Hewlett Packard Enterprise

Solution Architecture

HPE Solution Architecture for HPE Superdome Flex 280 solutions for SAP HANA

Built with the Intel Xeon Scalable Processor (Intel Cooper Lake)

CONTENTS

EXECUTIVE SUMMARY

Hewlett Packard Enterprise is #1 in SAP HANA server deployments with approximately 40% of the market share for SAP systems. Ranked #1 in Scale-up and Scale-out capacity, Hewlett Packard Enterprise commands a wide margin, and leadership, in total SAP systems deployed, SAP HANA appliances, Tailored Data center Integration (TDI), SAP BW/4HANA, and SAP S/4HANA.

With nearly 34,000+ servers deployed at thousands of SAP HANA customers worldwide, complemented by an unmatched services portfolio, Hewlett Packard Enterprise brings a unique understanding of SAP and SAP HANA environments that helps customers de-risk their SAP HANA adoption journey.

Hewlett Packard Enterprise offers a differentiated infrastructure portfolio for SAP HANA designed to support modest to complex mission-critical business needs of customers beginning with Test and Development (DEV) systems to Production (PRD) systems which are highly scalable solutions for mission-critical environments. For more information, see Hewlett Packard Enterprise Solutions for SAP HANA page.

HPE Pointnext Services provide truly comprehensive SAP solutions for the Hybrid Cloud leveraging experience from over 1500 SAP HANA consulting projects and supporting over 25,000 SAP customers.

The solution consisting of HPE Superdome Flex 280 Scale-up single server configuration which is purpose-built, optimized, designed to provide high-performance, highly scalable, and resilient. It is shipped with the Intel® Xeon® Cooper Lake scalable processor and varies DDR4 memory configuration ranging from 1.5TB to 12.0TB for SAP HANA.

HPE D3710 external storage system provides an add-on variant for dual-purpose systems for quality and testing environments. It supports hot-pluggable SAS, SATA, and Solid-state Small Form Factor (SFF) with 25 drives. This allows you to buy what is needed today and purchase additional capacity as data storage needs grow.

HPE Superdome Flex 280 solution for SAP HANA

- Fully vetted hardware infrastructure designed by Hewlett Packard Enterprise to host SAP HANA databases and certified by SAP
- Assembled and tested as a unit
- Hewlett Packard Enterprise on-site installation and configuration
- HPE Pointnext Services portfolio, partner ecosystem, and HPE's mission-critical expertise complements the platform value to ensure your move to HPE Superdome Flex is a success

Document Purpose: This document describes the architectural design and overview of the solution components to build Hewlett Packard Enterprise predefined configurations for SAP HANA on HPE Superdome Flex 280 servers.

Target audience: This document is intended to assist chief information officers (CIOs), chief technology officers (CTOs), IT directors, data center managers, SAP solution architects, SAP HANA database and basis administrators, IT professionals, and customers wishing to learn more about the HPE Superdome Flex solutions for SAP HANA. This document assumes the reader has a basic understanding of the SAP HANA database, Linux® operating systems, storage, and server hardware components.

INTRODUCTION

Hewlett Packard Enterprise and SAP together delivered SAP HANA in-memory database solution on HPE Superdome Flex 280 which is a highly resilient configuration for SAP HANA Scale-up solutions with the Intel Xeon 3rd Generation Scalable Processor architecture.

HPE Superdome Flex 280 shows visible performance difference compared to earlier 2nd generation Intel Xeon Scalable Processor architecture and it provides important security features to the mission-critical applications without exposing them to vulnerabilities.

HPE Superdome Flex 280 Scale-up for SAP HANA is an affordable solution, which is simple, flexible, and easily upgradeable. This solution uses an internal storage component with 6.4TB SSD drives to deliver high I/O performance and comes in 4-socket and 8-socket variants, supported with DDR4 Memory Modules to cover broader memory configurations.

Key solution benefits include:

- SAP certified solution
- Choice of Gold or Platinum processors

- Modern storage and network components/technologies
- Highly scalable and resilient
- Highly flexible and well-tuned for SAP HANA ecosystem
- Field upgrades are supported as investment protection
- Provides a full range of services such as factory integration, on-site installation, and proactive support with a single point of contact

SOLUTION OVERVIEW

This section dives into solution design details, giving in-depth exposure to the solution building blocks and capabilities in building Hewlett Packard Enterprise predefined solutions for SAP HANA using HPE Superdome Flex 280 server as compute block, internal disk drives as storage block, HPE Ethernet adapters as network Interface, and HPE Smart Array controllers as a storage interface.

Figure 1 shows an overview of the solution building blocks.

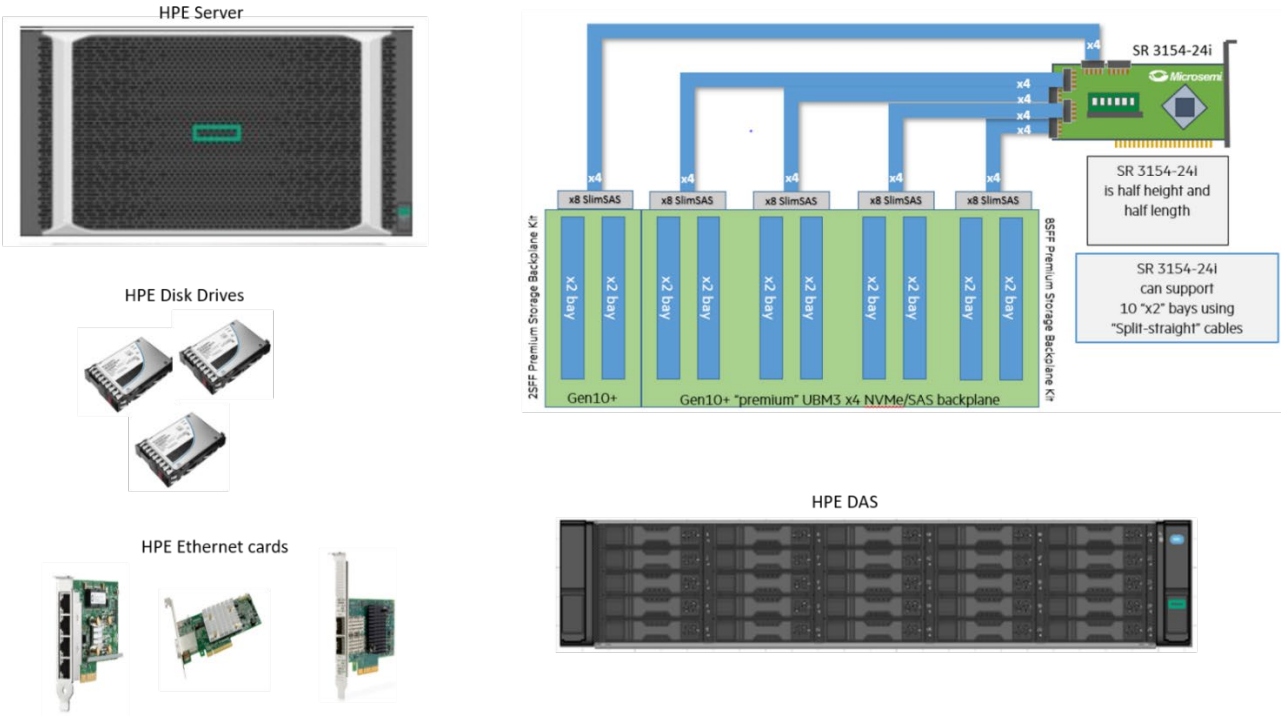


FIGURE 1. Overview of HPE solution building blocks

HPE Superdome Flex 280 server is designed to support memory configuration starting from 1.5TB to 12.0TB using DDR4 DIMMs. It starts with a 4-socket as a minimum building block and further expands to an 8-socket to meet future growth requirements.

Figure 2 shows the overview of the HPE Superdome Flex 280 solution for SAP HANA.

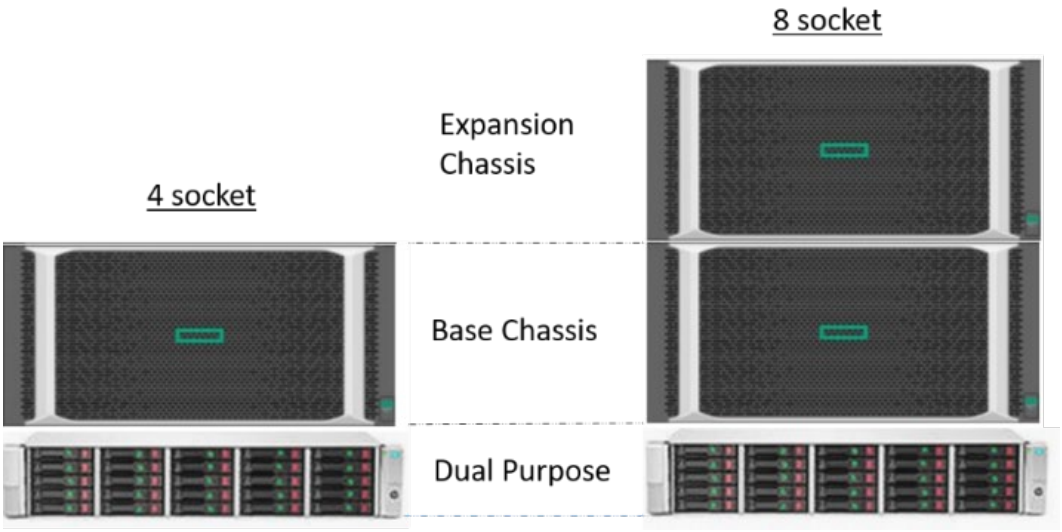


FIGURE 2. HPE Superdome Flex 280 solution for SAP HANA

This modular architecture features six (6) Ultra Path Interconnect (Intel UPI) links per processor to deliver higher bandwidth resulting in high performance. It supports glueless architecture with each 5U chassis supports up to 10 drives with RAID configurations (0,1,5,6,) and hardware encryption, with a choice of 16 or 12 PCIe slots for enhanced data volumes for higher network connectivity

Dual-purpose storage

Configurations shown in Figure 2, an additional HPE D3710 enclosure is included in the rack to configure HA/DR dual-purpose storage.

SOLUTION COMPONENTS

Table 1 shows the solution components.

TABLE 1. HPE Superdome Flex scale-up 4s/8s single server configuration

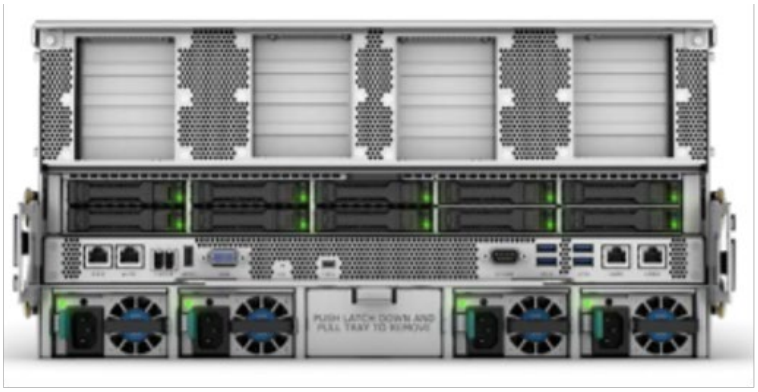
Solution Components	4-socket	8-socket
Number of Processors	4 x CPU (4s Base Chassis).	8 x CPU (4s Base Chassis).
Model	Platinum: 8380H, 8380HL, 8376H, 8380HL, 8354H	Platinum: 8380H, 8380HL, 8376H, 8380HL, 8354H
Memory	24 or 48 64GB (1x64GB) Dual Rank x4 DDR4-3200 24 or 48 64GB (1x64GB) Quad Rank x4 DDR4-2933 24 or 48 128GB (1x128GB) Quad Rank x4 DDR4-3200	48 or 96 64GB (1x64GB) Dual Rank x4 DDR4-3200 48 or 96 64GB (1x64GB) Quad Rank x4 DDR4-2933 48 or 96 128GB (1x128GB) Quad Rank x4 DDR4-3200
Network	1x 1GbE 4P 331T adapter 4x 10/25GbE 2-port 640SFP28 Mellanox NIC or 4x 10GbE 2P 562T adapter	1x HPE Ethernet 1Gb 4P 331T adapter 4x HPE 10/25Gb 2-port 640SFP28 Mellanox NIC or 4x HPE Ethernet 10Gb 2P 562T adapter
Internal storage	1 x HPE 3154-24i Internal RAID controller 3-6 x 6.4TB SSD 10K	2 x HPE 3154-24i Internal RAID controller 6-12 x 6.4TB SSD 10K (equal number of disks on both chassis.)
Dual Purpose Storage	1x HPE External RAID controller 3154-8e 1x HPE D3710 Enclosure HPE 2.4TB SAS SFF SC DS HDD or HPE 3.2TB SAS MU SFF SC DS SSD or HPE 6.4TB SAS MU SFF SC DS SSD	1x HPE 3154-8e External RAID controller 1x HPE D3710 Enclosure HPE 2.4TB SAS SFF SC DS HDD or HPE 3.2TB SAS MU SFF SC DS SSD or HPE 6.4TB SAS MU SFF SC DS SSD

HPE Server components

HPE Superdome Flex 280

The HPE Superdome Flex Server is a breakthrough and innovative compute to power mission-critical, applications, running on SAP HANA to accelerate data analytics using in-memory technology as it handles multiple mission-critical workloads. It delivers an unmatched combination of flexibility, performance, and reliability for critical environments. Its unique modular architecture and unparalleled scale allow you to start small and grow at your own pace. It has unmatched and superior Reliability, Availability, and Scalability (RAS) and end-to-end security features, leveraging its in-memory design and groundbreaking performance can process and analyze the growing amounts of data moving through your business at extreme speed and safeguard your vital workloads.

Figure 3 shows the front and rear view of the HPE Superdome Flex 280 chassis.



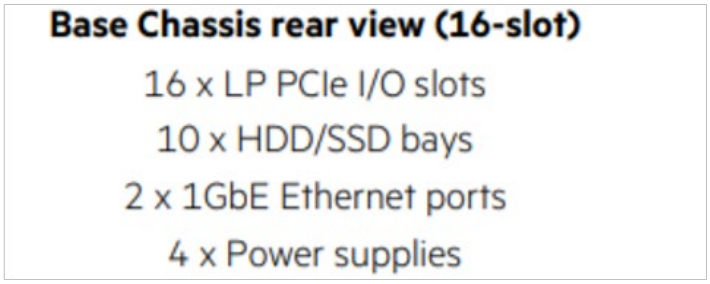


FIGURE 3. HPE Superdome Flex 280 chassis front and rear view

NOTE

Base IO consists of a board management controller (BMC), a DVD bay, ten (10) internal drive bays, one (1) 1GbE 4 ports, two (2) 10GbE NIC ports, serial console, VGA, and four (4) USB ports, a management LAN port, and 1 Gbe Rack management controller (RMC) port.

Figure 4 shows the Base IO chassis of the HPE Superdome Flex 280.

FIGURE 4. HPE Superdome Flex 280 Base IO chassis

Table 2 shows the technical specifications of the HPE Superdome Flex 280.

TABLE 2. HPE Superdome Flex 280 technical specifications

Technical specification	HPE Superdome Flex 280 server
Processor Type	x86
Processor Family	Intel Xeon Scalable Processors (Platinum or Gold)
Maximum Memory	up to 12TB in 8 socket
Memory slots	48 DIMM slots per chassis
Maximum Processors	Up to 8
Processor cache installed	16.5 MB or 22 MB or 24.75 MB or 27.5 MB or 33 MB or 35.75 MB or 38.5 MB
Processor Core Available	28 or 24 or 18 or 16
Maximum Processor Speed	3.1GHz
Memory Type	DDR4 Memory Modules
Drive Supported	2.5-inch SFF SAS SSDs 10 per chassis
Optional Drive Type	DVD-RW or DVD-R
Network Controller	2 x 1GbE ports per base chassis onboard, additional networking available via I/O cards.
Expansion PCIe slots	16
Power Supply Type	HPE 1600W hot-swappable, optional 2130W hot-swappable
PDU	Max 4 per chassis
Form Factor	Chassis is a 5U enclosure
Weight (metric)	Average 50 kg
Dimension	8.64 x 17.5 x 32.5 in (chassis)

HPE Storage components

HPE 3154-24i Internal RAID controller

SmartRAID 3100 series adapters/controllers are the industry's most versatile RAID configurable and suitable for data center server environments, which has connectivity to extreme data storage capacities and provides maximum read/write bandwidth and IOPS for analytical and transactional database applications.

Figure 5 shows the internal connectivity view of the HPE SmartRAID 3154-24i.

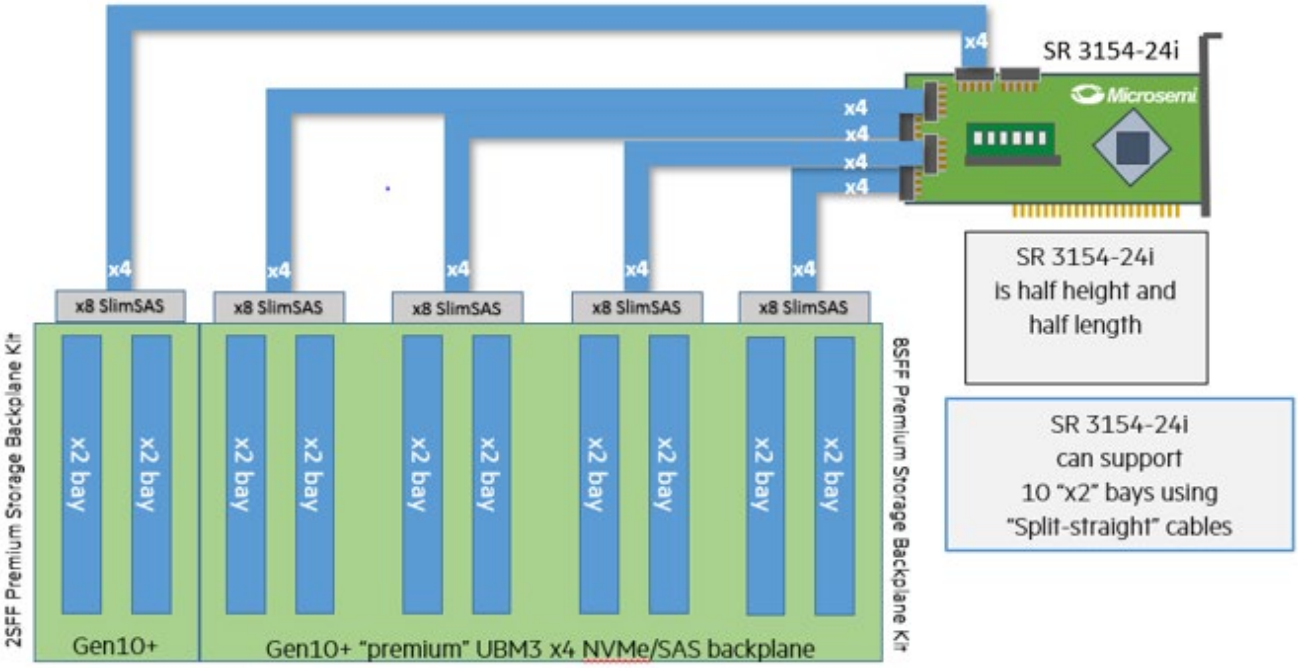


FIGURE 5. HPE SmartRAID 3154-24i internal connectivity view

Highlights

- maxCache 4.0 caching software
- Supports all RAID Levels
- Fifth-generation Zero-maintenance Cache Protection
- Quick initialization and online capacity expansion
- Configurable stripe sizes

HPE 3154-8e External RAID controller

Figure 6 shows the HPE 3154-8e External RAID controller.

FIGURE 6. HPE SmartRAID 3154-8e controller card

Highlights

- 8 external native SAS/SATA ports in low-profile/MD2 form factor
- Integrated flash-based cache backup to enable instant cache protection
- RAID levels: 0, 1, 5, 6, 10, 50, 60, 1 ADM and 10 ADM
- maxCache 4.0 caching software
- Supports simultaneous use of RAID and raw devices (mixed mode)
- Industry's lowest-power 28 nm SmartROC SAS/SATA protocol controller

HPE D3710 disk enclosure

HPE D3710 offers flexible modular solutions to simplify capacity expansion and tiered external storage system. Hot-pluggable SAS, SATA, and Solid-State Small Form Factor (SFF) up to 25 drives. This allows you to buy what is needed today and purchase additional capacity as data storage needs grow.

Each D3710 includes the standard components HPE D3710 base enclosure with redundant power supplies and fan modules Two (2) integrated 12Gb SAS IO Modules and HD Mini-SAS cables Two (2) PDU interconnect cords. It is a 2U rack space with a sliding rail kit.

Figure 7 shows the front view of the HPE D3710.

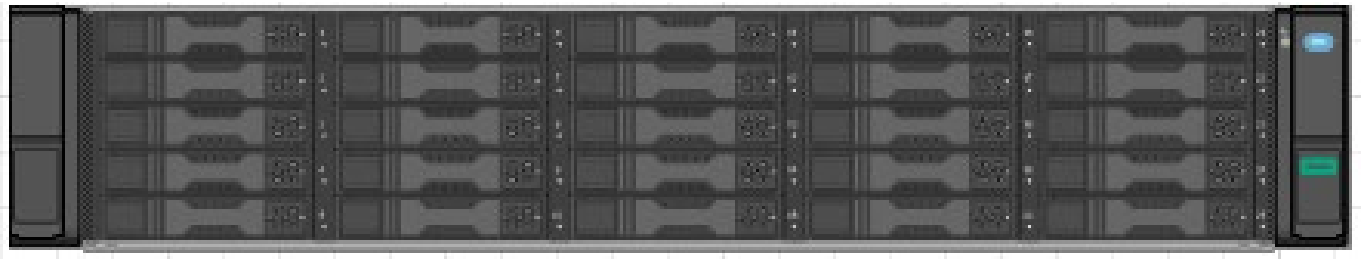


FIGURE 7. HPE D3710 front view

Highlights

- Modular platform provides investment protection
- Support storage capacity up to 60TB with 2.4TB
- Hassle-free expansion
- Hot-pluggable drives and power modules
- 12Gb SAS host connectivity enables higher data transfer
- HPE SSD Smart Path feature
- HPE Secure Encryption is available
- Redundant power and cooling provide increased reliability as a failure of a power supply or fans does not interrupt system functioning
- HPE 3.2TB SAS MU SFF SC DS SSD or HPE 6.4TB SAS MU SFF SC DS SSD or HPE 2.4TB SAS SFF SC DS HDD

HPE Disk Drives

HPE Solid State Drives (SSDs) deliver higher performance, lower latency, and more power-efficient solutions when compared with traditional rotating media, they support HPE Superdome Flex 280 server as a storage platform. They are generally available as Small Form Factor (SFF) and Large Form Factor (LFF) hot plug devices, non-hot plug SFF devices, and SFF Quick Release devices, they fit seamlessly into the existing HPE server infrastructure.

Figure 8 shows the HPE Solid State Drive.

FIGURE 8. HPE SSD disk drive

HPE SSDs are available in three categories based on workload level: Read Intensive (RI), Mixed Use (MU), and Write Intensive (WI). The categories indicate the number of drive writes per day (DWPD1) that you can expect from the drive. (DWPD is the maximum number of 4K host writes to the entire drive capacity of the SSD per day over five years period.

HPE Network components

HPE Ethernet 1Gb 4-port 331T Adapter

HPE Ethernet 1Gb 4-port 331T adapter is a completely integrated, tested, and qualified solution that is optimized for HPE servers. Hewlett Packard Enterprise validates a wide variety of major operating systems drivers and provides a central interface to simplify network management. The HPE Ethernet 1Gb 4-port 331T adapter is a low-profile card with both full height and half height brackets included in the kit. The x4 PCI Express Gen 2.0 interface is compatible with x4, x8, and x16 PCI slots and these adapters are pre-installed and shipped.

Figure 9 shows the HPE Ethernet 1GB 4-port 331T adapter.

FIGURE 9. HPE Ethernet 1GB 4-port 331T Adapter

Highlights

- HPE Ethernet 1Gb 4-port 331T adapter provides 2000 Mb/s full-duplex Ethernet transfer rate per port
- Enhanced bandwidth with PCIe 2.0
- Jumbo frames are supported for the higher payload in a dedicated network
- Supports for Preboot eXecution Environment (PXE), UEFI, and legacy boot option

HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter

HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter is designed to improve performance and security of critical applications such as SAP HANA database This adapter delivers 50 Gb/s bi-directional Ethernet transfer rate per port (100 Gb/s per adapter), providing the network performance needed to improve response times and alleviate bottlenecks.

Figure 10 shows the HPE Ethernet 10/25GB 2-port 640SFP28 Adapter.

FIGURE 10. HPE Ethernet 10/25GB 2-port 640SFP28 Adapter

Highlights

- Industry-leading throughput and latency performance
- Enhanced bandwidth with PCIe 3.0
- Jumbo frames are supported for the higher payload in a dedicated network
- Supports for Preboot eXecution Environment (PXE), UEFI, and legacy boot option

HPE Ethernet 10Gb 2-port 562T Adapter

HPE Ethernet 10Gb 2-port 562 Adapter is tailored for customer-specific workloads that require higher performance and to have longer lead-time. This adapter is available in FlexibleLOM and standup form factor and they provide full line-rate performance across all ports and have cabling to cover 100 Meters distance. These adapters provide up to 40Gbps of bi-directional Ethernet bandwidth.

Figure 11 shows the HPE Ethernet 10Gb 2-port 562T Adapter.

FIGURE 11. HPE Ethernet 10GB 2-port 562T Adapter

Highlights

- Industry-leading throughput and latency performance
- Enhanced bandwidth with PCIe 3.0
- Jumbo frames are supported for the higher payload in a dedicated network
- Supports for Preboot eXecution Environment (PXE), UEFI, and legacy boot option

CONFIGURATION TYPES

HPE Superdome Flex Scale-up Single Server 4-socket configuration

HPE Superdome Flex server starting configuration is 4-socket rack-mounted 5U compute chassis having a single Base I/O with a maximum of 48 DIMM slots for DDR4 memory, and PCI based HPE 3154-24i 4-port Internal RAID Controller along with a recommended set of internal disk drives that covers up to 6.0TB memory configuration.

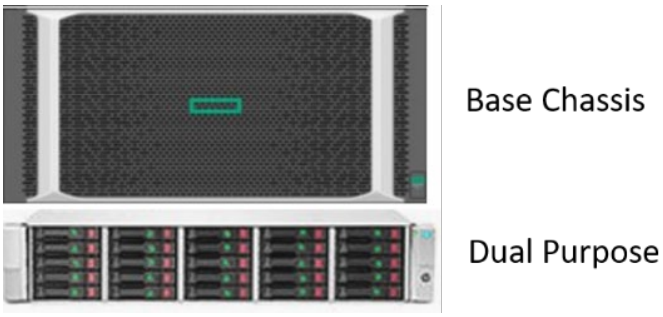


FIGURE 12. HPE Superdome Flex 280 4-socket with D3710 as a dual purpose

Hewlett Packard Enterprise has developed based on SAP guidelines the concept of using production system memory and CPU resources to non-production instances by adding additional storage system used as a dual purpose (Figure 12) by making use of free CPU cycles and un-used memory which are the most expensive components in Hardware setup.

Memory and socket configurations

Table 3 shows the HPE Superdome Flex 280 Scale-up single server 4-socket supported memory configurations and disk drives.

TABLE 3. HPE Superdome Flex 280 scale-up single server 4-socket supported memory configurations and disk drives

No of socket	Memory configuration supported	DIMM population Base chassis	Number of SSD Drives
4 socket 1 x Base chassis	1.5TB	24 x 64GB DDR4	3 x 6.4 TB
	3.0TB	24 x 128GB DDR4 or 48 x 64 GB DDR4	4 x 6.4 TB
	4.5TB	24 x 128GB DDR4 (+) 24 x 64GB DDR4	5 x 6.4 TB
	6.0TB	48 x 128GB DDR4	6 x 6.4 TB

HPE Superdome Flex Scale-up Single Server 8-socket configuration

HPE Superdome Flex server with 8-socket configuration shipped directly from the factory or when 4-socket server configuration upgraded to 8-socket adding additional expansion chassis, this configuration is rack-mounted 2 x 5U compute chassis with single Base IO with a maximum of 96 DIMM slots for DDR4 memory DIMM population, and PCI based HPE 3154-24i 24 Port Internal RAID Controller along with recommended set of disk drives supports up to 12.0TB memory configuration.

Figure 13 shows a dual purpose HPE Superdome Flex 280 8-socket with D3710.

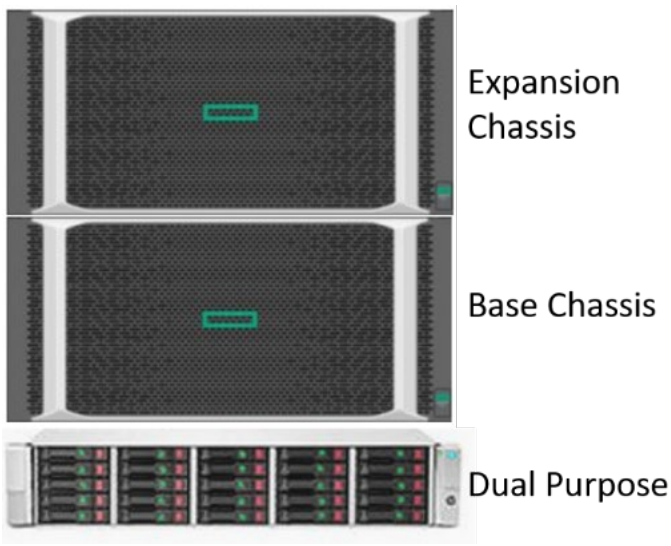


FIGURE 13. HPE Superdome Flex 280 8-socket with D3710 as a dual purpose

NOTE

HPE Superdome Flex 4-socket expansion chassis will have additional CPU and Memory resources.

Memory and socket configurations

Table 4 shows the HPE Superdome Flex 280 Scale-up single server 8-socket supported memory configurations and disk drives.

TABLE 4. HPE Superdome Flex 280 scale-up single server 8-socket supported memory configurations and disk drives

No of socket	Memory configuration supported	DIMM population Base chassis	DIMM population Expansion chassis	No of SSD Drives Base chassis	No of SSD Drives Expansion chassis
8-socket 1 x Base chassis 1 x Expansion chassis	3.0TB	24 x 64GB DDR4	24 x 64GB DDR4	3 x 6.4 TB – RAID 5	3 x 6.4 TB – RAID 5
	6.0TB	24 x 128GB DDR4	24 x 128GB DDR4	4 x 6.4 TB – RAID 5	4 x 6.4 TB – RAID 5
	9.0TB	48 x 128GB DDR4	48 x 64GB DDR4	5 x 6.4 TB – RAID 5	5 x 6.4 TB – RAID 5
	12.0TB	48 x 128GB DDR4	48 x 128GB DDR4	6 x 6.4 TB – RAID 5	6 x 6.4 TB – RAID 5

OPERATING SYSTEM

The HPE Superdome Flex 280 is SAP certified for SAP HANA use cases up to 12TB of memory. For the most current information on the certified operating systems, refer to the SAP HANA certified hardware directory here.

SLES

SAP Note 1944799 - SAP HANA Guidelines for SLES Operating System Installation.
SAP Note 2205917 - SAP HANA DB: Recommended OS settings.

RHEL

SAP Note 2292690 - SAP HANA DB: Recommended OS settings.

DATABASE SOFTWARE

SAP HANA 2.0 SPS 04/SPS 05 or later version

HIGH AVAILABILITY SOFTWARE

HPE Serviceguard LX for SAP (SGeSAP) is a clustering software, which provides high availability (HA) and disaster recovery (DR) capabilities for SAP HANA applications deployed in distributed environments. HPE Serviceguard provides enterprise HA and DR support to Linux operating systems. HPE Serviceguard product has customizations for SAP HANA to provide automated mechanisms to detect failures and initiate recovery procedures to ensure continuous availability of SAP application services.

DESIGN CONSIDERATIONS

HPE Superdome Flex 280 is Hewlett Packard Enterprise custom-designed ASIC that interfaces directly to Intel Xeon Scalable Processors and provides the system with the ability to connect up to 8-socket in a glueless architecture, delivers the unique, modular architecture at a lower entry point in smaller scale-up increments for expansion. It starts with two processors and grows to eight in 2-socket increments as a single system.

Key features

Offering choices for Intel Xeon Scalable Processors and with choice of Gold or Platinum to power scale-up SAP HANA workloads.

- Delivers new, faster DDR4 memory technology
- Supports persistent memory in combination with DRAM

- HPE Superdome Flex servers provide extreme reliability, to ensure the highest levels of availability for mission-critical SAP HANA workloads
- HPE Superdome Flex servers have superior RAS features, such as component redundancy, innovative Firmware first, auto self-healing, and advanced memory resilience technology
- Hewlett Packard Enterprise's best choice of SmartRAID 3154-24i storage controller is used as they have maxCache 4.0 caching software
- Industry-standard and high I/O performance HPE Ethernet adapter are used for critical applications such as SAP HANA database
- Efficient HPE SSD 6.4TB disk drives used to build the SAP HANA solution
- HPE Superdome Flex can be deployed with SAP HANA system replication and HPE Serviceguard for SAP HANA (SGeSAP) to deliver HA and DR to achieve minimum downtime

NOTE
SAP HANA database software is available on different supported versions of SLES/RHEL OS.

SUMMARY

This solution architecture document is a gateway to HPE Superdome Flex 280 solutions for SAP HANA to give better insights of various configurations, components used in building the solution, and understanding the ecosystem of deliverables to make thoughtful planning for integration, implementation, and further to lifecycle maintenance.

HPE POINTNEXT SERVICES

HPE Pointnext provides one-stop support for a full spectrum of advisory, integration, migration, and operational consulting services to help our customers deploy and manage workloads across their entire IT estate. To strengthen IT consulting capabilities, HPE Pointnext has strategically built a portfolio of support service packs that helps our customers take advantage based on their choices.

HPE Solutions for SAP HANA

HPE Deployment Services for SAP HANA

- HPE Factory Express Deployment Service includes factory installation of the Linux operating system once the system components are built as per the solution definitions such as HPE Superdome Flex Scale-up single server with Direct Attached Storage (DAS) or HPE Superdome Flex Multi/Single Rack Scale-up and Scale-out with All-Flash 3PAR storage for SAP HANA software as well as the onsite installation once the HPE solution infrastructure is shipped to the customer location.

HPE Supporting Services for SAP HANA

- HPE Proactive Care provides access to the HPE Center of Excellence for SAP HANA, for complete solution-level support, to get help with problem prevention, predictive analytics, and personalized analysis with recommendations and advice, paired with rapid access to technical experts to help rapidly resolve any problem.
- HPE Proactive Care Advanced builds on HPE Proactive Care with benefits such as an assigned account support manager to give you a personalized, high-touch support experience that keeps your HPE solution available and running at peak performance.
- HPE SAP HANA Remote Support Services complements HPE Proactive Care to provide end-to-end management, with full operational responsibility for the predefined solutions, Linux OS, and SAP HANA software and database.

HPE Lifecycle Services for SAP HANA

Hewlett Packard Enterprise provides a set of very specific lifecycle services that are exclusive to SAP HANA customers to stay up to date and prevent issues that could cause downtime of business during regular operations, at the same time preplanned and known problem updates or upgrades can be mitigated. Following are the set of life cycle service deliverables.

- HPE CSUR Update Service for HPE Solutions for SAP HANA delivers tested drivers, firmware, and related software updates to HPE infrastructure for SAP HANA.
- HPE OS Patch Update Service for HPE Solutions for SAP HANA implements a certified and pre-tested operating system patch bundle to HPE infrastructure so the customers can avoid the risk of security vulnerability patch updates and make the HPE infrastructure compliant.

- HPE OS Upgrade Service for HPE Solutions for SAP HANA as we continue to run the business some of the operating systems which were shipped out of the factory needs upgrade within the major operating systems releases. Hewlett Packard Enterprise provides well-thought guidance for these kinds of the upgrade.
- HPE OS Re-Installation Service for HPE Solutions for SAP HANA as we continue to move on the operating system lifecycles as we get some operating system roadblocks, in this kind of situation operating system re-installation is a must. Hewlett Packard Enterprise provides an excellent strategy to keep the system up and live without business disruption.
- HPE Serviceguard Update Service for HPE Solutions for SAP HANA is a kind of update service for customer who is looking for high availability solution for the predefined solutions post implementations, this service will be implemented on a need basis as the customer IT complexity increases with additional SAP HANA systems.
- HPE Healthcheck Service for HPE Solutions for SAP HANA this service falls under the monitoring function of the HPE infrastructure systems to check the health status of the components.

LICENSING CONSIDERATIONS

The following software requires licensing in this configuration:

- SAP HANA in-memory database
- SAP HANA Studio/Cockpit server
- HPE Superdome Flex Support (SPS)
- SUSE Linux Enterprise Server (SLES)
- Red Hat Enterprise Linux (RHEL)
- HPE ServiceGuard (SGeSAP)

NOTE
Every product from either Hewlett Packard Enterprise or SAP or other vendors is subjected to the respective end-user license agreement.

RESOURCES AND ADDITIONAL LINKS

HPE Superdome Flex 280 Quick specs https://www.hpe.com/psnow/doc/a00059763enw?jumpid=in_lit-psnow-red

SAP HANA certified hardware directory, http://global.sap.com/community/ebook/2014-09-02-hana-hardware/enEN/index.html

HPE Reference Architectures, hpe.com/info/ra

HPE Servers, hpe.com/servers

HPE Storage, hpe.com/storage

HPE Networking, hpe.com/networking

HPE Technology Consulting Services, hpe.com/us/en/services/consulting.html

To help us improve our documents, please provide feedback at hpe.com/contact/feedback.

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