HPE ConvergedSystem 900 for SAP HANA Scale-out Configurations

HPE ConvergedSystem 900 for SAP HANA 2 x 4TB/8s Starter rack

HPE ConvergedSystem 900 for SAP HANA 2 x 4TB/8s Expansion Rack

At A Glance

HPE ConvergedSystem 900 for SAP HANA Scale-out Configurations with the Intel® Xeon® E7 v4 architecture allows you to simplify IT with systems built on proven, trusted technology-not components. That means your staff has more time for innovation. With HPE and SAP you can:

- **Make better, faster decisions**: SAP HANA is a completely re-imagined platform for real-time business. It converges database and application capabilities in-memory to transform transactions and analytics so you can operate in real time.
- **Get real-time, faster**: Only HPE ConvergedSystem for SAP HANA dramatically simplifies IT through quick deployment, intuitive management, and system-level consulting and support. You can:
  - Order pre-configured solutions in minutes
  - Deploy quickly with seamless, turnkey, tested, and repeatable integration through HPE Factory Express
  - Lessen administrative complexity with system-level management
  - Prevent and resolve problems with system-level, integrated support, and single point of accountability for the complete solution
- **Amplify performance**: Robust HPE ConvergedSystems are purpose-built and optimized for SAP HANA with high availability and data protection available only from HPE
- **Minimize risk**: HPE remains committed to industry-standard x86 computing and a long-term SAP HANA roadmap.
  - Buy with confidence from HPE, the only player with the architecture, expertise, and roadmap to meet your SAP HANA needs today and in the future

Overview

- Leverage expertise built over 25+ years of SAP partnership, and 7000+ SAP HANA systems shipped worldwide

HPE ConvergedSystem 900 for SAP HANA Scale-out Configurations are based on the latest Intel® Xeon® E7 v4 architecture and are optimized for SAP HANA systems that are factory-integrated to give you the fastest time to value. The HPE ConvergedSystem 900 for SAP HANA Scale-out Configurations are based on the following HPE technologies and services:

- HPE Integrity Superdome X Server (Compute Node)
- Persistent Storage based on the HPE 3PAR StoreServ 8400
- HPE Integrated Lights-Out
- A choice of SUSE SLES for SAP Operating System 12 SP1 or Red Hat Enterprise Linux for SAP HANA Operating System version 7.2
- HPE Factory Integration through HPE Factory Express Deployment Services that provide hardware integration, validation, and on-site installation
- HPE Deployment Accelerator Service for SAP HANA to get you up and running on SAP HANA quickly
- HPE Proactive Care provides a single source support for the complete HPE ConvergedSystem 900 for SAP HANA system, including the software

For more information about the HPE ConvergedSystem 900 for SAP HANA Scale-out Configurations, see: **http://www.hpe.com/info/sap/hana**
For more information about HPE Integrity Superdome X, see **https://www.hpe.com/servers/Superdome X**
For more information about HPE Integrated Lights Out, see **http://www.hpe.com/info/ilo**
For more information about HPE Serviceguard Software, see **http://www.hpe.com/servers/sglx**
For more information about HPE services for HPE ConvergedSystems, see: **http://www.hpe.com/services/convergedsystem**
For information about HPE services, see: **http://www.hpe.com/services/sap**

Standard Features

Hardware and Software

HPE ConvergedSystem 900 for SAP HANA Scale-out Configurations with the Intel® Xeon® E7 v4 architecture are certified by SAP up to forty eight nodes, for a total scale-out capacity up to 192TB.

Compute Node

HPE Integrity Superdome X Compute Nodes for SAP HANA

- The HPE Integrity Superdome X server offers breakthrough scalability up to 16 sockets to handle large scale-up x86 SAP HANA workloads
- The compute nodes for the HPE ConvergedSystem 900 for SAP HANA based on the HPE Integrity Superdome X also minimize planned and unplanned downtime through unique, industry leading reliability, availability and serviceability (RAS) features such as self-healing capabilities, redundant system clocks, and fault-tolerant HPE Crossbar Fabric
- Available with a choice of Intel Xeon E7 8894v4, 8890v4 and 8880v4 processors, the HPE Integrity Superdome X is used as a modular platform for SAP HANA compute and for the active, in-memory copy of the SAP HANA database.
- With integrated, HPE nPartitioning technology, delivering 20x greater reliability than soft partitioning alone, the HPE ConvergedSystem 900 for SAP HANA can be ordered with 8 socket HPE Integrity BL920s Gen9 server blades with 2, 3, or 4TB of memory per node, for up to a total of 48 nodes

Persistent Storage

HPE for SAP HANA 3PAR StoreServ8400 4-node Storage Block

- Used for SAP HANA log and data file storage (persistence layer), the scale-out configuration leverages the HPE 3PAR StoreServ 8400 and the SAP storage connector API, eliminating the need for a clustered file system, simplifying the persistent storage architecture, and improving overall performance.
- The HPE 3PAR StoreServ 8400 Storage manages your HANA data, letting you spend less time managing storage, without sacrificing performance or future scalability. The new HPE 3PAR Gen5 Thin Express ASIC provides silicon-based hardware acceleration of thin technologies, including inline deduplication, offering increased versatility, performance, and a true convergence of block and file protocols

Management Servers

HPE for SAP HANA ProLiant DL380 Gen9 Central Management Console Block

- The Central Management Server is based on the HPE ProLiant DL380 Gen9, and it contains all of the management utilities for the HPE 3PAR StoreServ array
- With enhanced configuration flexibility, unmatched performance, and leading energy efficient design the DL380 Gen9 Server offers the perfect solution for the dynamic compute requirements of today's demanding data centers

HPE DL360 Gen 9 NFS Servers for SAP HANA

- Two HPE ProLiant DL360 Gen9 Server based NFS Servers for SAP HANA store the application binaries, configuration files, and trace files
- The HPE ProLiant DL360 Gen9 Server delivers increased performance with the best memory and I/O expandability packed in a 1U dense rack design

Networking Switches

HPE 5900AF 48G 4XG 2QSFP+ Switch Block

- Two Top of Rack HP 5900AF-48G-4XG-2QSFP+ Switches for the management network
- The HPE 5900 Switch Series is a family of high-density, ultra-low–latency, top-of-rack switches, and are part of the HPE FlexNetwork architecture's HPE FlexFabric solution. It is designed for higher-performance server connectivity, convergence of Ethernet and storage traffic, and ultra-low–latency—all in a single device

Standard Features

HPE for SAP HANA SN6000B 16Gb 48-port/24-port Active Fibre Channel Switch Block	• Two Top of Rack SAN Switch HP SN6000B 16GB 48-port/24-port Active FC switches provide the connectivity between the SAP HANA database servers and the shared storage • The HPE SN6000B Fibre Channel Switch offers market-leading 16 GB Fibre Channel technology and capabilities, while enabling maximum flexibility and investment protection, with a simplified deployment process and a point and click user interface
Starter and Expansion Racks HPE 1200mm or 1075mm Shock Intelligent Rack	• Houses the HANA server nodes, storage, and switches. An additional rack can be added in a dual purpose configuration for use cases that require high availability and disaster tolerance tiers. • The HPE Intelligent Series Rack family is the next generation of enterprise-class racks designed to meet the current and future requirements of demanding data centers. It offers innovative intelligence capabilities for asset management, unparalleled structural integrity, cooling and cable management advances, and a wide choice of power and switching options
Included Software and Operating System	• HPE Integrated Lights-Out: A suite of embedded management technologies that supports the complete lifecycle of all HPE servers, from initial deployment to ongoing management and service alerting. • HPE Insight Remote Support: Continuously monitoring your environment, HPE Insight Remote Support alerts you and provides up to 66% faster problem resolution and up to 95% first time fix rate. • A choice of either the SUSE Linux Enterprise Server for SAP Applications Operating System 12 SP1 or the Red Hat Enterprise Linux for SAP HANA Operating System version 7.2 • SAP HANA (customers must obtain license to use from SAP)

HPE Services

Portfolio of HPE Services for SAP HANA

HPE provides a continuum of HPE services for the HPE ConvergedSystem for SAP HANA. These services address your needs at every step in your SAP HANA solution journey. The **HPE Factory Express Deployment Service** and the **HPE Deployment Accelerator Service** are a required part of the HPE Converged System for SAP HANA solution experience. For Dual Purpose configurations, the **HPE Disaster Tolerance Service** will also be included.

HPE also offers an optional set of services designed to ensure your critical business operations are not impacted, including:

- HPE Rapid Advisory Service for SAP HANA
- HPE Platform Protection and Compliance Service
- HPE ConvergedSystem for SAP HANA Appliance Healthcheck Service
- HPE ConvergedSystem for SAP HANA Update Release (CSUR) Installation Service
- HPE ConvergedSystem for SAP HANA OS Security Patching Service

HPE Rapid Advisory Service for SAP HANA

The HPE Advisory Service for SAP HANA is a collaborative workshop which provides guidance for the customer leveraging Hewlett Packard Enterprise's industry leading consulting expertise. With the benefit of the advisory service, customers can identify potential risks and opportunities prior to hardware deployment and thereby de-risk any subsequent purchases and deployments resulting in faster time to value.

The service is delivered as a two-day workshop led by an expert facilitator and engages the customer's key stakeholders. The HPE Advisory Service for SAP HANA is designed to break through common business and

Standard Features

technology issues that slow the new technology adoption cycle. The customer may select from multiple technology topics for this service:

- SAP HANA deployment models
- System Replication for SAP HANA
- Automated high availability
- SAP HANA virtualization
- Partition strategy
- Migrating to SAP HANA
- Network best practices
- Upgrade strategy

Factory Integration and On-site Installation and Startup
With HPE Factory Express Deployment Services for SAP HANA, the majority of the integration is performed in the HPE factory. Factory integration and on-site installation services translate to faster return on your investment and reduced datacenter disruption.
This includes:

- An engagement project manager and an integration engineer who are assigned to manage the solution from start to finish
- The project manager will serve as the single point of contact in the factory for integration status, and will coordinate delivery and on-site installation of the solution
- The factory will build your solution to your specific design parameters as captured in the Customer Intent Document (CID)
- Racking, point-to-point cabling, OS and application software load and configuration
- Configuration of HPE ConvergedSystem for SAP HANA with customer network information (IP addresses, virtual local area networks (vLANs), etc.) as captured in the CID.
- Configuration of HPE 3PAR StoreServ storage and storage area network (SAN) setup
- On-site installation and startup

NOTE: The factory integration services included in this solution require a Customer Intent Document (CID) to assist with the configuration and successful installation and implementation of the solution. The CID Reference ID# is required to be in place prior to sale. Before issuing a purchase order against this solution, please contact your Hewlett Packard Enterprise sales representative.

HPE Deployment Accelerator Service for SAP HANA
The HPE Deployment Accelerator Service for SAP HANA has been designed to help simplify the process of implementing and configuring the HPE ConvergedSystem for SAP HANA, with the goal of accelerating time to value. The service provides knowledge-sharing as part of the integration of SAP HANA into your environment. The HPE consultant acts as your single point of contact to help ensure SAP's specifications are met. The service includes:

- Review the completed Customer Intent Document (CID) to identify potential refinements in order to expedite deployment of the HPE ConvergedSystem for SAP HANA.
- Knowledge-sharing during delivery of the service which includes system documentation. This activity assists with the development of skills and expertise for your IT resources enabling them to better support their SAP HANA appliance. Our goal is to help the customer quickly realize benefits from the HPE ConvergedSystem for SAP HANA.
- A single point of contact during deployment to ensure the HPE ConvergedSystem is configured according to the customer's requirements and aligned with HPE and SAP's recommendations.

HPE Platform Protection and Compliance Service
The Platform Protection and Compliance Service is a combination of processes and tools developed by HPE leveraging different security standards (CIS, NIST, ISO, and DISA) to assess and lock down the security-related settings of different platforms—including operating systems, application and cloud platforms—to comply with regulations (such as PCI, SOX, and HIPAA) and to strengthen the security posture of an organization's IT infrastructure.

It disables services or features that are unnecessary to the platform's main business function and enables

Standard Features

dormant platform security features based on the customer's specific security policy and compliance requirements. The service builds on the functionality provided by HPE Software IT Operations Compliance (ITOC) tool and on the experience and expertise of TS Consulting IT Assurance and Security experts to customize the default ITOC policies.

HPE Disaster Tolerance Service for SAP HANA
The HPE Disaster Tolerance Service for SAP HANA has been designed to help simplify the process of implementing and configuring SAP HANA System Replication for the HPE ConvergedSystem for SAP HANA, with the goal to accelerate time to value. The service approach is one of knowledge-sharing and providing flexibility in the application of the service to help increase business continuity. The HPE consultant acts as your single point of contact to help ensure the system replication solution is configured according to your requirements and aligns with Hewlett Packard Enterprise and SAP recommendations and best practices.

- The HPE consultant collects the necessary technical information to configure the HPE ConvergedSystem for SAP HANA System Replication with the goal to deliver a system in a "ready-to-use" state.
- Our approach emphasizes knowledge-sharing—with a focus on applying the service intended to help you increase business continuity.
- Our goal is to help you more quickly realize benefits from your HPE ConvergedSystem for SAP HANA in terms of return on investment and total cost of ownership.

HPE ConvergedSystem for SAP HANA Appliance Healthcheck Service
The HPE Converged System for SAP HANA Appliance Healthcheck Service provides a remote technical assessment of your HPE ConvergedSystem 900 for SAP HANA. This service is designed to identify system performance, configuration, and availability problems of your designated system, highlighting areas of potential risk before they might affect your critical operations. The customer will receive via email a single (one-time) report including an executive summary prepared by an HPE consultant.

HPE ConvergedSystem for SAP HANA Update Release (CSUR) Installation Service
The HPE Converged System for SAP HANA Converged System Update Release (CSUR) Installation Service is a technical service that provides remote updates to drivers, firmware and select management software for HPE server, storage, and solution components in the HPE ConvergedSystem 900 for SAP HANA. This service takes into account the relevant revision dependencies within your IT environment. This service is designed to keep your HPE ConvergedSystem 900 for SAP HANA running at peak performance and reduce unplanned disruption to your IT environment.

HPE ConvergedSystem for SAP HANA OS Security Patching Service
The HPE Converged System for SAP HANA OS Patching Service is a technical service that includes the remote installation of OS security patch bundles based on quarterly HPE Converged System for SAP HANA Appliance SUSE OS image updates. Operating systems covered by this service include the SUSE Linux Enterprise Server for SAP running on HPE ConvergedSystem 900 for SAP HANA. HPE specialized technical resources will perform these updates remotely, working with you to determine scheduling and implementation with the goal of reducing disruption to your IT environment.

HPE Support

HPE Proactive Care or HPE Proactive Care Advanced provide a single point of contact for the support of all components including SAP software and operating systems. HPE Proactive Care in SAP environments helps customers identify and address IT issues before they cause performance problems. Hewlett Packard Enterprise offers enhanced call experience with advanced technical expertise, and end-to-end case ownership, which improves availability and helps optimize IT infrastructure. Customers can customize their reactive support level by selecting either 6-hour call-to-repair, 24x7 with 4-hour onsite response or next-business day onsite response.

NOTE: While support for the SAP HANA software requires a separate support agreement with SAP, HPE and SAP collaborate to resolve issues around SAP HANA, leveraging specially aligned collaborative

Standard Features

processes between HPE and SAP.
NOTE: Additional support options are available. See Step 2 of How to Order below.

Warranty Services

The HPE ConvergedSystem 900 for SAP HANA is covered by a global limited warranty and supported by HPE Services. Beyond the warranty, HPE Proactive Care is the minimum support with a choice of reactive response of 24x7 4hr onsite response or 6 hour call-to-repair. See Step 2 in "How to Order" section.

NOTE: Warranty varies by component. Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HPE replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:
http://h17007.www1.hpe.com/us/en/enterprise/servers/warranty/

Parts and Materials

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

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

HPE Financial Services

To support customers' transition, HPE Financial Services (HPFS) can help in a way that you may not have considered. HPFS can help you invest in your business while preserving precious capital.

For more information, contact your local HPE Financial Services Representative. In the United States, call 1-888-277-5942. In Canada, dial 1-800-HPE-LEASE. For more information please visit: **http://www.hp.com/hpfinancialservices** for links to HPE Financial Services around the world.

How to Order

The HPE ConvergedSystem 900 for SAP HANA Scale-out configurations are comprised of the following HPE technologies and services that are included as part of the ordering process:

- **Hardware and software**: Includes all hardware components for the compute, storage, management, rack, and Hewlett Packard Enterprise and third party software
- **HPE Factory Express**: For system integration, customer-specific customization, and comprehensive system quality assurance. Included as part of the ordering process.
- **HPE Deployment Accelerator Service**: For on-site installation and deployment. Included as part of the ordering process.
- **HPE Support Services**: Proactive Care Support is the minimum support level, but HPE Proactive Care Advanced is recommended.

Step 1: Configure your Scale-out system

HPE ConvergedSystem 900 for SAP HANA Scale-out configuration

To order the HPE ConvergedSystem 900 for SAP HANA Scale-out system, refer to the summary of configuration choices in the ordering process below:

1. Select the Rack
2. Select the Power Distribution Units and Extension Bars
3. Select the size of each compute node
4. Select the processor
5. Select the number of compute nodes
6. Choose if you need encryption
7. Choose additional storage if required
8. Choose if you require Dual Purpose Storage
9. Select the Operating System

Select the Rack

Choose from either a 1075mm or 1200mm Shock Intelligent Rack

HPE 1075mm Shock Intelligent Rack	M0S67A
HPE 1200mm Shock Intelligent Rack	M0S68A

Select the Power Distribution Units

Hewlett Packard Enterprise Modular PDUs have a unique modular architecture designed specifically for data center customers who want to maximize power distribution and space efficiencies in the rack. Modular PDUs consist of two building blocks - the Control Unit (core) and the optional Extension Bar(s) (sticks). The Control Unit is 1U/0U, and the optional Extension Bars mount directly to the frame of the rack in multiple locations. Available models range from 24A to 48A current ratings, with output connections ranging from four to six C-IEC C20 outlets

HPE Intelligent Modular 4.9kVA/L6-30P 24A/208V Outlets (6) C19/Horizontal NA/JP PDU	AF520A
HPE Intelligent Modular 7.3kVA/60309 3-wire 32A/230V Outlets (6) C19/Horizontal INTL PDU	AF525A
HPE Intelligent Modular 3Ph 17.3kVA/IEC 60309 60A 4-wire 48A/208V (12) C19/Horizontal NA/JP PDU	AF535A
HPE Intelligent Modular 3Ph 22kVA/60309 5-wire 32A/230V Outlets (12) C19/Horizontal INTL PDU	AF538A

Select the Power Distribution Units Extension Bar

HPE 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A

NOTE: Contains 2 Intelligent PDU Extension Bars.

NOTE: Intelligent Extensions Bars have individually monitored outlets that are also individually switchable for power cycling attached equipment. Each individual C13 outlet has

How to Order

Power Line Communications to support Intelligent Power Discovery when connected to PLC enabled common slot power supplies.

HPE 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar AF528A

NOTE: Standard (non-intelligent) Extension Bars are monitored as a single load segment and do not support Intelligent Power Discovery.

NOTE: Extension Bars can be mixed on a PDU core to create custom configurations. Up to 6 extension bars may be added to each Intelligent PDU Core unit

Select the size of the Compute Node

Choose a compute node with either 2TB of memory, 3TB of memory, or 4TB of memory.

NOTE: All compute nodes in a scale-out system must be of the same size.

NOTE: Mixing of memory DIMM types in a server is not allowed

Select the Processor

A choice of three processors based on the Intel® Xeon® E7 v4 architecture is available for the compute node.

HPE ConvergedSystem BL920s Server Blade with the Intel® Xeon® E7-8894v4 (2.4GHz/24-core/165W) Processor Kit Q1X61A

HPE ConvergedSystem BL920s Server Blade with the Intel® Xeon® E7-8890v4 (2.2GHz/24-core/165W) Processor P9H61A

HPE ConvergedSystem BL920s Server Blade with the Intel® Xeon® E7-8880v4 (2.2GHz/22-core/150W) Processor Kit P9H60A

Select the number of Compute Nodes

Each scale-out system can have a maximum of forty-eight nodes. Select the total number of compute nodes required.

NOTE: Large Scale-out configurations require a custom statement of work to ensure a smooth deployment. Engage your HPE sales rep for more information, including assistance with planning, design or migration assistance.

Select Optional Encryption License

Data at Rest Encryption enables the encryption for all the data that is stored on the internal drives of the 3PAR StoreServ Storage. The 3PAR StoreServ Data Encryption solution encrypts and decrypts all data written to and read from the media automatically. The 3PAR StoreServ Data Encryption solution encrypts the data so that data cannot be read off a drive that is removed from the 3PAR Storage. In the event of a failure of the drive or the theft of a drive, the proper authentication key is required to be entered to gain access to the data stored within the drive. This method of encryption allows the user the comfort knowing all data contained on the drive is protected against internal and external risks.

NOTE: Selecting the encryption option requires the substitution of non-encrypted drives with compatible drives on the HPE for SAP HANA 3PAR StoreServ 8400 4-node Storage Block.

NOTE: All drives within a 3PAR StoreServ encrypted array must be self-encrypted devices. There cannot be a mixture of encrypted drives and non-encrypted drives within the same encrypted array.

NOTE: Customers have the option to turn on encryption, non-disruptively, at any time; even after data has been written to the system.

NOTE: A data encryption license (LTU) is required to enable encryption on the array. One encryption license is required for each encrypted array.

Select Additional Storage if required

Depending on the node size selected, additional drives can be optionally added to every HPE for SAP HANA 3PAR StoreServ 8400 4-node Storage Block in the scale-out cluster. Additional storage is useful if you want to have run multiple instances on the same system, or use the extra storage for backups or snapshots.

Select Optional Dual Purpose Storage

Additional storage can be added to the scale-out system in a dual purpose configuration in high availability and disaster tolerance scenarios, allowing for dual role of a secondary scale-out instance as both a failover target, or as a secondary test or development instance.

How to Order

HPE Superdome X for SAP HANA Scale-out Dual Purpose Configuration	P9H59A
Select the Operating System A choice of either the SUSE Linux Enterprise Server for SAP Applications Operating System 12 SP1 or the Red Hat Enterprise Linux for SAP HANA Operating System version 7.2 is available, both with either a 3 year or a 5 year subscription.	
SUSE Linux Enterprise Server SAP 2 Sockets or 1-2 VM 3yr Subscription 24x7 Support Flexible LTU	N0U73A
SUSE Linux Enterprise Server SAP 2 Sockets or 1-2 VM 5yr Subscription 24x7 Support Flexible LTU	N0U75A
Red Hat Enterprise Linux for SAP 1-2 Sockets Physical 3yr Subscription 24x7 Support Flexible LTU	L5P71A
Red Hat Enterprise Linux for SAP 1-2 Sockets Physical 5yr Subscription 24x7 Support Flexible LTU	L5P72A

Step 2: Choose Support and Services

HPE ConvergedSystem 900 for SAP HANA Scale-out orders will include Factory Express Deployment Services, HANA Deployment Accelerator Services and a choice of support services to meet your needs. Additional services are also available and may require consultation.

HPE Factory Express Deployment Services	HPE ConvergedSystem 900 for SAP HANA Scale-out order will include FE Deployment Services covering the factory integration and onsite installation and startup services.
HPE SAP Deployment Accelerator Service	HPE ConvergedSystem 900 for SAP HANA Scale-out order will include the HPE SAP Deployment Accelerator Service providing quick, easy implementation, expert configuration support, and knowledge sharing.
HPE Disaster Tolerance Service	HPE ConvergedSystem 900 for SAP HANA Scale-out orders with a Dual Purpose configurations will include the HPE Disaster Tolerance Service.
HPE Rapid Advisory Service for SAP HANA	The HPE Rapid Advisory Service for SAP HANA is recommended for customers who are new to SAP HANA technology or who are new to HPE ConvergedSystem technology. It is also recommended for customers who want to ensure they are maximizing their benefit from the HPE ConvergedSystem for SAP HANA. It helps the customer understand how to leverage benefits of the HPE ConvergedSystem for SAP HANA and helps the customer understand technology options available to effectively implement and deploy SAP HANA. Contact your TS Consulting representative to engage this service.
HPE Platform Protection and Compliance Service	The HPE The Platform Protection and Compliance Service is recommended for customers who require specific security standards to assess and lock down the security-related settings of their ConvergedSystem. Contact your TS Consulting representative to engage this service.
HPE Support Services	Hewlett Packard Enterprise and SAP collaborate to resolve issues around SAP HANA. You get a dedicated, single point of contact for the whole solution-ConvergedSystem 900 for SAP HANA, Operating System, and SAP HANA. Hewlett Packard Enterprise offers enhanced call experience with advanced technical expertise, and end-to-end case ownership, which improves availability and helps optimize their infrastructure. Support for the ConvergedSystem 900 for SAP HANA requires both support from HPE from the choices outlined below and a separate software support agreement with SAP. The recommended HPE support level is HPE Proactive Care Advanced. The minimum required support level is HPE Proactive Care. **NOTE:** While support for the SAP HANA software requires a separate support agreement with SAP, Hewlett Packard Enterprise and SAP collaborate to resolve issues around SAP HANA, leveraging specially aligned collaborative processes between Hewlett Packard Enterprise and SAP.

How to Order

NOTE: Each of these support levels include hardware and software reactive support and are available with DMR (defective media retention). Support for the SAP software has to be purchased separately from SAP.

HPE Proactive Care Advanced – 3 or 5 year
HPE Proactive Care Advanced is the recommended support for HPE ConvergedSystem 900 for 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 fast 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 -3 or 5 Year
HPE Proactive Care in Converged Systems for SAP HANA environments begins with providing all of the benefits of proactive monitoring and reporting along with access to the HPE Center of Excellence (CoE) for SAP HANA for a complete solution level support experience to put in place the fundamentals needed for stability and availability of the SAP 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 components You also benefit from the specially aligned, collaborative reactive processes between HPE and SAP. Customers can customize their reactive support level by selecting either 6-hour call-to-repair or 24x7 with 4-hour onsite response. Only for non-production systems, Proactive Care with next-business day onsite response may be selected.

HPE Proactive Select -3 or 5 Year
Addresses on-going operational and staffing needs of SAP HANA environments. The customers can buy HPE Proactive Select credits upfront, and choose from around 100 services to consume the required level of expertise and resources throughout a year. A vast array of services-health checks, optimization, performance, and security-help customers address their skills and staffing requirements with flexibility. SAP HANA specific services include:

- HPE ConvergedSystem for SAP HANA Appliance Healthcheck Service
- HPE ConvergedSystem for SAP HANA Update Release (CSUR) Installation Service
- HPE ConvergedSystem for SAP HANA OS Security Patching Service

HPE Datacenter Care
For large, complex environments where a more personalized, customized approach to support is needed. This is a contractual sale and provides one contract for all a customer's reactive and proactive needs.

HPE Flexible Capacity
Delivers a pay-as-you-grow solution that enables you to scale up your capacity instantly to handle growth needs without the usual long procurement process. Without tying up capital, your capacity doesn't run out.

Technical Specifications

Technical specifications for the major components for the HPE ConvergedSystem 900 for SAP HANA Scale-out Configurations are provid

NOTE: Specifications are subject to change without notice.

HPE ConvergedSystem 900 for SAP HANA Compute Node based on the HPE Integrity Superdome X	**Dimensions**	Height	798 mm / 31.4" (18U)
		Width	485 mm / 19.1"
		Depth	828 mm / 32.6"
	Weight	Minimum (empty chassis with midplane assembly and rear chassis cage)	108 kg / 238 lb (empty chassis with midplane assembly and rear chassis cage)
		Typical (half populated)	254 kg / 559 lb
		Maximum (fully populated)	314 kg / 692 lb
	BTU Rating	Maximum Heat dissipation (fully populated system)	30.93 kBTU//hr (2.5 Tons) , 9065W
	Electrical Characteristics	AC input power: 3-phase	2N Dual Power input modules with two 5-wire cords each: IEC309 16A or two 4-wire cords each: NEMA L15-30P 30A. 5 wire: 12.26A per cord. 4wire: 23.3A per cord
		AC input power: Single-Phase	2N Dual Power input modules with 6 Input Receptacles each: IEC-C19, 16/20A.
		Maximum Input Current: Single Phase (200V)	13.8A per C19 cord
		Maximum Input Power total	9,250 VA at PF .98 or greater
		Cooling airflow	600 CFM min; 1000 CFM@32 deg. C avg; 1900 CFM max
	Environmental Characteristics	Acoustics	<= 8.6 bels LwA[d] (Sound Power)
		Temperature - Recommended Operating Range	+18°C to +27°C
		Temperature - Allowable Operating Range	+5°C to +40°C
		Maximum rate of temperature change	20°C/hr
		Non-operating temperature (storage)	-40°C to +80°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	+5.5 °C DP to 15°C DP and 65% RH
		Humidity - Allowable Operating Range (non-condensing)1	-12 °C DP and 8% RH to 24 °C DP and 85% RH

Technical Specifications

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)
Voltage tolerance range	200-240 VAC

NOTE: 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.
NOTE: All temperature ratings shown are for sea level. An altitude de-rating of 1°C per 300 m above 900 m is applicable. No direct sunlight allowed. Upper operating limit is 3,048 m (10,000 ft).

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.

HPE for SAP HANA 3PAR StoreServ 8400 4-node Storage Block

Product Dimensions, and Weight

Physical Dimensions	Height in/mm/U	Width in/mm	Depth in/mm	Max Weight lb/kg
HPE 3PAR StoreServ 8400 4N Storage Base (no host adapters, no drives)	19/483	26.6/676.1*	6.925/175.9/4	97.8/44.4
HPE 3PAR StoreServ 8400 4N Storage Base (with four host adapters, no drives)	19/483	26.6/676.1*	6.925/175.9/4	99.8/45.3
HPE 3PAR StoreServ 8000 SFF(2.5in) SAS Drive Enclosure (without drives)	19/483	24.8/630.7	3.46/87.95/2	33.5/15.2

Power Requirements

Input Voltage (VAC)	100 - 240 VAC
Frequency (Hz)	50 - 60

Component	Idle (watts / BTU/hr)	Transactional (watts / BTU/hr)
Node Pair (8200 or 8400), no drives, no add-on host adapters	236 / 803	398 / 1357
2-port 10Gb/s Ethernet Adapter	5.69 / 19.4	5.71 / 19.5
8000 SFF(2.5in) SAS Drive Enclosure, no drives	150 / 512 (average)	150 / 512 (average)
1.2TB 10K Small Form Factor HDD	6.2 / 21.1	8.2 / 27.9

Environmental Specifications

Operating Temperature	41° to 104° F (5° to 40° C) - Reduce rating by 1° F for each 1000 ft altitude (1.8° C/1,000 m)
Shipping Temperature	32° to 140° F (0° to 60° C)

Technical Specifications

Altitude (ft/m) max.	10,000 ft / 3,048 m
Shipping Altitude (ft/m) max.	40,000ft/ 12,192 m
Humidity	10% to 90% non-condensing
Shipping Humidity	10% to 90% non-condensing
Operating Vibration	0.25 G, Sine, 5-500 Hz, 0.1 Grms, Random 10-100Hz
Non-operating Vibration	0.5 G, 5 - 500 Hz, Sine
Operating Shock	2 G, 11ms, half-sine
Non-operating Shock	10 G, 11ms, half-sine
Maximum Air Flow	Storage Base and Upgrade Node Pair - 109 CFM per enclosure 8000 SFF(2.5in) SAS Drive Enclosure - 105 CFM 8000 SFF(2.5in) SAS Drive Enclosure - 109 CFM
Electromagnetic Compatibility	CISPR 22:2008/ EN55022:2010 Class A CISPR 24:2010/ EN 55024:2010 IEC 61000-3-2:2005/ EN 61000-3-2:2006 +A1:2009 +A2:2009 IEC/ EN 61000-3-3:2008 AS/NZS CIPSR 22: 2009 Class A CNS 13438:2006 Class A 47 CFR Part 15 Subpart b Class A ICES-003 Issue 5 Class A V-3/2014.04 RRA Notice No. 2014-8 (2014.06.23) & 2014-37 (204.06.23) Class A RRA Notice No. 2014-9 (2014.06.23) & 2014-38 (2014.06.23)

Acoustics Sound pressure level measured per ISO 7779 specifications during normal operating fan conditions, from a minimum of 3,000 RPM to a maximum of 10,000 RPM	Fan Speed (RPM)	8200/8400 2N Storage Base	8400 4N Storage Base	8440 2N Storage Base	8440 4N Storage Base	8000 2U SAS Drive Enclosure	8000 4U SAS Drive Enclosure
	Minimum	63.8	67.2	72	74	62.6	61.3
	Maximum	93.4	96.5	93	97	85.4	88

Safety	IEC 60950-1:2005 (2nd Edition); Am 1:2009 EN 60950-1:2006 +A11:2009+A12 EN 62479:2010 CNS 14336-1 2nd Edition UL 60950-1 2nd Ed. CAN/CSA C22.2 No. 60950-1
Certifications / Markings	cTUVus Mark TUV T-mark (EN 60950) CE Mark FCC Class A KCC GOST-R C-Tick

Technical Specifications

WEEE China RoHS
IC Class A
VCCI Class A
BSMI Class A
EU RoHS

- HPE Integrity Superdome X QuickSpecs: **https://www.hpe.com/h20195/v2/getpdf.aspx/c04383189.pdf?ver=10 https://www.hpe.com/h20195/v2/GetPDF.aspx/c04607918.pdf**
- **https://www.hpe.com/h20195/v2/getpdf.aspx/c04346247.pdf**
- **https://www.hpe.com/h20195/v2/GetPDF.aspx/c04375623.pdf**
- **https://www.hpe.com/h20195/v2/GetPDF.aspx/c04111469.pdf**
- HPE SN6000B Fibre Channel Switch QuickSpecs: **https://www.hpe.com/h20195/v2/GetPDF.aspx/c04111492.pdf**

Rack Airflow Requirements

(RACK) series cabinets

The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The HPE racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

- Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of holes evenly distributed from top to bottom to permit adequate airflow (equivalent to a required 64 percent open area for ventilation).
- The clearance from face of rack to inside of the front door needs to be a minimum of 1.75".
- Side: The clearance between the installed rack component and the side panels of the rack needs to be a minimum of 2.75 inches (7 cm).

Summary of Changes

Date	Version History	Action	Description of Change
27-Mar-2017	From Version 6 to 7	Changed	Minor changes made throughout the QuickSpecs document
13-Feb-2017	From Version 5 to 6	Changed	Changes made throughout the QuickSpecs document
26-Oct-2016	From Version 4 to 5	Changed	Rebranding Edition Applied
01-Jun-2015	From Version 3 to 4	Changed	Changes made to the Overview and How to order sections
30-Mar-2015	From Version 2 to 3	Added	Added dual purpose storage, chip choice, Serviceguard
09-Feb-2015	From Version 1 to 2	Changed	Changed made to the Overview and Standard Features Sections

Sign up for updates

© Copyright 2017 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

Xeon and Intel are registered trademarks of Intel Corporation.

c04376738 - 15057 - Worldwide – V7 - 27-March-2017

Hewlett Packard Enterprise