44U).

The following PDUs are supported with the HPE D-Rack:

- HPE D-Rack 21 x 3-Phase 240V NA/JP PDU (H7C28A) Order 2 PDUs for 1-4 SD Flex 280 chassis in rack; Order 4 PDUs for 5-8 SD Flex 280 chassis in rack
- HPE D-Rack 21 x 3-Phase 400V INTL PDU (H7C29A) Order 2 PDUs for 1-4 SD Flex 280 chassis in rack; Order 4 PDUs for 5-8 SD Flex 280 chassis in rack
- HPE D-Rack 8 x Single-Phase 240V NA PDU (H7C30A) Order 2 PDUs per chassis for 1-4 SD Flex 280 chassis in rack; Order 1 PDU per chassis for 5-8 SD Flex 280 chassis in rack
- HPE D-Rack 8 x Single-Phase 240V INTL PDU (H7C31A) Order 2 PDUs per chassis for 1-4 SD Flex 280 chassis in rack; Order 1 PDU per chassis for 5-8 SD Flex 280 chassis in rack
- HPE D-Rack 8 x Single-Phase 240V AU PDU (H7C32A) Order 2 PDUs per chassis for 1-4 SD Flex 280 chassis in rack; Order 1 PDU per chassis for 5-8 SD Flex 280 chassis in rack
- HPE G2 Basic 3Ph 8.6kVA/5-20R NA/JP PDU (P9Q55A), configuration specific rules apply
- HPE G2 Basic Mdlr 3Ph 17.3kVA/NA/JP PDU (P9Q60A), configuration specific rules apply
- HPE G2 Basic Mdlr 3Ph 22kVA/C19 INTL PDU (P9Q63A), configuration specific rules apply
- HPE G2 Basic Mdlr 14.4kVA/C19 INTL PDU (P9Q51A), configuration specific rules apply

Standard Features

Dimensions for a single 24-inch wide 42U rack	Height: 78.75 in. (200 cm)
	Width: 24.0 in. (60.9 cm)
	Depth: 46.0 in. (116.8 cm)
Shipping dimensions (single rack)	Height: 88.88 in. (225.8 cm)
	Width: 44.0 in. (111.8 cm)
	Depth: 62.75 in. (159.4 cm)
Weight (single rack)	386 lb. (175.1 kg)
Shipping weight (single rack)	856 lb. (388.3 kg)
Static load (max)	2400 lb. (1088.6 kg)
Dynamic load (max rolling)	2500 lb. (1134kg)
42U rack access requirements	Front: 48 in. (121.9 cm)
	Rear: 48 in. (121.9 cm)
	Top: 18 in. (45.7 cm)

HPE Power Advisor

The HPE Power Advisor is a tool provided by Hewlett-Packard to assist in the estimation of power consumption at a system, rack, and multi-rack level.

Available at: **https://paonline56.itcs.hpe.com**

Processor Support

Superdome Flex 280 systems support Intel® Xeon® 3rd Generation 83XX, 63XX and 53xx processors as specified in the following table.

Notes: Minimum OS levels are required for support of some processors and options

Processor suffix	Description	Offering
H	Standard Memory Tier	Up to 1.125TB memory per socket
HL	Large Memory Tier	Up to 4.5TB memory per socket

Notes: Maximum memory per socket includes DDR4 memory + Persistent memory within the system

Supported Processor Matrix				
Intel® Xeon® Scalable Processor Family 3rd Generation				
Processor	**# of cores per processor**	**Frequency**	**Cache**	**Power**
Intel® Xeon® Platinum 8380H Processor	28c	2.9 GHz	38.5 MB	250W
Intel® Xeon® Platinum 8380HL Processor	28c	2.9 GHz	38.5 MB	250W
Intel® Xeon® Platinum 8376H Processor	28c	2.6 GHz	38.5 MB	205W
Intel® Xeon® Platinum 8376HL Processor	28c	2.6 GHz	38.5 MB	205W
Intel® Xeon® Platinum 8360H Processor	24c	3.0 GHz	33 MB	225W
Intel® Xeon® Platinum 8360HL Processor	24c	3.0 GHz	33 MB	225W
Intel® Xeon® Platinum 8356H Processor	8c	3.9GHz	35.75 MB	190W
Intel® Xeon® Platinum 8354H Processor	18c	3.1 GHz	24.75 MB	205W
Intel® Xeon® Platinum 8353H Processor	18c	2.5 GHz	24.75 MB	150W
Intel® Xeon® Gold 6348H Processor	24c	2.3 GHz	33 MB	165W
Intel® Xeon® Gold 6330H Processor	24c	2.0 GHz	33 MB	150W
Intel® Xeon® Gold 6328H Processor	16c	2.8 GHz	22 MB	165W
Intel® Xeon® Gold 6328HL Processor	16c	2.8 GHz	22 MB	165W
Intel® Xeon® Gold 5320H Processor	20c	2.4 GHz	27.5 MB	150W
Intel® Xeon® Gold 5318H Processor	18c	2.5 GHz	24.75 MB	150W

Standard Features

Processor Mixing Support

Governing rules for mixing processors are as follows:

- No mixing of processor types within the same system

DDR4 Memory Support

Systems will use DDR4 DIMM technology.

The following DIMMs are supported in the chassis:

- 32GB 2Rx4 DDR4-3200 Registered DIMM
- 64GB 2Rx4 DDR4-3200 Registered DIMM
- 64GB 4Rx4 DDR4-2933 Load Reduced DIMM
- 128GB 4Rx4 DDR4-3200 Load Reduced DIMM
- 256GB 8Rx4 DDR4-3200 Load Reduced DIMM

Notes: Mixing of 64GB LRDIMM and 128GB LRDIMM is allowed. Each socket must be fully populated with ½ of each memory size

Only DIMMs that Hewlett Packard Enterprise has qualified are supported.

Each chassis supports up to 48 DIMMs. This breaks down to twelve DIMMs per socket.

General memory configuration rules:

- For best performance, the amount of memory on each chassis within the system should be the same.

Persistent Memory Support

Designed to support the following Persistent Memory DIMMs:

- Intel Optane 128GB persistent memory 200 series for HPE Superdome Flex 280
- Intel Optane 256GB persistent memory 200 series for HPE Superdome Flex 280
- Intel Optane 512GB persistent memory 200 series for HPE Superdome Flex 280

Notes:

- Chassis must be ½ populated with DDR4 DIMMs before Persistent Memory can be added
- No mixing of DDR4 memory sizes is supported when Persistent Memory is utilized
- Minimum OS levels are required for support of Persistent Memory
- Superdome Flex 280 supports only App-direct Mode for Persistent Memory
- Persistent Memory DIMMS must be populated across each socket with 6 per socket
- Persistent Memory supported only on 4 socket systems

Standard Features

Superdome Flex 280 Memory DIMM Configurations							
Memory Slot Configuration	**DIMMS per Socket**	**Data Rate**	**Capacity per Socket**	**Total System Memory Capacity (TB)**			
				2S	4S	6S	8S
32GB RDIMM	1	3200 MT/s	32GB	64GB	128GB	192GB	256GB
	4	3200 MT/s	128GB	256GB	512GB	768GB	1TB
	6	3200 MT/s	192GB	384GB	768GB	1.125TB	1.5TB
	12	2933 MT/s	384GB	768GB	1.5TB	2.25TB	3TB
64GB RDIMM	1	3200 MT/s	64GB	128GB	256GB	384GB	512GB
	4	3200 MT/s	256GB	512GB	1TB	1.5TB	2TB
	6	3200 MT/s	384GB	768GB	1.5TB	2.25TB	3TB
	12	2933 MT/s	768GB	1.5TB	3TB	4.5TB	6TB
64GB LRDIMM	1	2933 MT/s	64GB	128GB	256GB	384GB	512GB
	4	2933 MT/s	256GB	512GB	1TB	1.5TB	2TB
	6	2933 MT/s	384GB	768GB	1.5TB	2.25TB	3TB
	12	2933 MT/s	768GB	1.5TB	3TB	4.5TB	6TB
128GB LRDIMM	1	3200 MT/s	1258GB	256GB	512GB	768GB	1TB
	4	3200 MT/s	512GB	1TB	2TB	3TB	4TB
	6	3200 MT/s	768GB	1.5TB	3TB	4.5TB	6TB
	12	2933 MT/s	1536GB	3TB	6TB	6TB	12TB
256GB LRDIMM	1	3200 MT/s	256GB	512GB	1TB	1.5TB	2TB
	4	3200 MT/s	1024GB	2TB	4TB	6TB	8TB
	6	3200 MT/s	1536GB	3TB	6TB	9TB	12TB
	12	2933 MT/s	3072GB	6TB	12TB	18TB	24TB
64GB LRDIMM	6	2933 MT/s	1152GB	2.25TB	4.5TB	6.75TB	9TB
128GB LRDIMM	6	2933 MT/s					
128GB PMEM	6	2667 MT/s	960GB	-	3.75TB	-	-
32GB RDIMM	6	2667 MT/s					
128GB PMEM	6	2667 MT/s	1152GB	-	4.5TB	-	-
64GB RDIMM	6	2667 MT/s					
128GB PMEM	6	2667 MT/s	1536GB	-	6TB	-	-
128GB LRDIMM	6	2667 MT/s					
256GB PMEM	6	2667 MT/s	1920GB	-	7.5TB	-	-
64GB RDIMM	6	2667 MT/s					
256GB PMEM	6	2667 MT/s	2304GB	-	9TB	-	-
128GB LRDIMM	6	2667 MT/s					
256GB PMEM	6	2667 MT/s	3072GB	-	12TB	-	-
256GB 3DS LRDIMM	6	2667 MT/s					
512GB PMEM	6	2667 MT/s	3840GB	-	15TB	-	-
128GB LRDIMM	6	2667 MT/s					
512GB PMEM	6	2667 MT/s	4608GB	-	18TB	-	-
256GB 3DS LRDIMM	6	2667 MT/s					

Notes: Maximum memory capacity per socket for 83xxH, 63xxH and 53xxH is 1.125TB. For larger memory capacity up to 4.5TB per socket the 'HL' version of a processor must be used.

Standard Features

Networking

- HPE Ethernet 10/25Gb 2-port SFP28 MCX4121A-ACUT Adapter (requires transceivers or DAC)
- HPE Ethernet 10Gb 2-port BASE-T X550-AT2 Adapter
- HPE Ethernet 10Gb 2-port SFP+ X710-DA2 Adapter (requires transceivers or DAC)
- HPE Ethernet 1GbE 4 port BASE-T I350 Adptr
- HPE Ethernet 1Gb 2-port BASE-T I350-T2V2 Adapter
- HPE Ethernet 10/25Gb 2-port SFP28 BCM57414 Adapter
- HPE Ethernet 100Gb 1-port QSFP28 MCX515A-CCAT Adapter (requires transceivers or DAC)
- HPE Ethernet 10/25Gb 2-port SFP28 QL41401-A2G Adapter (requires transceivers or DAC)
- HPE Ethernet 10Gb 2-port BASE-T QL41401-A2G Adapter

Notes: Server networking transceiver and cable compatibility matrix can be found **here**

Superdome Flex 280 Storage Support

For HPE Storage solutions, please see: **https://www.hpe.com/storage/spock**

Storage and boot support

- HPE SN1200E 16Gb 1p FC HBA
- HPE SN1100Q 16Gb 1p FC HBA
- HPE SN1200E 16Gb 2p FC HBA
- HPE SN1100Q 16Gb 2p FC HBA
- HPE SN1610E 32Gb 1p FC HBA
- HPE SN1610Q 32Gb 1p FC HBA
- HPE SN1610E 32Gb 2p FC HBA
- HPE SN1610Q 32Gb 2p FC HBA
- HPE SN1700E 64Gb 1p FC HBA
- HPE SN1700Q 64Gb 1p FC HBA
- HPE Superdome Flex 280 SR3162-8i/e 8-port 2GB Cache SAS 12G Encrypted Controller
- HPE Superdome Flex 280 SR3154-16i 16-port 4GB Cache SAS 12G PCIe3 x8 Controller
- HPE Superdome Flex 280 SR3154-24i 24-port 4GB Cache SAS 12G PCIe3 x8 Controller
- HPE SR3258p-32i/e 32-port 8GB Cache Tri-Mode 24G PCIe4 x16 Encrypted Controller
- HPE Superdome Flex 280 MegaRAID 9560-16i 16-port Internal 8GB Cache Tri-Mode 12G PCIe4 x8 Controller
- HPE Superdome Flex 280 MegaRAID 9560-8i 8-port Internal 4GB Cache Tri-Mode 12G PCIe4 x8 Controller
- HPE 9300-8e 12Gb 8-port External SAS Controller
- HPE 3154-8e External RAID Controller

Standard Features

RAID Options

Chassis type	Storage Option	Backplane(s)	Controller card(s)	Max. RAID group(s)
Base or Expansion	No storage	none	none	none
Base chassis only	8 drive standard storage, Intel VROC (SATA RAID) no encryption	R4S21A 8SFF Standard	none	8 drives
Base or Expansion	8 drive standard storage, HW RAID, encryption option	R4S21A 8SFF Standard	R5Y72A SR 3162-8i /e	8 drives
Base or Expansion	8 drive standard storage, HW RAID, no encryption	R4S21A 8SFF Standard	R5Y74A MR 9560-8i	8 drives
Base or Expansion	8 drive premium storage, HW RAID, no encryption	R4S22A 8SFF Premium	R4R47A SR 3154-16i OR R4R49A MR 9560-16i	8 drives
Base or Expansion	8 drive premium storage, HW RAID, encryption option	R4S22A 8SFF Premium	R4R52A SR 3258p-32i /e	8 drives
Base or Expansion	8 drive premium storage, HW RAID, no encryption	R4S22A 8SFF Premium	R4R49A MR 9560-16i R4R49A MR 9560-16i	4 drives 4 drives
Base or Expansion	8 drive premium storage, HW RAID, encryption option	R4S22A 8SFF Premium	R5Y72A SR 3162-8i /e R5Y72A SR 3162-8i /e	4 drives 4 drives
Base or Expansion	10 drive premium storage, HW RAID, no encryption	R4S23A 2SFF Premium R4S22A 8SFF Premium	R4R48A SR 3154-24i	10 drives
Base or Expansion	10 drive premium storage, HW RAID, encryption option	R4S23A 2SFF Premium R4S22A 8SFF Premium	R5Y72A SR 3162-8i /e R5Y72A SR 3162-8i /e R5Y72A SR 3162-8i /e	2 drives 4 drives 4 drives
Base or Expansion	10 drive premium storage, HW RAID, separate boot controller	R4S23A 2SFF Premium R4S22A 8SFF Premium	R5Y72A SR 3162-8i /e R4R47A SR 3154-16i	2 drives 8 drives
Base or Expansion	10 drive premium storage, HW RAID, separate boot controller	R4S23A 2SFF Premium R4S22A 8SFF Premium	R5Y74A MR 9560-8i R4R49A MR 9560-16i	2 drives 8 drives
Base or Expansion	10 drive premium storage, HW RAID, encryption option x4 NVMe	R4S23A 2SFF Premium R4S22A 8SFF Premium	R4R52A SR 3258p-32i /e R5Y72A SR 3162-8i /e	2 drives 8 drives
Base or Expansion	10 drive premium storage, HW RAID, separate boot controller	R4S23A 2SFF Premium R4S22A 8SFF Premium	R5Y74A MR 9560-8i R4R49A MR 9560-16i R4R49A MR 9560-16i	2 drives 4 drives 4 drives

Backplane type	Controller	Drive type	Data lanes per drive bay	Raw bandwidth	Maximum throughput
Standard	SmartRAID 31xx	SATA	1	6 Gb/s	600 MB/s
Standard	SmartRAID 31xx	SAS-3	1	12 Gb/s	1.2 GB/s
Standard	MegaRAID 9560	SATA	1	6 Gb/s	600 MB/s
Standard	MegaRAID 9560	SAS-3	1	12 Gb/s	1.2 GB/s
Standard	MegaRAID 9560	NVMe	1	8 Gb/s	985 GB/s
Premium	SmartRAID 31xx	SATA	1	6 Gb/s	600 MB/s
Premium	SmartRAID 31xx	SAS-3	1	12 Gb/s	1.2 GB/s
Premium	SmartRAID 31xx	SAS-3 wide	2	24 Gb/s	2.4 GB/s
Premium	MegaRAID 9560	SATA	1	6 Gb/s	600 MB/s
Premium	MegaRAID 9560	SAS-3	1	12 Gb/s	1.2 GB/s

Standard Features

Backplane type	Controller	Drive type	Data lanes per drive bay	Raw bandwidth	Maximum throughput
Premium	MegaRAID 9560	SAS-3 wide	2	24 Gb/s	2.4 GB/s
Premium	MegaRAID 9560	NVMe	2	16 Gb/s	1.970 GB/s
Premium	MegaRAID 9560	NVMe	4	32 Gb/s	3.940 GB/s
Premium	SmartRAID 3258p	SATA	1	6 Gb/s	600 MB/s
Premium	SmartRAID 3258p	SAS-3	1	12 Gb/s	1.2 GB/s
Premium	SmartRAID 3258p	SAS-3 wide	2	24 Gb/s	2.4 GB/s
Premium	SmartRAID 3258p	SAS-4	1	22.5 Gb/s	2.4 GB/s
Premium	SmartRAID 3258p	SAS-4 wide	2	45 Gb/s	4.8 GB/s
Premium	SmartRAID 3258p	NVMe	4	32 Gb/s	3.940 GB/s

Notes:

- When multiple controller cards are used, there will be multiple RAID groups because drives on different controllers can't be in the same RAID group
- When multiple controller cards are used, the first controller listed is the default boot controller
- RAID 0, 1,5 and 10 supported
- The Base IO includes the embedded Intel VROC (Virtual RAID on Chip) SATA controller with 6Gb SATA support for up to eight (8) 2.5" SATA drives (HDD/SSD). The 8-bay standard backplane is cabled to the Base IO. VMware does not support the RAID mode of Intel Corporation Lewisburg SATA AHCI Controller in VMware ESXi

Security

HPE Superdome Flex 280 provides important architectural security features not found in other industry standard servers. Superdome Flex 280 Mission Critical focus provides unique customer benefits without exposure to vulnerabilities found in common server firmware.

- UEFI Secure Boot and Secure Start support
- Immutable Silicon Root of Trust, A Cyber Catalyst by Marsh[sm]-designated solution
- Tamper-free updates – components digitally signed and verified
- Secure Recovery – recover critical firmware to known good state on detection of compromised firmware
- Firmware rollback protection for critical Vulnerability fixes
- TPM (Trusted Platform Module) 2.0 tamper-resistant and soldered down for all systems
- Chassis Intrusion detection (optional)
- FW update protected by RMC Admin authentication
- Air-Gapped Manageability
- Secure Out-of-Box passwords
- Directory access control (LDAP/Active Directory)
- Alternatives to PXE (Directed LAN Boot, HTTP Boot)
- Ability to disable HOST USB ports

Platform Management

The HPE Superdome Flex 280 delivers system administration, control, and platform management both via a programmable Redfish API and also in a comprehensive and concise command-line interface. The Redfish® API can be used in many ways including:

- Directly in simple scripts to obtain inventory and monitoring information
- With HPE OneView for a graphical user interface, as well as manage multiple HPE systems concurrently in the datacenter at once
- With Openstack Ironic for Provisioning the OS

The Rack Management Controller in Superdome Flex 280 is an embedded option (the "eRMC") running within the Base Chassis.

Standard Features

The HPE Superdome Flex 280 has a built-in and always available platform management system. By integrating the management into the server platform, Hewlett Packard Enterprise ensures that every Superdome Flex 280 comes with the full set of management features, and simplifies the task of integrating Superdome Flex 280 into the data center. The purpose of the HPE Superdome Flex 280 management system is to:

- Provide built-in tools to manage hardware and provide mission-critical system availability (inventory, monitor, diagnose, configure, maintain, and self-healing)
- Make it easier for users and applications to manage the system (inventory, start, stop, connect console, and so on)

The HPE Superdome Flex 280 manageability system provides a very powerful control point for the system, and the RMC makes managing the HPE Superdome Flex 280 much easier by centralizing the control and building the management into the hardware and firmware of the system. It provides the following features:

- Web GUI for eRMC – Redfish driven. Covers:
  - System inventory, health, configuration
  - Launch vMedia, vKVM (HTML5)
  - Configure UEFI reboot, power
  - eRMC security settings
  - eRMC LAN settings
- CLI for easy access to all eRMC functions, providing potential scripting and power user convenience
- Console, and console logs
- Built-in Error Analysis Engine constantly monitors all system hardware, analyzes log and telemetry data, and determines corrective actions for highest system uptime (often performing corrective actions automatically)

HPE Superdome Flex 280 eRMC will interface directly with the HPE Remote Support software for data center wide fault management visibility and tie-in to HPE support services, such as the Insight Online portal

HPE Foundation Software (HFS)

HFS (HPE Foundation Software) consists of software packages specifically designed to ensure the smooth operation of the HPE Superdome Flex and HPE Superdome Flex 280 servers. It includes Data Collection Daemon (DCD) for Linux, an agentless service that proactively monitors the health of hardware components on the HPE Superdome Flex and HPE Superdome Flex 280 servers.

This bundle contains a collection of HFS (HPE Foundation Software) ISO images to be installed on HPE Superdome Flex Family Servers running with RHEL, SLES or Oracle Linux (there is no HFS for other OS'es).

Service and Support

HPE Services

No matter where you are in your digital transformation journey, you can count on HPE Services to deliver the expertise you need when, where and how you need it. From planning to deployment, ongoing operations and beyond, our experts can help you realize your digital ambitions.

https://www.hpe.com/services

Consulting Services

No matter where you are in your journey to hybrid cloud, experts can help you map out your next steps. From determining what workloads should live where, to handling governance and compliance, to managing costs, our experts can help you optimize your operations.

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

HPE Managed Services

HPE runs your IT operations, providing 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.

HPE Managed Services | HPE

Operational services

Optimize your entire IT environment and drive innovation. Manage day-to-day IT operational tasks while freeing up valuable time and resources. Meet service-level targets and business objectives with features designed to drive better business outcomes.

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

HPE Complete Care Service

HPE Complete Care Service is a modular, edge-to-cloud IT environment service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals through a personalized experience. All delivered by an assigned team of HPE Services experts. HPE Complete Care Service 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

HPE Tech Care Service

HPE Tech Care Service is the operational support service experience for HPE products. The service 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 Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service 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

Service and Support

HPE Lifecycle Services

HPE Lifecycle Services provide a variety of options to help maintain your HPE systems and solutions at all stages of the product lifecycle. A few popular examples include:

- Lifecycle Install and Startup Services: Various levels for physical installation and power on, remote access setup, installation and startup, and enhanced installation services with the operating system.
- HPE Firmware Update Analysis Service: Recommendations for firmware revision levels for selected HPE products, taking into account the relevant revision dependencies within your IT environment.
- HPE Firmware Update Implementation Service: Implementation of firmware updates for selected HPE server, storage, and solution products, taking into account the relevant revision dependencies within your IT environment.
- Implementation assistance services: Highly trained technical service specialists to assist you with a variety of activities, ranging from design, implementation, and platform deployment to consolidation, migration, project management, and onsite technical forums.
- HPE Service Credits: Access to prepaid services for flexibility to choose from a variety of specialized service activities, including assessments, performance maintenance reviews, firmware management, professional services, and operational best practices.

Notes: To review the list of Lifecycle Services available for your product go to:
https://www.hpe.com/services/lifecycle

For a list of the most frequently purchased services using service credits, see the **HPE Service Credits Menu**

Other Related Services from HPE Services:

HPE Education Services

Training and certification designed for IT and business professionals across all industries. Broad catalogue of course offerings to expand skills and proficiencies in topics ranging from cloud and cybersecurity to AI and DevOps. Create learning paths to expand proficiency in a specific subject. Schedule training in a way that works best for your business with flexible continuous learning options.
https://www.hpe.com/services/training

Defective Media Retention

An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options.

Parts and Materials

HPE will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

How to Purchase Services

Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
- Customers purchasing from a commercial reseller can find services at **https://ssc.hpe.com/portal/site/ssc/**

Service and Support

AI Powered and Digitally Enabled Support Experience

Achieve faster time to resolution with access to product-specific resources and expertise through a digital and data driven customer experience

Sign into the HPE Support Center experience, featuring streamlined self-serve case creation and management capabilities with inline knowledge recommendations. You will also find personalized task alerts and powerful troubleshooting support through an intelligent virtual agent with seamless transition when needed to a live support agent.
https://support.hpe.com/hpesc/public/home/signin

Consume IT On Your Terms

HPE GreenLake edge-to-cloud platform 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 edge-to-cloud platform 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

To learn more about HPE Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE"
https://www.hpe.com/us/en/contact-hpe.html

For more information
http://www.hpe.com/services

Other related Services

HPE Server Hardware Installation

Provides for the basic hardware installation of Hewlett Packard Enterprise branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

HPE Installation and Startup of HPE Servers

Provides for the installation of your new server and operating system. This service will assist in bringing your new HPE server and operating system into operation in a timely and professional manner. This service provides a trained Hewlett Packard Enterprise service specialist to perform an installation that meets Hewlett Packard Enterprise quality standards. The service highlights include: planning, deployment on site, Installation verification tests, and customer orientation session.

HPE Support Credits

Offer 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.

Configuration Information

Ordering and Configuration

This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends the use of an HPE approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.

Notes:

- Configure-to-order servers must start with a CTO Chassis
- FIO indicates that this option is a Factory Installable Option.

Additional Technical documentation may be found at: **http://www.hpe.com/support/superdomeflex280-docs**

Configuring Superdome Flex 280

Rack choice

If No Rack Option is selected then a Virtual Rack should be selected

HPE Virtual Rack	M0S66A

Base Chassis

HPE Superdome Flex 280 4-socket Base Chassis	R4R03A

Notes:

- Every Superdome Flex 280 system must have min 1/max 1 Base Chassis
- Adding Option code "#0D1" to the chassis will integrate the chassis into the rack (which must be on the same order)
- Chassis bezel is Optional and is not included

Expansion Chassis

HPE Superdome Flex 280 4-socket Expansion Chassis	R4R05A

Notes:

- Adding Option code "#0D1" to the chassis will integrate the chassis into the rack (which must be on the same order)
- Chassis bezel is Optional and is not included

Power Supply Options for Base and Expansion Chassis

HPE Superdome Flex 280 2x 1600W Titanium Hot Plug Power Supply	S0A91A
HPE Superdome Flex 280 2x 1600W Titanium Hot Plug Additional Power Supply	S0A92A
HPE Superdome Flex 280 2x 2130W Titanium Hot Plug Power Supply	S0A93A
HPE Superdome Flex 280 2x 2130W Titanium Hot Plug Additional Power Supply	S0A94A

Notes: Each chassis requires a minimum of one (1) of the above kits. Maximum is two (2) per chassis. No mixing within a system is allowed.

Scale Activation Kits

HPE Superdome Flex 280 2-4 Sockets UPI Internal Enablement Kit	R4R08A
HPE Superdome Flex 280 6-8 Sockets UPI Internal Interconnect and Scale Activation Kit	R4R09A
HPE Superdome Flex 280 6-8 Sockets UPI External Interconnect and Scale Activation Kit	R4R10A

Notes:

- 2/4 socket system requires 1 x R4R08A
- 8 socket system requires 2 x R4R09A and 1 x R4R10A

Configuration Information

Processors

Notes:

- Each Base chassis requires minimum two (2) processors
- Each Expansion chassis requires minimum two (2) processors

Intel Xeon-Platinum 8380H (2.9GHz/28-core/250W) Processor Kit for HPE Superdome Flex 280	R4R13A
Intel Xeon-Platinum 8380HL (2.9GHz/28-core/250W) Processor Kit for HPE Superdome Flex 280	R4R14A
Intel Xeon-Platinum 8376H (2.6GHz/28-core/205W) Processor Kit for HPE Superdome Flex 280	R4R15A
Intel Xeon-Platinum 8376HL (2.6GHz/28-core/205W) Processor Kit for HPE Superdome Flex 280	R4R16A
Intel Xeon-Platinum 8360H 3.0GHz 24-core 225W Processor Kit for HPE Superdome Flex 280	R4R17A
Intel Xeon-Platinum 8360HL 3.0GHz 24-core 225W Processor Kit for HPE Superdome Flex 280	R4R18A
Intel Xeon-Platinum 8356H 3.9GHz 8-core 190W Processor Kit for HPE Superdome Flex 280	R4R24A
Intel Xeon-Platinum 8354H (3.1GHz/18-core/205W) Processor Kit for HPE Superdome Flex 280	R4R20A
Intel Xeon-Platinum 8353H (2.5GHz/18-core/150W) Processor Kit for HPE Superdome Flex 280	R4R19A
Intel Xeon-Gold 6348H (2.3GHz/24-core/165W) Processor Kit for HPE Superdome Flex 280	R4R21A
Intel Xeon-Gold 6330H (2.0GHz/24-core/150W) Processor Kit for HPE Superdome Flex 280	R6W53A
Intel Xeon-Gold 6328H (2.8GHz/16-core/165W) Processor Kit for HPE Superdome Flex 280	R4R22A
Intel Xeon-Gold 6328HL (2.8GHz/16-core/165W) Processor Kit for HPE Superdome Flex 280	R4R23A
Intel Xeon-Gold 5320H (2.4GHz/20-core/150W) Processor Kit for HPE Superdome Flex 280	R6A26A
Intel Xeon-Gold 5318H (2.5GHz/18-core/150W) Processor Kit for HPE Superdome Flex 280	R6A25A

Notes:

- No mixing of processors types within a single chassis or system
- Maximum memory capacity per socket for 83xxH, 63xxH and 53xxH is 1.125TB. For larger memory capacity per socket the 'HL' version of a processor must be used

DDR4 Memory

HPE Superdome Flex 280 32GB (1x32GB) Dual Rank x4 DDR4-3200 Registered Standard Memory Kit	R4S26A
HPE Superdome Flex 280 64GB (1x64GB) Dual Rank x4 DDR4-3200 Registered Standard Memory Kit	R4S27A
HPE Superdome Flex 280 64GB (1x64GB) Quad Rank x4 DDR4-2933 Load Reduced Standard Memory Kit	R4S28A
HPE Superdome Flex 280 128GB (1x128GB) Quad Rank x4 DDR4-3200 Load Reduced Standard Memory Kit	R4S29A
HPE Superdome Flex 280 256GB (1x256GB) Octal Rank x4 DDR4-3200 3DS Load Reduced Memory Kit	R4S30A

Notes:

- Memory kits contain a single DIMM
- DDR4 Memory mixing of 64GB LRDIMM DDR4 and 128GB LRDIMM DDR4 is allowed. Populate with ½ each type.
- Memory can be loaded either as 1, 4, 6 or 12 per socket

Persistent Memory

Intel Optane 128GB persistent memory 200 Series for HPE Superdome Flex 280	R4S31A
Intel Optane 256GB persistent memory 200 Series for HPE Superdome Flex 280	R4S32A
Intel Optane 512GB persistent memory 200 Series for HPE Superdome Flex 280	R4S33A

Notes:

- Chassis must be ½ populated with DDR4 DIMMs before Persistent Memory can be added
- No mixing of DDR4 memory sizes is supported when Persistent Memory is utilized
- Persistent Memory DIMMS must be populated across each socket with 6 per socket
- Minimum OS levels are required for support of Persistent Memory
- Superdome Flex 280 supports only App-direct Mode for Persistent Memory
- Persistent Memory supported only on 4 socket systems

Configuration Information

Optical Drives

HPE Superdome Flex 280 9.5mm SATA Internal DVD-RW Optical Drive	R4S34A
HPE Superdome Flex 280 9.5mm SATA Internal DVD-ROM Optical Drive	R4S35A

Notes:

- One (1) DVD is optional in Base Chassis and is not available in the Expansion Chassis
- DVD option is not allowed if optional 2 drive Premium Storage backplane is configured to Base Chassis

Storage Backplanes

HPE Superdome Flex 280 8SFF Standard Storage Backplane Kit	R4S21A
HPE Superdome Flex 280 8SFF Premium Storage Backplane Kit	R4S22A
HPE Superdome Flex 280 2SFF Premium Storage Backplane Kit	R4S23A

Drives

Internal SATA Solid State Drives

HPE 480GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40502-H21
HPE 960GB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40503-H21
HPE 1.92TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40504-H21
HPE 3.84TB SATA 6G Mixed Use SFF BC Multi Vendor SSD	P40505-H21
HPE 960GB SATA 6G Mixed Use SFF BC Self-encrypting 5400M SSD	P58244-B21

Internal SATA Hard Disk Drives

Internal SAS Hard Disk Drives

HPE 1.2TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty Multi Vendor HDD	P28586-H21
HPE 1.8TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P53562-H21
HPE 2.4TB SAS 12G Mission Critical 10K SFF BC 3-year Warranty 512e Multi Vendor HDD	P28352-H21

Internal SAS Solid State Drives

HPE 800GB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49047-H21
HPE 1.6TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49049-H21
HPE 3.2TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49053-H21
HPE 6.4TB SAS 24G Mixed Use SFF BC Multi Vendor SSD	P49057-H21
HPE 7.68TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49041-H21
HPE 15.36TB SAS 24G Read Intensive SFF BC Multi Vendor SSD	P49045-H21
HPE 1.6TB SAS Mixed Use SFF BC Self-encrypting FIPS 140-2 PM7 SSD	P63871-B21

NVMe U.3 Drives

HPE 800GB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P64999-H21
HPE 1.6TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65007-H21
HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65015-H21
HPE 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65023-H21

Configuration Information

HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50227-H21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50230-H21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50233-H21

Notes: SED Drives are only supported with Broadcom based storage controllers: R4R49A and R5Y74A

PCIe Infrastructure

Notes:

- Each chassis requires exactly one (1) PCIe option: R4S36A, R4S37A or R4S38A
- The Base Chassis requires either R4S36A or R4S37A

HPE Superdome Flex 280 PCIe Full Height 12-slot Bulkhead with 1x 4-slot Riser Kit — R4S36A

Notes: R4S36A includes two (2) Full Height x8 and two (2) Full Height x16 – Left Riser. Maximum Length of PCIe card when installed in 12-slot Bulkhead = 10.5". R4S36A also accommodates both Full Height and Low Profile cards

HPE Superdome Flex 280 PCIe Low Profile 16-slot Bulkhead with 1x 4-slot Riser Kit — R4S37A

Notes: R4S37A includes two (2) Low Profile x8 and two (2) Low Profile x16 – Left Riser. Maximum Length of PCIe card when installed in 16-slot Bulkhead = 6.6".

HPE Superdome Flex 280 PCIe 0-slot Compute Only Bulkhead — R4S38A

HPE Superdome Flex 280 4-slot 2x8/2x16 PCIe Left Riser — R4S12A

Notes:

- Additional riser not available with R4S36A. Functionality included with R4S36A
- One (1) available with R4S37A with 4 processors per chassis
- Maximum Length of PCIe card when installed in 12-slot Bulkhead = 10.5". Maximum length of PCIe card when installed in 16-slt Bulkhead = 6.6"

HPE Superdome Flex 280 4-slot 2x8/2x16 PCIe Right Riser — R4S39A

Notes:

- One (1) available with R4S36A with 4 processors per chassis.
- One (1) available with R4S37A with 2 processors per Base chassis, two (2) available with 4 processors per chassis.
- Accommodates both Full Height and Low Profile cards when used with R4S36A
- Maximum Length of PCIe card when installed in 12-slot Bulkhead = 10.5". Maximum length of PCIe card when installed in 16-slt Bulkhead = 6.6"

HPE Superdome Flex 280 4-slot 4x16 PCIe Center Riser — R4S13A

Notes:

- One (1) available with R4S36A. When only two (2) processors are present then only (2) x16 are active.
- When four (4) processors are present then four (4) x16 are active.
- Maximum length of PCIe card = 6.6"

RAID Controllers

HPE Superdome Flex 280 SR3162-8i/e 8-port 2GB Cache SAS 12G Encrypted Controller	R5Y72A
HPE Superdome Flex 280 SR3154-16i 16-port 4GB Cache SAS 12G PCIe3 x8 Controller	R4R47A
HPE Superdome Flex 280 SR3154-24i 24-port 4GB Cache SAS 12G PCIe3 x8 Controller	R4R48A
HPE SR3258p-32i/e 32-port 8GB Cache Tri-Mode 24G PCIe4 x16 Encrypted Controller	R4R52A
Broadcom MegaRAID 9560-16i 16-port 8GB Cache Tri-Mode 12G PCIe4 x8 Cntrl for HPE Superdome Flex 280	R4R49A

Configuration Information

Broadcom MegaRAID 9560-8i 8-port 4GB Cache Tri-Mode 12G PCIe4 x8 Cntrl for HPE Superdome Flex 280	R5Y74A
HPE 3154-8e 8-port External RAID Controller	Q6M15A

Notes:

- HPE 3154-8e is equivalent to HPE P408e-p (804405-B21)
- Q6M15A, R4R47A, R4R48A, R4R49A, R4R52A and R5Y74A require a second PCIe slot for a tethered supercap
- HPE SR3258p-32i/e is a full-height card (requires 12-slot PCIe backplane) and will be slotted 2,4,or 13 with full functionality and bootable through UEFI driver. Additional slots may be used and still have the card be bootable. This selection requires a second PCIe slot for the tethered supercap.

Fibre Channel HBAs

HPE SN1200E 16Gb Single Port Fibre Channel Host Bus Adapter	Q0L13A
HPE SN1100Q 16Gb Single Port Fibre Channel Host Bus Adapter	P9D93A
HPE SN1100Q 16Gb Dual Port Fibre Channel Host Bus Adapter	P9D94A
HPE SN1200E 16Gb Dual Port Fibre Channel Host Bus Adapter	Q0L14A
HPE SN1610E 32Gb 1-port Fibre Channel Host Bus Adapter	R2J62A
HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter	R2E08A
HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter	R2J63A
HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter	R2E09A
HPE SN1700E 64Gb 1-port Fibre Channel Host Bus Adapter	R7N77A
HPE SN1700Q 64Gb 1-port Fibre Channel Host Bus Adapter	R7N86A

Notes: Max eight (8) per chassis/ Max 16 per system

Networking cards

HPE Ethernet 10/25Gb 2-port SFP28 MCX4121A-ACUT Adapter	817753-B21
Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P26262-B21
HPE Ethernet 1Gb 4-port BASE-T I350-T4V2 Adapter	811546-B21
HPE Ethernet 10Gb 2-port SFP+ X710-DA2 Adapter	727055-B21
HPE Ethernet 100Gb 1-port QSFP28 MCX515A-CCAT Adapter	874253-B21
HPE Ethernet 10Gb 2-port BASE-T BCM57416 Adapter	813661-B21

Notes:

- Max eight (8) per chassis/Max 16 per system. Exception is Pensando card and 874253-B21
- The 640SFP28 Adapter (817753-B21) and 562SFP+ Adapter (727055-B21) require transceivers or direct attached copper (DAC) cables (min 1/max2)
- Pensando Distributed Services Platform DSC-25 Enterprise 10/25Gb 2-port SFP28 Card requires RTU license. Max 2 per chassis/4 per system
- 874253-B21. Max four (4) per chassis/Max 8 per system
- Server networking transceiver and cable compatibility matrix can be found **here**

Configuration Information

InfiniBand cards

HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe3 x16 MCX653105A-ECAT Adapter	P06250-H21
HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe3 x16 MCX653106A-ECAT Adapter	P06251-H21

Notes:

- Max four (4) 872725-H21, 872726-H21, P06250-H21, or P06251-H21 per chassis/Max 8 per system
- No mixing of InfiniBand card types in the same system
- Max one (1) P06154-H21 per chassis
- P06251-H21 is supported with VMWare in Ethernet Only mode
- An P06154-H23 Extender card is required with P06154-H21 and will automatically be added to configuration

GPU Accelerators

NVIDIA L4 24GB PCIe Accelerator for HPE	S0K89C
NVIDIA H100 NVL 94GB PCIe Accelerator for HPE	S2D86C
HPE Superdome Flex 8 Pin GPU Cable Kit	Q6M17A
HPE Superdome Flex 6+2 Pin GPU Cable Kit	Q6M16A
HPE Superdome Flex/280 PCIe 8-pin/16-pin 310W Accelerator Cable Kit	S2A41A

Notes:

- Max four (4) H100 NVL, A30 or A40 per chassis, 8 per system
- No mixing of GPU controller types in the same chassis or system
- GPU Controllers require the R4S36A (12-slot PCIe riser) to be in the same Chassis. It is recommended that all three risers be present whenever GPU controllers are added to the config
- GPU Controllers are ‘double-wide’ and therefore utilize two adjacent PCIe slots A30 and A40 GPU Accelerator requires one Q6M17A cable kit for each Accelerator
- Inner node, peer-to-peer communication is not supported with Superdome Flex 280
- H100, H100 NVL and L40 GPU Accelerator requires one S2A41A cable Kit for each Accelerator.
- H100, H100 NVL max operation power is limited to 310 Watts

Foundation Software

HPE Foundation Software 2 for Red Hat Enterprise Linux Media FIO LTU	Q7N13A
HPE Foundation Software 2 for SUSE Linux Enterprise Server Media FIO LTU	Q7N14A
HPE Foundation Software 2 for Red Hat Enterprise Linux Media	Q7Y82A
HPE Foundation Software 2 for SUSE Linux Enterprise Server Media	Q7Y83A
HPE Foundation Software 2 for Oracle Linux Media	Q7Y84A
HPE Foundation Software 2 for Red Hat Enterprise Linux Media License RTU	Q7N11A
HPE Foundation Software 2 for SUSE Linux Enterprise Server Media License RTU	Q7N12A
HPE Foundation Software 2 for Oracle License RTU	Q7N16A

Notes:

- Exactly one (1) RTU is required per system with a Linux O/S distribution
- Minimum one (1) Foundation SW FIO or Media is required per system with a Linux O/S distribution
- Selected RTU must match selected FIO and/or Media option

Configuration Information

System Expansion and Upgrades

System Expansion Kits are utilized when scaling up a Superdome Flex 280. When adding an Expansion chassis internal UPI connections will need to be ordered as well as external UPI cabling

HPE Superdome Flex 280 2-4 Sockets Upgrade Kit	R7Q03A
HPE Superdome Flex 280 6-8 Sockets Upgrade Kit	R7Q04A
HPE Superdome Flex 280 6-8 Sockets UPI Internal Interconnect and Scale Activation Kit	R4R09A
HPE Superdome Flex 280 6-8 Sockets UPI External Interconnect and Scale Activation Kit	R4R10A

Notes:

- One (1) R7Q03A is required when upgrading a Base chassis from 2 processors to 4 processors
- One (1) R7Q04A is required when upgrading a Expansion chassis (6 socket system) from 2 processors to 4 processors
- One (1) R4R09A is required for the existing Base Chassis for field upgrade.
- One (1) R4R09A is required for Expansion Chassis
- One (1) R4R10A is required for field upgrade

Additional Options

Power Distribution Options

The following PDUs are supported with Superdome Flex 280—refer to the server menu for ordering & configuration rules.

HPE G2 Basic Modular 3Ph 17.3kVA/60309 60A 4-wire 48A/208V Outlets (6) C19/1U Horizontal NA/JP PDU	P9Q60A
HPE G2 Basic Modular 3Ph 22kVA/60309 5-wire 32A/230V Outlets (6) C19/1U Horizontal INTL PDU	P9Q63A
HPE G2 Basic Modular 4.9kVA/L6-30P 24A/208V Outlets (6) IEC C19/1U Horizontal NA/JP PDU	P9Q39A
HPE G2 IEC C20 Input/(8) C13 Expansion Outlets/PDU Extension Bar Kit	P9Q66A

Notes: Two are required.

HPE G2 Basic 4.9kVA/L6-30P 24A/208V Outlets (20) C13/Vertical NA/JP PDU	P9Q41A
HPE G2 Basic 7.3kVA/60309 3-wire 32A/230V Outlets (20) C13/Vertical INTL PDU	P9Q45A

For more information please go to HPE Standard Series G2 Basic Power Distribution Units (PDU) QuickSpecs:
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c05324691

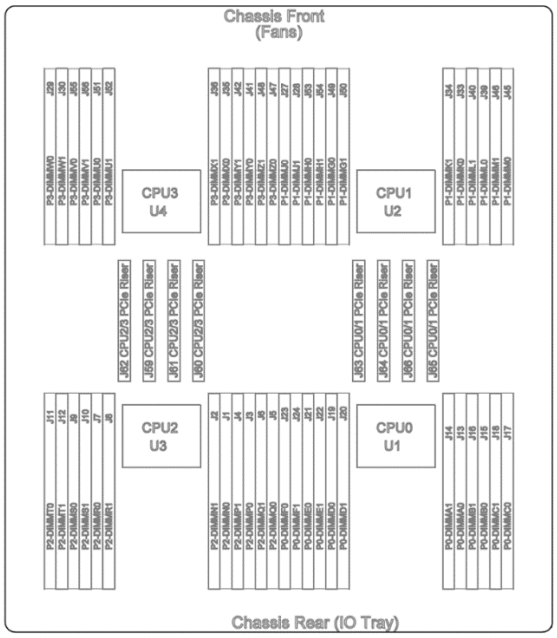
Chassis Options

HPE Superdome Flex 280 Chassis Bezel	R4R07A
HPE Superdome Flex 280 Chassis Intrusion Detection Kit	R4S20A

Notes: One per chassis, if 8 socket system, both chassis must have the same options.

Memory

Superdome Flex DDR4 DIMM loading rules and numbering (top-down view of chassis)



Superdome Flex 280 DIMM Arrangement

Superdome Flex 280 DDR4 DIMM loading rules

	Chan0 DIMM Slots		Chan1 DIMM Slots		Chan2 DIMM Slots		Chan3 DIMM Slots		Chan4 DIMM Slots		Chan5 DIMM Slots	
CPU0	A0	A1	B0	B1	C0	C1	D0	D1	E0	E1	F0	F1
CPU1	G0	G1	H0	H1	J0	J1	K0	K1	L0	L1	M0	M1
CPU2	N0	N1	P0	P1	Q0	Q1	R0	R1	S0	S1	T0	T1
CPU3	U0	U1	V0	V1	W0	W1	X0	X1	Y0	Y1	Z0	Z1
1 DIMM/CPU	X	-	-	-	-	-	-	-	-	-	-	-
4 DIMMs/CPU	X	-	X	-	-	-	X	-	X	-	-	-
6 DIMMs/CPU	X	-	X	-	X	-	X	-	X	-	X	-
12 DIMMs/CPU	X	X	X	X	X	X	X	X	X	X	X	X
12 DIMMs/CPU (Mixed) 128GB and 64GB LRDIMMs only	128	64	128	64	128	64	128	64	128	64	128	64

Memory Mirroring Rules

- Memory mirroring is supported in the 4, 6, and 12 DDR4 DIMMs/CPU configurations.
- Memory mirroring is NOT supported in the 1 DDR4 DIMM/CPU configuration.
- Memory mirroring is NOT supported when Persistent Memory DIMMs are installed.

Technical Specifications

This section describes the physical and environmental information for a chassis.

Superdome Flex 280 chassis	
Physical Information	
Site planning and installation included	Yes
Maximum Heat dissipation (fully populated system)	17.40 kBTU/hr
Depth (handle to handle)	879.5 mm / 34.63”
Width (not including mounting rails)	445 mm / 17.5"
Height	218.2 mm / 8.59" (5U)
Weight - Maximum (fully populated)	Range between 40.8 kg / 90 lb to 56.7 kg / 125 lb
Electrical Characteristics	
Single phase (200/240)	4 IE320-C13
Maximum Input Power total	5.27 KVA
Environmental Characteristics	
Cooling airflow (front to back)	Without GPUs: 300 CFM typical; 650 CFM max With GPUs: 475 CFM typical; 650 CFM max
Acoustics	88 dBA (maximum) 77 dBA (typical, fans at 50%)
Temperature - Recommended Operating Range1,2	+18°C to +27°C
Temperature - Allowable Operating Range1,2	+5°C to +35°C
Maximum rate of temperature change	20°C/hr non-condensing
Non-operating temperature (storage)	-40°C to +60°C
Air quality	Gaseous contaminants must be at the G1 level or less as defined by ISA Standard ISA-71.04-1985
Humidity - Recommended Operating Range (non-condensing)1	-9°C DP to 15°C DP and 60% RH
Humidity - Allowable Operating Range (non-condensing)1	-12 °C DP and 8% RH to 24 °C DP and 85% RH
Non-operating relative humidity (storage)	8% RH to 90% RH and 32 °C DP
Maximum Operating altitude	3050m (10,000 ft)
Maximum Non-operating altitude (storage)	4500m (15,000 ft) non-pressurized

Notes:

- The Recommended Operating Range is recommended for continuous operation. Operating within the Allowable Operating Range is supported but may result in a decrease in system performance.
- All temperature ratings shown are for sea level. An altitude de-rating of 1°C per 300 m above 1524 m is applicable. No direct sunlight allowed. Upper operating limit is 3,048 m (10,000 ft).

Environmental Info

Regulatory model numbers:

- Chassis (R4R03A, R4R04A, R4R05A, R4R06A) RMN: CHPF-071

Additional Power Data

The maximum power figures given were developed with the maximum configuration running applications designed to draw the maximum power possible. It is highly unlikely that any real-world application will result in this amount of power use for any significant time period.

Summary of Changes

Date	Version History	Action	Description of Change
13-Jan-2025	Version 32	Changed	Standard Features section was updated
16-Dec-2024	Version 31	Changed	Standard Features and Configuration Information sections were updated.
05-Aug-2024	Version 30	Changed	Standard Features and Configuration Information sections were updated.
08-Apr-2024	Version 29	Changed	Standard Features section was updated
01-Apr-2024	Version 28	Changed	Standard Features and Configuration Information sections were updated.
26-Feb-2024	Version 27	Changed	Overview, Standard Features and Configuration Information sections were updated.
22-Jan-2024	Version 26	Changed	Configuration Information section was updated
04-Dec-2023	Version 25	Changed	Service and Support section was updated.
06-Nov-2023	Version 24	Changed	Configuration Information section was updated. Obsolete SKU was removed.
05-Sep-2023	Version 23	Changed	Configuration Information section was updated.
01-May-2023	Version 22	Changed	Configuration Information and Technical Specifications sections were updated
03-Apr-2023	Version 21	Changed	Configuration Information section was updated. Obsolete SKU was removed from Drives menu. New SKU was added in GPU Accelerators menu
19-Dec-2022	Version 20	Changed	Configuration Information section was updated
05-Dec-2022	Version 19	Changed	Overview, Standard Features and Configuration Information sections were updated
10-Oct-2022	Version 18	Changed	Configuration Information section was updated Obsolete SKU was removed
06-Sep-2022	Version 17	Changed	Standard Features section was updated.
18-Jul-2022	Version 16	Changed	Standard Features and Configuration Information sections were updated Obsolete SKU – 878038-H21 was removed
06-Jun-2022	Version 15	Changed	Standard Features and Configuration Information sections were updated SKU – R6B53A was removed
14-Mar-2022	Version 14	Changed	Standard Features and Configuration Information sections were updated SKUs – R7E31A and R8T79A were removed
07-Mar-2022	Version 13	Changed	Overview, Standard Features and Configuration Information sections were updated
06-Dec-2021	Version 12	Changed	Standard Features and Configuration Information sections were updated Obsolete SKU was removed
01-Nov-2021	Version 11	Changed	Standard Features and Configuration Information sections were updated Service and Support Pointnext Tech Care and Complete Care information updated
07-Sep-2021	Version 10	Changed	Standard Features and Configuration Information sections were updated Service and Support Pointnext Tech Care information added Obsolete SKUs were removed
06-Jul-2021	Version 9	Changed	Standard Features and Configuration Information sections were updated
04-May-2021	Version 8	Changed	Overview, Standard Features, Service and Support and Configuration Information sections were updated
15-Mar-2021	Version 7	Changed	Overview, Standard Features, Configuration Information and Technical Specifications sections were updated
15-Feb-2021	Version 6	Changed	Standard Feature and Technical Specifications were updated. Obsolete SKUs were removed
07-Dec-2020	Version 5	Changed	Overview, Standard Features, Configuration Information, and Technical Specifications sections were updated.
02-Nov-2020	Version 4	Changed	Overview, Standard Features and Configuration Information sections were updated.
05-Oct-2020	Version 3	Changed	Standard Features and Configuration Information sections were updated.
08-Sep-2020	Version 2	Changed	Overview, Standard Features, and Configuration information sections were updated.
03-Aug-2020	Version 1	New	New QuickSpecs

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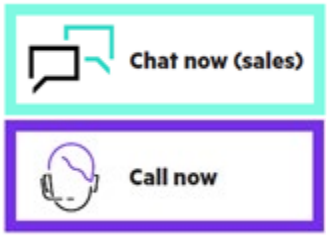

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