

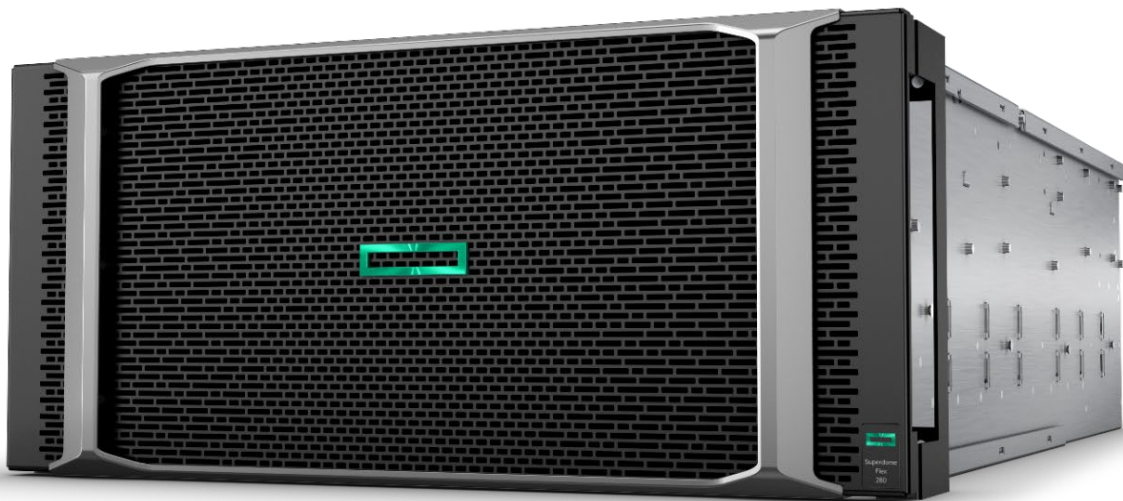
### Overview

### HPE Superdome Flex 280 Server

#### The Ultimate x86 based Mission-critical Platform

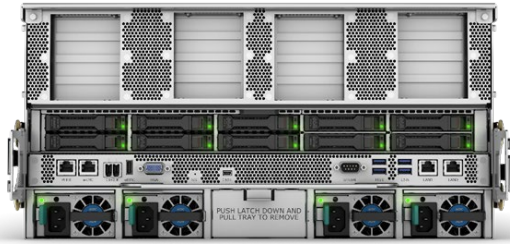
The HPE Superdome Flex 280 is a new model in the HPE Superdome Flex family of servers. It is a highly scalable, reliable and secure server that starts at 2 and scales up to 8 powerful 3rd generation Intel® Xeon® Scalable Processors. Its modular architecture scales cost-efficiently to meet future growth. With 6 UPI links per processor, it provides higher bandwidth and faster data rates than prior generations<sup>1</sup>. 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:** <sup>1</sup>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



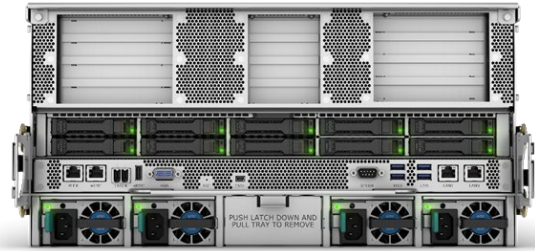
HPE Superdome Flex 280 Server

## 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

### Base chassis front view

- 8 x Cooling Fans with handles
- 8 x UPI Connectors



### Storage Backplane 8 x 2.5" SFF drive bays and optional DVD

## 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 (12TB at first release)
- Choice of high performance DRAM only, or with a combination of DRAM and Persistent Memory available in 128GB and 256GB 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



## Overview

### 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 8 sockets (2 chassis). Each chassis supports 8 fans, 4 power supplies, associated power cords, and connecting UPI cables.

### Power Supply (1600W)

80PLUS Platinum Power Supply		
<b>Loading</b>	100% maximum	50% of maximum
<b>Minimum Efficiency</b>	91%	94%

Rated Specifications	Value	Units
<b>Input Voltage</b>	100-127/200-240	Volts
<b>Input Current</b>	14/10	Amps
<b>Input Frequency</b>	47-63	Hz
<b>Rated Output Power</b>	1600	Watts

#### Notes:

- Absolute minimum efficiency at 50% of load = 93.5%
- 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 Platinum Power Supply		
<b>Loading</b>	100% maximum	50% of maximum
<b>Minimum Efficiency</b>	91%	94%

Rated Specifications	Value	Units
<b>Input Voltage</b>	200-277	Volts
<b>Input Current</b>	13	Amps
<b>Input Frequency</b>	47-63	Hz
<b>Rated Output Power</b>	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
- 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 is required for N+N support when adding GPUs



## Overview

### 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:

1. Support for four (4) Intel Xeon Scalable processors
2. Supports 48 DDR4 DIMM slots (12 DIMMs per processor)
3. Supports up to 16 PCIe Gen 3 slots
4. 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 8-sockets.

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## 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 8354H (3.1GHz/18-core/205W) Processor
- Intel Xeon-Gold 6348H (2.3GHz/24-core/165W) Processor
- Intel Xeon-Gold 6328H (2.8GHz/16-core/165W) Processor
- Intel Xeon-Gold 6328HL (2.8GHz/16-core/165W) 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

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### Chipset

Intel C621 Chipset

**Notes:** For more information regarding Intel® chipsets, please see the following URL:

<http://www.intel.com/products/server/chipsets/>

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### Upgradability and scalability

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

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### 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

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### Memory protection

Error checking and correcting (ECC) on memory and caches; ADDDC is supported.

Fast Fault Tolerance (custom enhanced ADDDC)

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### Operating System

- Red Hat Enterprise Linux (RHEL)
- SUSE Linux Enterprise Server (SLES)
- Oracle Linux/Oracle UEK
- VMware
- Microsoft Windows Server 2016 Standard and Datacenter
- Microsoft Windows Server 2019 Standard and Datacenter

#### Notes:

- Oracle Linux/Oracle UEK and Microsoft Windows Server 2016 Standard and Datacenter available in future release
- 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



## Standard Features

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

Superdome Flex 280 IO Support Matrix								
Product SKU	Description	Windows 2016	Windows 2019	RHEL 7	RHEL 8	SLES 15	VMWare 7	Oracle/UEK
<b>Infiniband HCA</b>								
872726-H21	HPE InfiniBand EDR/Ethernet 100Gb 2-port 841QSFP28 Adapter	X	X	X	X	X		
P06250-H21	HPE InfiniBand HDR100/Ethernet 100Gb 1-port QSFP56 PCIe3 x16 MCX653105A-ECAT Adapter			X	X	X		
P06251-H21	HPE InfiniBand HDR100/Ethernet 100Gb 2-port QSFP56 PCIe3 x16 MCX653106A-ECAT Adapter			X	X	X		
P06154-H21	HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe3 x16 MCX653105A-HDAT Adapter			X	X	X		
<b>Network Controllers</b>								
817753-B21	HPE Ethernet 10/25Gb 2-port SFP28 MCX4121A-ACUT Adptr	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
727055-B21	HPE Ethernet 10Gb 2-port SFP+ X710-DA2 Adapter	X	X	X	X	X	X	X
647594-B21	HPE Ethernet 1Gb 4-port BASE-T BCM5719 Adapter	X	X	X	X	X	X	X
652497-B21	HPE Ethernet 1Gb 2-port BASE-T I350-T2V2 Adapter	X	X	X	X	X	X	
817718-B21	HPE Ethernet 10/25Gb 2-port SFP28 BCM57414 Adptr	X	X	X	X	X	X	X
874253-B21	HPE Ethernet 100Gb 1-port QSFP28 MCX515A-CCAT Adapter	X	X	X	X	X	X	
867328-B21	HPE Ethernet 10/25Gb 2-port SFP28 QL41401-A2G Adapter	X	X	X	X	X	X	X
867707-B21	HPE Ethernet 10Gb 2-port BASE-T QL41401-A2G Adapter	X	X	X	X	X	X	
<b>Storage Controllers (Fibre Channel)</b>								
P9D94A	HPE SN1100Q 16Gb Dual Port Fibre Channel Host Bus Adapter	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
R2J63A	HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter	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
<b>Storage Controllers (SAS)</b>								
R5Y72A	HPE SD Flex 280 SR 3162-8i/e SAS Cntrl	X	X	X	X	X	X	X
R4R47A	HPE SD Flex 280 SR 3154-16i SAS Cntrl	X	X	X	X	X	X	X
R4R48A	HPE SD Flex 280 SR 3154-24i SAS Cntrl	X	X	X	X	X	X	X
H7B70A	HPE 9300-8e 12Gb 8p Ext SAS Controller		X	X	X	X	X	X
Q6M15A	HPE 3154-8e RAID Controller (external)	X	X	X	X	X	X	X

## Standard Features

Workload Accelerator – NVMe AIC								
878038-H21	HPE 750GB NVMe x4 Lanes Write Intensive HH DS Card	X	X	X	X	X	X	
P26934-H21	HPE 1.6TB PCIe x8 MU HH DS Card	X	X	X	X	X	X	
P26936-H21	HPE 3.2TB PCIe x8 MU HH DS Card	X	X	X	X	X	X	
P26938-H21	HPE 6.4TB PCIe x8 MU HH DS Card	X	X	X	X	X	X	
GPU								
ROZ45A	NVIDIA Quadro RTX 6000 Graphics Accel for HPE	X		X	X	X		
R1F97A	NVIDIA Quadro RTX 8000 Graphics Accel for HPE	X		X	X	X		
R4D73A	NVIDIA V100S 32GB Computational Accelerator			X	X	X		
ROW29A	NVIDIA T4 16GB Computational Accel for HPE	X		X	X	X		

**Notes:**

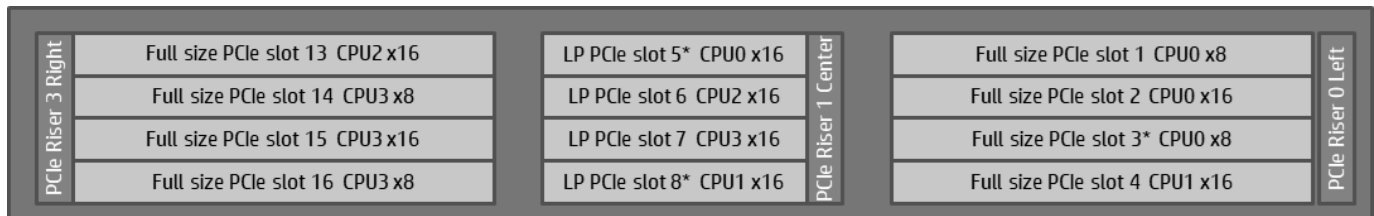
- X = Supported
- Minimum OS levels are required for support of some processors and options
- HPE Superdome Flex 280 I/O Oracle Linux Support: Hewlett Packard Enterprise only supports the use of in distribution drivers with Oracle Linux and UEK update releases. All controllers tested above used the driver located on the source media for their respective Oracle product. Out of distribution drivers are not supported with Oracle Linux, or UEK.
- Oracle Linux/Oracle UEK and Microsoft Windows Server 2016 Standard and Datacenter available in future release

**Notes:**

- 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>

## 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.



## Standard Features

### 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

### 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 in subsequent releases
- 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 Pointnext 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 Pointnext 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 Pointnext 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>





## Standard Features

### 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.

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

General rules are as follows:

1. Boot devices should be in slot 3
2. Alternate boot devices should be in slot 5 or 8

### 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



## Standard Features

### 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](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

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.

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

## Standard Features

### 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

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



## Standard Features

### Processor Support

Superdome Flex 280 systems support Intel® Xeon® 3<sup>rd</sup> 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

Support for the various speed bins is as follows:

#### Supported Processor Matrix

##### Intel® Xeon® Scalable Processor Family 3<sup>rd</sup> 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 8354H Processor	18c	3.1 GHz	24.75 MB	205W
Intel® Xeon® Gold 6348H Processor	24c	2.3 GHz	33 MB	165W
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 5318H Processor	18c	2.5 GHz	24.75 MB	150W

### 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

**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.



## Standard Features

### 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

#### 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

### Superdome Flex 280 Memory DIMM Configurations

Memory Slot Configuration	DIMMS per Socket	Data Rate	Capacity per Socket	Total System Memory Capacity (TB)		
				2S	4S	8S
32GB RDIMM	1	3200 MT/s	32GB	64GB	128GB	256GB
	4	3200 MT/s	128GB	256GB	512GB	1TB
	6	3200 MT/s	192GB	384GB	768GB	1.5TB
	12	2933 MT/s	384GB	768GB	1.5TB	3TB
64GB RDIMM	1	3200 MT/s	64GB	128GB	256GB	512GB
	4	3200 MT/s	256GB	512GB	1TB	2TB
	6	3200 MT/s	384GB	768GB	1.5TB	3TB
	12	2933 MT/s	768GB	1.5TB	3TB	6TB
64GB LRDIMM	1	2933 MT/s	64GB	128GB	256GB	512GB
	4	2933 MT/s	256GB	512GB	1TB	2TB
	6	2933 MT/s	384GB	768GB	1.5TB	3TB
	12	2933 MT/s	768GB	1.5TB	3TB	6TB
128GB LRDIMM	1	3200 MT/s	128GB	256GB	512GB	1TB
	4	3200 MT/s	512GB	1TB	2TB	4TB
	6	3200 MT/s	768GB	1.5TB	3TB	6TB
	12	2933 MT/s	1536GB	3TB	6TB	12TB
64GB LRDIMM	6	2933 MT/s	1152GB	2.25TB	4.5TB	9TB
128GB LRDIMM	6	2933 MT/s				
128GB PMEM	6	2667 MT/s	1152GB	2.25TB	4.5TB	9TB*
64GB RDIMM	6	2667 MT/s				
128GB PMEM	6	2667 MT/s	1536GB	3TB	6TB	12TB*
128GB LRDIMM	6	2667 MT/s				
256GB PMEM	6	2667 MT/s	2304GB	4.5TB	9TB	18TB*
128GB LRDIMM	6	2667 MT/s				

Notes: \*future release possible

### 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 1Gb 4-port BASE-T BCM5719 Adapter
- 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](#)



## Standard Features

### Superdome Flex 280 Storage Support

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

#### Storage and boot support

- HPE SN1200E 16Gb 2p FC HBA
- HPE SN1100Q 16Gb 2p FC HBA
- HPE SN1610E 32Gb 2p FC HBA
- HPE SN1610Q 32Gb 2p FC HBA
- HPE Superdome Flex 280 SmartRAID 3162-8i/e 8-port Internal 2GB Cache SAS 12G Encryption Controller
- HPE Superdome Flex 280 SmartRAID 3154-16i 16-port Internal 4GB Cache SAS 12G PCIe3 x8 Controller
- HPE Superdome Flex 280 SmartRAID 3154-24i 24-port Internal 4GB Cache SAS 12G PCIe3 x8 Controller
- HPE 9300-8e 12Gb 8-port External SAS Controller
- HPE 3154-8e External RAID Controller

#### 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, SW 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 premium storage, HW RAID, no encryption	R4S22A 8SFF Premium	R4R47A SR 3154-16i	8 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

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
Premium	SmartRAID 31xx	SAS-3	2	12 Gb/s	1.2 GB/s
Premium	SmartRAID 31xx	SAS-3 wide	2	24 Gb/s	2.4 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.



## Standard Features

### 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. Security is not just about what is in the firmware, but what is out.

- UEFI Secure Boot and Secure Start support
- Immutable Silicon Root of Trust
- 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
- TPM (Trusted Platform Module) 2.0 soldered
- Chassis Intrusion detection option
- FW update protected by RMC Admin
- Air-Gapped Manageability
- Secure Out-of-Box
- Directory access control (LDAP/Active Directory)
- Alternatives to PXE (Directed LAN Boot, HTTP Boot)

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### 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. 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

## Service and Support

### HPE Pointnext Services and Support

#### Protect your business beyond warranty with HPE Support Services

HPE Pointnext provides a comprehensive portfolio including Advisory and Transformational, Professional, and Operational Services to help accelerate your digital transformation. From the onset of your transformation journey, Advisory and Transformational Services focus on designing the transformation and creating a solution roadmap. Professional Services specializes in creative configurations with flawless and on-time implementation, and on-budget execution. Finally, operational services provides innovative new approaches like Flexible Capacity and Datacenter Care, to keep your business at peak performance. Hewlett Packard Enterprise is ready to bring together all the pieces of the puzzle for you, with an eye on the future, and make the complex simple.

#### Connect your devices:

Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Achieve up to 77%<sup>1</sup> reduction in down time, near 100%<sup>2</sup> diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7 monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to Hewlett Packard Enterprise support.

#### Notes:

- <sup>1</sup>IDC
- <sup>2</sup>HP CSC reports 2014 – 2015

Learn more about getting connected at <http://www.hpe.com/services/getconnected>

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### Support Services available for Superdome Flex 280

#### HPE Proactive Care Advanced

This is the recommended support for Mission Critical and SAP HANA environments. It builds on HPE Proactive Care, providing additional benefits such as the assignment of a dedicated, local account support manager (ASM) for collaboration and best practices and critical event management that provides 24x7 response and IT service restoration with incident follow-up to prevent a repeat. All of this is designed to give you an incredibly personalized, high-touch support experience that keeps your system fully available and running at peak performance.

#### HPE Proactive Care

HPE Proactive Care begins with providing all of the benefits of proactive monitoring and reporting to put in place the fundamentals needed for stability and availability of the IT environment. Proactive Care helps in problem prevention, with predictive analytics, personalized analysis with recommendations and advice paired with rapid access to technical experts to help rapidly resolve any problem. You receive an enhanced call experience and a single point of contact for the support of all covered components. Customers can customize their Proactive Care reactive support level by selecting either 6-hour call-to-repair, 24x7 with 4-hour onsite response, or next-business day onsite response.

**Notes:** HPE Proactive Care and HPE Proactive Care Advanced require that the customer connect their devices to make the most of these services and receive all the deliverables.

#### HPE Foundation Care

Provides flexibility to customize your reactive support level by selecting either 6-hour call-to-repair, 24x7 with 4-hour onsite response, or Next Business Day onsite response. The HPE Foundation Care with 6-hour call-to-repair is the highest level commitment to repair hardware within six hours after the initial hardware service request has been received and respond to software questions within two hours.

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## Service and Support

### 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 Datacenter Care service

HPE Datacenter Care helps improve IT stability and security, increase the value of IT, and enable agility and innovation. It is a structured framework of repeatable, tested, and globally available services “building blocks.” You can deploy, operate, and evolve your datacenter wherever you are on your IT journey. With HPE Datacenter Care, you benefit from a personalized relationship with Hewlett Packard Enterprise via a single point of accountability for HPE and others’ products.

#### HPE GreenLake Flex Capacity

With HPE GreenLake Flex Capacity, you get the speed, scalability, and economics of the public cloud in the privacy of your data center. Gain the advantages of the public cloud—consumption-based payment, rapid scalability without worrying about capacity constraints. Reduce the “heavy lifting” needed to operate a data center. And retain the advantages that IT provides the business (i.e., control, security). Deliver the right user experience, choose the right technology for the business, manage privacy and compliance, and manage the cost of IT. And, you have the option to use the public cloud when needed.

#### 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.

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### 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 quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

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

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## 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>

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### 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

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### 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
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## Configuration Information

### Processors

#### Notes:

- Each Base chassis requires minimum two (2) processors
- Each Expansion chassis requires minimum four (4) 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 8354H (3.1GHz/18-core/205W) Processor Kit for HPE Superdome Flex 280	R4R20A
Intel Xeon-Gold 6348H (2.3GHz/24-core/165W) Processor Kit for HPE Superdome Flex 280	R4R21A
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 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

### 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

#### 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

#### 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
- Supported only on SLES OS at initial launch
- Superdome Flex 280 supports only App-direct Mode for Persistent Memory

### 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



## Configuration Information

### 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 Superdome Flex 280 480GB SATA 6G Mixed Use SFF (2.5in) BC 3yr Wty Digitally Signed Firmware SSD	R6A34A
HPE Superdome Flex 280 960GB SATA 6G Mixed Use SFF (2.5in) BC 3yr Wty Digitally Signed Firmware SSD	R6A35A
HPE Superdome Flex 280 1.92TB SATA 6G Mixed Use SFF (2.5in) BC 3yr Wty Digitally Signed Firmware SSD	R6A36A
HPE Superdome Flex 280 3.84TB SATA 6G Mixed Use SFF (2.5in) BC 3yr Wty Digitally Signed Firmware SSD	R6A37A

#### Internal SATA Hard Disk Drives

HPE Superdome Flex 280 1TB SATA 6G Business Critical 7.2K SFF (2.5in) BC 1yr Wty HDD	R6N46A
HPE Superdome Flex 280 2TB SATA 6G Business Critical 7.2K SFF (2.5in) BC 1yr Wty 512e HDD	R6N47A

#### Internal SAS Hard Disk Drives

HPE Superdome Flex 280 300GB SAS 12G Mission Critical 15K SFF (2.5in) BC 3yr Wty HDD	R6N42A
HPE Superdome Flex 280 600GB SAS 12G Mission Critical 10K SFF (2.5in) BC 3yr Wty HDD	R6N43A
HPE Superdome Flex 280 1.2TB SAS 12G Mission Critical 10K SFF (2.5in) BC 3yr Wty HDD	R6N44A
HPE Superdome Flex 280 2.4TB SAS 12G Mission Critical 10K SFF (2.5in) BC 3yr Wty 512e HDD	R6N45A

#### Internal SAS Solid State Drives

HPE Superdome Flex 280 800GB SAS 12G Mixed Use SFF (2.5in) BC 3yr Wty Digitally Signed Firmware SSD	R6A27A
HPE Superdome Flex 280 1.6TB SAS 12G Mixed Use SFF (2.5in) BC 3yr Wty Digitally Signed Firmware SSD	R6A28A
HPE Superdome Flex 280 3.2TB SAS 12G Mixed Use SFF (2.5in) BC 3yr Wty Digitally Signed Firmware SSD	R6A29A
HPE Superdome Flex 280 6.4TB SAS 12G Mixed Use SFF (2.5in) BC 3yr Wty Digitally Signed Firmware SSD	R6A30A
HPE Superdome Flex 280 400GB SAS 12G Write Intensive SFF (2.5in) BC 3yr Wty DS SSD	R6A31A
HPE Superdome Flex 280 800GB SAS 12G Write Intensive SFF (2.5in) BC 3yr Wty DS SSD	R6A32A
HPE Superdome Flex 280 1.6TB SAS 12G Write Intensive SFF (2.5in) BC 3yr Wty DS SSD	R6A33A

### 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
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#### Notes:

- R4S36A includes two (2) Full Height x8 and two (2) Full Height x16 – Left Riser
- 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
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**Notes:** R4S37A includes two (2) Low Profile x8 and two (2) Low Profile x16 – Left Riser



## Configuration Information

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

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

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

## RAID Controllers

HPE Superdome Flex 280 SmartRAID 3162-8i/e 8-port Internal 2GB Cache SAS 12G Encryption Controller	R5Y72A
HPE Superdome Flex 280 SmartRAID 3154-16i 16-port Internal 4GB Cache SAS 12G PCIe3 x8 Controller	R4R47A
HPE Superdome Flex 280 SmartRAID 3154-24i 24-port Internal 4GB Cache SAS 12G PCIe3 x8 Controller	R4R48A
HPE 9300-8e 12Gb 8-port External SAS Controller	H7B70A
HPE 3154-8e 8-port External RAID Controller	Q6M15A

## Fibre Channel HBAs

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 2-port Fibre Channel Host Bus Adapter	R2J63A
HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter	R2E09A

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

## Networking cards

HPE Ethernet 10/25Gb 2-port SFP28 MCX4121A-ACUT Adapter	817753-B21
HPE Ethernet 1Gb 4-port BASE-T BCM5719 Adapter	647594-B21
HPE Ethernet 10Gb 2-port BASE-T X550-AT2 Adapter	817738-B21
HPE Ethernet 10Gb 2-port 562SFP+ Adapter	727055-B21
HPE Ethernet 10/25Gb 2-port SFP28 BCM57414 Adapter	817718-B21
HPE Ethernet 1Gb 2-port BASE-T I350-T2V2 Adapter	652497-B21
HPE Ethernet 100Gb 1-port QSFP28 MCX515A-CCAT Adapter	874253-B21
HPE Ethernet 10/25Gb 2-port SFP28 QL41401-A2G Adapter	867328-B21
HPE Ethernet 10Gb 2-port BASE-T QL41401-A2G Adapter	867707-B21

### Notes:

- Max eight (8) per chassis/Max 16 per system
- The 64QSFP28 Adapter (817753-B21) and 562SFP+ Adapter (727055-B21) require transceivers or direct attached copper (DAC) cables (min 1/max2)
- Server networking transceiver and cable compatibility matrix can be found [HERE](#)



## Configuration Information

### InfiniBand cards

HPE InfiniBand EDR/Ethernet 100Gb 2-port 841QSFP28 Adapter	872726-H21
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
HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe3 x16 MCX653105A-HDAT Adapter	P06154-H21

#### Notes:

- Max two (2) 872726-H21, P06250-H21, or P06251-H21 per chassis/Max 4 per system
- No mixing of InfiniBand card types in the same system
- Max one (1) P06154-H21 per chassis
- An P06154-H23 Extender card is required with P06154-H21 and will automatically be added to configuration

### GPU Accelerators

NVIDIA V100S 32GB Computational Accelerator for HPE	R4D73A
NVIDIA T4 16GB Computational Accelerator for HPE	ROW29A
NVIDIA Quadro RTX 6000 Graphics Accelerator for HPE	ROZ45A
NVIDIA Quadro RTX 8000 Graphics Accelerator for HPE	R1F97A
HPE Superdome Flex 8 Pin GPU Cable Kit	Q6M17A
HPE Superdome Flex 6+2 Pin GPU Cable Kit	Q6M16A

#### Notes:

- Max four (4) V100S per chassis., 8 per system
- Max four (4) Quadro accelerator cards per chassis, 8 per system
- T4 accelerator is a Low Profile card. Max is dependent on available x16 slots
- No mixing of GPU controller types in the same system
- GPU Controllers require the R4S36A (12-slot PCIe riser) to be in the same Chassis
- GPU Controllers are ‘double-wide’ and therefore utilize two adjacent PCIe slots except the T4 which is a single slot x16 card
- Each V100S GPU Accelerator requires one Q6M17A V100 cable kit
- Each RTX 6000 or RTX 8000 GPU Accelerator requires one Q6M16A cable kit
- T4 does NOT require additional power cable kit
- Inner node, peer-to-peer communication is not supported with Superdome Flex 280

### NVMe storage cards

HPE 750GB NVMe Gen3 x4 High Performance Low Latency Write Intensive AIC HHHL P4800X SSD	878038-H21
HPE 1.6TB NVMe Gen4 x8 High Performance Mixed Use AIC HHHL PM1735 SSD	P26934-H21
HPE 3.2TB NVMe Gen4 x8 High Performance Mixed Use AIC HHHL PM1735 SSD	P26936-H21
HPE 6.4TB NVMe Gen4 x8 High Performance Mixed Use AIC HHHL PM1735 SSD	P26938-H21

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



## Configuration Information

### 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

### 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 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) 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 14.4kVA/60309 63A 3-wire 48A/230V Outlets (6) C19/1U Horizontal INTL PDU	P9Q51A
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 Basic 7.3kVA/60309 3-wire 32A/230V Outlets (12) C13/1U Horizontal INTL PDU	P9Q44A
HPE G2 IEC C20 Input/(8) C13 Expansion Outlets/PDU Extension Bar Kit	P9Q66A
<b>Notes: Two are required.</b>	
HPE Destination Rack 21 x Outlets 3-phase 240V NA/JP PDU	H7C28A
HPE Destination Rack 21 x Outlets 3-phase 400V INTL PDU	H7C29A
HPE Destination Rack 8 x Outlets Single-phase 240V NA PDU	H7C30A
HPE Destination Rack 8 x Outlets Single-phase 240V INTL PDU	H7C31A
HPE Destination Rack 8 x Outlets Single-phase 240V AU PDU	H7C32A
HPE G2 Basic 3Ph 8.6kVA/L21-30P 24A/208V Outlets (24) C13 (3) C19 (3) 5-20R/Vertical NA/JP PDU	P9Q55A
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
HPE G2 Basic 11kVA/60309 63A 3-wire 48A/230V Outlets (30) C13 (6) C19/Vertical INTL PDU	P9Q50A
HPE G2 Basic 3Ph 17.3kVA/60309 60A 4-wire 48A/208V Outlets (18) C13 (6) C19/Vertical NA/JP PDU	P9Q61A
HPE G2 Basic 3Ph 17.3kVA/60309 60A 4-wire 48A/208V Outlets (36) C13 (12) C19/Vertical NA/JP PDU	P9Q62A
HPE G2 Basic 3Ph 22kVA/60309 5-wire 32A/230V Outlets (18) C13 (6) C19/Vertical INTL PDU	P9Q64A

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.**





## Technical Specifications

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

<b>Superdome Flex 280 chassis</b>	
<b>Physical Information</b>	
<b>Site planning and installation included</b>	Yes
<b>Maximum Heat dissipation (fully populated system)</b>	17.40 kBTU/hr
<b>Depth (handle to handle)</b>	879.5 mm / 34.63"
<b>Width (not including mounting rails)</b>	445 mm / 17.5"
<b>Height</b>	218.2 mm / 8.59" (5U)
<b>Weight - Maximum (fully populated)</b>	50 kg / 110 lb
<b>Electrical Characteristics</b>	
<b>Single phase (200/240)</b>	4 IE320-C13
<b>Maximum Input Power total</b>	5.27 KVA
<b>Environmental Characteristics</b>	
<b>Cooling airflow (front to back)</b>	Without GPUs: 300 CFM typical; 650 CFM max With GPUs: 475 CFM typical; 650 CFM max
<b>Acoustics</b>	82 dBA (maximum) 73 dBA (typical)
<b>Temperature - Recommended Operating Range<sup>1,2</sup></b>	+18°C to +27°C
<b>Temperature - Allowable Operating Range<sup>1,2</sup></b>	+5°C to +35°C
<b>Maximum rate of temperature change</b>	20°C/hr non-condensing
<b>Non-operating temperature (storage)</b>	-40°C to +60°C
<b>Air quality</b>	Gaseous contaminants must be at the G1 level or less as defined by ISA Standard ISA-71.04-1985
<b>Humidity - Recommended Operating Range (non-condensing)<sup>1</sup></b>	-9°C DP to 15°C DP and 60% RH
<b>Humidity - Allowable Operating Range (non-condensing)<sup>1</sup></b>	-12 °C DP and 8% RH to 24 °C DP and 85% RH
<b>Non-operating relative humidity (storage)</b>	8% RH to 90% RH and 32 °C DP
<b>Maximum Operating altitude</b>	3050m (10,000 ft)
<b>Maximum Non-operating altitude (storage)</b>	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-067

### 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

<b>Date</b>	<b>Version History</b>	<b>Action</b>	<b>Description of Change</b>
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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