

### Overview

### HPE ConvergedSystem 500 for SAP HANA Scale-up Configurations with the Intel® Xeon® E7 v3 architecture



1. HPE ConvergedSystem 500 for SAP HANA Compute Node



2. HPE ConvergedSystem 500 for SAP HANA Scale-up Storage

### At A Glance

HPE ConvergedSystem 500 for SAP HANA Scale-up Configurations with the Intel® Xeon® E7 v3 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 Hewlett Packard Enterprise 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 Hewlett Packard Enterprise 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 Hewlett Packard Enterprise
  - The HPE ProLiant DL580 Gen9 Server provides up to 39%<sup>1</sup> processor performance and 20%<sup>2</sup> more cores with Intel Xeon E7-8800 v3 processors than the previous generation.
  - HPE SmartMemory prevents data loss and downtime with enhanced error handling, with speeds up to 1866MHz with up to 16%<sup>3</sup> performance gain.
  - Prevent data loss and recover from outages in seconds with optional Hewlett Packard Enterprise Serviceguard software for SAP HANA, that offers unattended, automated failover and disaster tolerance solution for SAP HANA

**NOTES:** <sup>1</sup>Up to 39% top-bin performance increase based on OLTP Warehouse Oracle 11gR2 database workload comparing

## Overview

4x Intel Xeon processor E7-8890 v3 (18C, 2.5 GHz) with 2TB to similarly configured E7-4890 v2 (15C, 2.8 GHz) with 1TB  
<sup>2</sup> 20% more cores comparing E7-8800/4800 (15 cores) v2 vs v3 (18 cores). Jan. 2015.

<sup>3</sup> Based on Hewlett Packard Enterprise internal calculations. Based on comparing the difference of DDR4 DIMMs of 1866 vs 1600 MHz on Gen to Gen Hewlett Packard Enterprise Servers, May 2015

- **Minimize risk:** Hewlett Packard Enterprise remains committed to industry-standard x86 computing and a long-term SAP HANA roadmap.
  - Buy with confidence from Hewlett Packard Enterprise, the only player with the architecture, expertise, and roadmap to meet your SAP HANA needs today and in the future
  - Leverage expertise built over 25+ years of SAP partnership, 77,000+ joint SAP installations and 800 SAP HANA installations worldwide.
  - The HPE ProLiant DL580 Gen9 offers advanced error recovery, component quarantine, fault tolerance and event reporting features to enable class-leading availability and rock-solid reliability that businesses can depend on.

Take advantage of the expertise of thousands of Hewlett Packard Enterprise professionals supporting more than 1.7 million SAP users in over 50 countries and our own experience as one of SAP's 10 largest global customers. If you want a trusted advisor and expert implementer of SAP solutions, turn to Hewlett Packard Enterprise.

HPE ConvergedSystem 500 for SAP HANA Scale-up Configurations are based on the latest Intel® Xeon® E7 v3 architecture, and are optimized for SAP HANA systems that are factory-integrated to give you the fastest time to value. The HPE ConvergedSystem 500 for SAP HANA Scale-up Configurations are based on the following Hewlett Packard Enterprise technologies and services:

- HPE ProLiant DL580 Gen9 Server (Compute Node)
- HPE D3700 Disk Enclosure (Scale-up Storage)
- HPE Integrated Lights-Out
- Optional Hewlett Packard Enterprise Serviceguard for SAP HANA software, for automated, unattended High Availability and Disaster Tolerance
- A choice of SUSE SLES for SAP HANA Operating System or Red Hat Enterprise Linux for SAP HANA Operating System
- HPE Factory Integration through HPE Factory Express Deployment Services that provide hardware integration, validation, and on-site installation
- HPE Proactive Care provides a single source support for the complete HPE ConvergedSystem 500 for SAP HANA system, including the software
- HPE ConvergedSystem 500 for SAP HANA Deployment Accelerator Service to get you up and running on SAP HANA quickly

For more information about the HPE ConvergedSystem 500 for SAP HANA Scale-up Configurations, see:

<http://www.hp.com/go/sap/hana>

For information about HPE services, see: <http://www.hp.com/services/sap>

For more information about HPE ProLiant DL580 Gen9, see <http://www.hp.com/servers/dl580gen9>

For more information about HPE Integrated Lights Out, see <http://www.hp.com/go/ilo>

For more information about HPE Serviceguard Software, see <http://www.hp.com/info/sglx>

For more information about HPE Factory Express, see: <http://www.hpe.com/info/factoryexpress>

For more information about HPE support services, see: <http://www.hpe.com/info/services>

For more information about HPE support services for HPE ConvergedSystems, see: [www.hpe.com/services/convergedsystem](http://www.hpe.com/services/convergedsystem)

## **Standard Features**

**Hardware and Software** HPE ConvergedSystem 500 for SAP HANA Scale-up Configurations with the Intel® Xeon® E7 v3 architecture are available in configurations ranging from 128GB to 3TB.

### **Compute Nodes:**

The HPE ConvergedSystem 500 for SAP HANA Scale-up configurations are based on the HPE ProLiant DL580 Gen9 Server with the Intel® Xeon® E7 v3 architecture. The HPE ProLiant DL580 Gen9 Server is an enterprise-grade x86 server offering breakthrough performance, rock-solid reliability, and compelling consolidation and manageability efficiencies. HPE ProLiant DL580 Gen9 has security and data protection features for system resiliency that your business can depend on. All, making it ideal for mission-critical enterprise, business intelligence, and database applications.

**NOTE: Two socket or two CPU configurations are available up to 1536GB memory sizes only. Two socket or two CPU configurations in 1024GB and 1536GB memory sizes are only allowed for use with SAP Business Suite on HANA**

### **External Storage:**

External Storage is available for all scale-up configurations and is based on the HPE D3700 SAS Storage Disk Enclosure. The Small Form Factor (SFF) HPE D3700 Disk Enclosure with 25 drive bays offers modular solutions to simplify capacity expansion of HPE ProLiant server environments.

### **Included Software and Operating System**

- **SAP HANA** (customer must obtain license to use from SAP)
- **Operating System:** A choice of either the SUSE Linux Enterprise Server for SAP Applications Operating System 11 SP3 or the Red Hat Enterprise Linux for SAP HANA Operating System version 6.6 is available, both with either a 3 year or a 5 year subscription.
- **HPE Integrated Lights-Out Advanced:** A suite of embedded management technologies that supports the complete lifecycle of all HPE ProLiant Gen9 servers, from initial deployment to ongoing management and service alerting.

### **HPE Serviceguard for automated High Availability (HA) and Disaster Tolerance (DT)**

HPE Serviceguard is available as an option for the HPE ConvergedSystem 500 for SAP HANA, offering automated and unattended high availability (HA) and disaster tolerance (DT) solutions for your mission critical SAP HANA workloads. With availability improvements for HANA databases, graceful planned takeover, and simplified configuration and administration, the Converged System 500 for SAP HANA with Serviceguard software offers robust business continuity features for your mission critical workloads.

### **Rack**

HPE ConvergedSystem 500 for SAP HANA Scale-up Configurations are available with a choice of 1200mm or 1075mm Shock Intelligent Racks. You can also choose to rack the HPE ConvergedSystem 500 for SAP HANA Scale-up Configurations onsite in a compatible rack.

The Hewlett Packard Enterprise Intelligent Series Rack family is the next generation of enterprise-class racks designed to meet the current and future requirements of demanding datacenters. 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.

## Standard Features

With Hewlett Packard Enterprise Factory Express Deployment Services, the majority of the integration is performed in the Hewlett Packard Enterprise factory so that deployment time is reduced with hardware built to customers' exact specifications, then shipped as a turn-key solution from the Hewlett Packard Enterprise factory and on-site implementation services install hardware on-site. 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 integration engineer will work with your technical contact to capture the specific design parameters and prepare a detailed integration package to address your needs
- Custom 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.)
- In addition to integration, configuration, and deployment activities, all solutions receive comprehensive testing and backup/recovery media (on request), as well as a complete documentation package that details the configuration and settings of the delivered solution
- Onsite 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 to engage a Hewlett Packard Enterprise Engagement Project Manager (EPM) who will manage the CID process.

### HPE SAP Deployment Accelerator Service

Hewlett Packard Enterprise SAP HANA Deployment Accelerator Services simplify the process of implementing and configuring HPE ConvergedSystem for SAP HANA by providing quick, easy implementation, expert configuration support, and knowledge sharing. The Deployment Accelerator Service includes the following:

- Prior to solution delivery, a simplified site readiness assessment will be performed to ensure that the customer has enough power, cooling, floor space to accommodate the requirements of the system.
- Integrate HANA server into customers environment, power, network cabling
- Configure and verify the network connections into the customer environment
- Conduct basic appliance level functionality testing
- Familiarize the customer with the equipment and with basic processes
- Perform knowledge sharing, including instruct you on how to place support calls

**NOTE:** Hewlett Packard Enterprise SAP Deployment Accelerator Service can optionally be delivered remotely for HPE ConvergedSystem 500 for SAP HANA Scale-up Configurations. There are additional terms and specific customer responsibilities for the remote delivery option; these include, but are not limited to, the customer is responsible for providing remote access for the Hewlett Packard Enterprise resources to the HPE ConvergedSystem 500 for SAP HANA Scale-up Configuration environment, customer agrees to allow international resources to deliver services, customer interface with Hewlett Packard Enterprise team is English-speaking. Additional terms and limitations apply.

## **Standard Features**

### **HPE SAP HANA High Availability and Disaster Tolerance Services**

For Serviceguard for SAP HANA High Availability Scenarios and Serviceguard for SAP HANA Disaster Tolerance Scenarios, additional services will be included to ease the effort of Serviceguard and system replication implementation for SAP HANA. These services will accelerate your time to value and thus positively impact ROI and TCO.

The Hewlett Packard Enterprise consultant will collect the necessary technical information and configure the HPE ConvergedSystem for SAP HANA in a HA or HA/DT environment. Key core deliverables that set Hewlett Packard Enterprise apart include:

Hewlett Packard Enterprise consultant acts as the Single Point of contact during the HA or HA/DT implementation of the HPE ConvergedSystem 500 for SAP HANA Scale-up Configurations

- System Replication solution configured according to your requirements and in line with Hewlett Packard Enterprise's and SAP's recommendations
- A Service Guard HA or HA/DT solution configured according to customer's requirements, and in line with Hewlett Packard Enterprise's and SAP's recommendations
- Correctly configured Highly Available SAP HANA appliance
- Customer knowledge sharing

### **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 500 for SAP HANA. This service is designed to identify security, 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 HP 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 500 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 500 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 500 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 Converged Systems for SAP HANA 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 or 24x7 with 4-hour onsite response. Only for non-production systems, Proactive Care with next-business day onsite response may be selected.

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**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.

**NOTE:** Additional support options are available. See Step 3 of How to Order below.

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### Warranty Services

The HPE ConvergedSystem 500 for SAP HANA is covered by a global limited warranty and supported by Hewlett Packard Enterprise Services. Beyond the warranty, Hewlett Packard Enterprise 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 3 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 Hewlett Packard Enterprise replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:

<http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

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### Parts and Materials

Hewlett Packard Enterprise will provide Hewlett Packard Enterprise -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.

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### 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.

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## How to Order

The HPE ConvergedSystem 500 for SAP HANA Scale-up Configurations with the Intel® Xeon® E7 v3 architecture comprise of the following Hewlett Packard Enterprise technologies and services that are included as part of the ordering process:

- **Hardware and software:** Includes all hardware components for the compute nodes, external storage if required, 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.

### Step 1: Choose your scale-up size

#### HPE ConvergedSystem 500 for SAP HANA Select the Compute Node

HP SAP HANA Compute Node

MOR96A

#### Select the Memory Size

SAP Certified configurations are available in the following memory sizes: 128GB, 256GB, 384GB, 512GB, 768GB, 1TB, 1.5TB, 2TB and 3TB. For each size, a choice of Dual Rank 16GB or Quad Rank 32GB DDR4 Memory is available.

HPE SmartMemory DDR4-2133 Registered memory is engineered to achieve the much higher performance level as 1.2V memory saving up to 35% more power when compared to DDR3-1866 running at 1.5V. For the memory size selected, choose from the following HPE SmartMemory options:

HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit 726719-B21

HP 32GB (1x32GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit 726722-B21

**NOTE: 16GB DIMMs are not allowed on a two socket or two CPU system for the 1024GB or 1536GB sizes. 32GB DIMMs are not allowed on a four socket or four CPU system for the 128GB size.**

#### Select the Processor

A choice of three eighteen core processors based on the Intel® Xeon® E7 v3 architecture is available. Compute nodes with 128GB, 256GB, 384GB, 512GB, 768GB or 1TB of memory are available with 2 socket or two CPUs. Compute nodes with 1.5TB, 2TB and 3TB of memory are available with 4 socket or 4 CPU only.

HP DL580 Gen9 Intel® Xeon® E7-8890v3 (2.5GHz/18-core/45MB/165W) Processor Kit 788317-B21

HP DL580 Gen9 Intel® Xeon® E7-8880v3 (2.3GHz/18-core/45MB/150W) Processor Kit 788319-B21

HP DL580 Gen9 Intel® Xeon® E7-8880Lv3 (2.0GHz/18-core/45MB/115W) Processor Kit 788337-B21

**NOTE: Two socket or two CPU configurations are available up to 1536GB memory sizes only. Two socket or two CPU configurations in 1024GB and 1536GB memory sizes are only allowed for use with SAP Business Suite on HANA**

#### Select Optional Encryption License

HP Secure Encryption No Media E-LTU per Drive

D8S85AAE

**NOTE: Global except China**

HP Secure Encryption No Media Flexible License per Drive

D8S84A

**NOTE: China Only**

#### Select the External Storage

**How to Order**

External Storage is available for all Scale-up configurations for Log and Data volumes

HP SAP HANA Scale-up Storage M0R97A

**Select the Operating System**

A choice of either the SUSE Linux Enterprise Server for SAP Applications Operating System 11 SP3 or the Red Hat Enterprise Linux for SAP HANA Operating System version 6.6 is available, both with either a 3 year or a 5 year subscription.

**NOTE: The quantity of Operating System Licenses depends on the number of CPUs or sockets on the Compute Node being ordered. For 2 CPU or 2 socket systems, select quantity 1 of the Operating System licenses. For 4 CPU or 4 socket systems, select quantity 2 of the Operating System licenses.**

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

**Select the Rack**

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

HP 1075mm Shock Intelligent Rack M0R94A

HP 1200mm Shock Intelligent Rack M0R95A

HP Virtual Rack M0R98A

**Select the Power Distribution Units for the Rack**

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/OU, 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.

HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit AF520A

HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit AF522A

HP 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit AF533A

HP 17.3kVA 48A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit AF523A

HP 40A NA/JP Core Only Intelligent Modular Power Distribution Unit AF521A

HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit AF525A

HP 22kVA 32A Three Phase INTL Core Intelligent Modular Power Distribution Unit AF527A

**\*NOTE: While the HPE 1075mm Shock Intelligent Rack or the HPE 1200mm Shock Intelligent Rack is the recommended rack, you may choose to rack the compute node (4U form factor) and optionally the external storage unit in a compatible rack. In this case, select the Virtual Rack and optionally, select the Power Distribution Units.**

**\*NOTE: If you choose not to order the HPE ConvergedSystem 500 for SAP HANA Rack, your rack must be compatible with the HPE ProLiant DL580 Gen9 server, and if you require external storage, should also be compatible with the HPE 3700 External Storage. Refer to the Hewlett Packard Enterprise Infrastructure products page for more information on Hewlett Packard Enterprise racks**



## How to Order

and rack options:

<http://h18004.www1.hp.com/products/servers/platforms/rackandpower.html>

### Select the Power Distribution Units Extension Bar

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

HP 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.

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## Step 2: Add optional Serviceguard Software and Hardware

**Hardware and Software** HPE Serviceguard for SAP HANA offers protection against unplanned downtime and automated, unattended failover for SAP HANA scale-up configurations. HPE Serviceguard can be configured to provide business continuity for either local high availability scenarios, or for disaster tolerance scenarios.

Key new features of the HPE Serviceguard for SAP HANA software include:

- Automation of failure detections, secondary takeovers and role reversals
- SafeSync HANA System Replication Mode to ensure secondary is synchronized with primary & ready for takeover
- Scale-out DR with site-switch based on a Smart Quorum for HANA Primary Systems
- Decision logic for instance restarts vs takeover
- Self-tuning HANA operation timeout monitoring

The Serviceguard solution for SAP HANA is comprised of the following Hewlett Packard Enterprise technologies:

- HPE Serviceguard for SAP HANA software
- HPE ConvergedSystem Quorum Server: Based on the ProLiant DL360 Gen9 Server that enables powerful quad-core processor computing performance with larger memory and storage capacity, all in a small package.
- HPE ConvergedSystem 500 for SAP HANA Switch Block: Based on the HPE 2920 Switch series, which offers static and RIP routing, robust security and management, enterprise-class features, and is a cost-effective, scalable solution for building high-performance networks

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For both the High Availability, and Disaster Tolerance scenarios, add the following components to the order:

- **Two** Serviceguard Licenses (Part Number P9B46A) for every HPE ConvergedSystem 500 for SAP HANA compute node with **two** processors on the order, or **Four** Serviceguard Licenses (Part Number P9B46A) for every HPE ConvergedSystem 500 for SAP HANA compute node with **four** processors on the order
- Optional - **Two** HPE ConvergedSystem 500 for SAP HANA Switch Block (HPE Part Number

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H6X98A). These switches are optional, and other compatible Hewlett Packard Enterprise switches may be used

- Optional - **One** HPE ConvergedSystem Quorum Server (Hewlett Packard Enterprise Part Number M0S30A). The Quorum server is optional, and a compatible Hewlett Packard Enterprise server that servers as the quorum can be used in its place. If ordering the quorum server, add **one** HPE iLO Advanced 1 Server with 3yr 24x7 Technical Support and Updates License (Part Number BD505A). Additionally, if ordering the Quorum Server, also add **one** operating system license, choosing from the following options:
  - SUSE Linux Enterprise Server SAP OS - 3yr Subscription (Part Number N0U73A)
  - SUSE Linux Enterprise Server SAP OS - 5yr Subscription (Part Number N0U75A)
  - Red Hat Enterprise Linux for SAP HANA OS - 3yr Subscription (Part Number L5P71A)
  - Red Hat Enterprise Linux for SAP HANA OS - 5yr Subscription (Part Number L5P72A)

### Step 3: Choose Support and Services

HPE ConvergedSystem 500 for SAP HANA Scale-up orders will include Factory Express Deployment Services, HANA Deployment Accelerator Services and a choice of support services to meet your needs.

**HPE Factory Express Deployment Services** HPE ConvergedSystem 500 for SAP HANA Scale-up order will include FE Deployment Services covering the factory integration and onsite installation and startup services.

**HPE SAP Deployment Accelerator Service** HPE ConvergedSystem 500 for SAP HANA Scale-up order will include the HPE SAP Deployment Accelerator Service providing quick, easy implementation, expert configuration support, and knowledge sharing.

**HPE SAP HANA High Availability and Disaster Tolerance Services** For Serviceguard for SAP HANA High Availability Scenarios and Serviceguard for SAP HANA High Availability/Disaster Tolerance Scenarios, the following additional services to perform the Serviceguard and system replication implementation for SAP HANA will both be included:

- HPE SAP HANA High Availability Services- Provides Service Guard Integration with SAP HANA.
- HPE SAP HANA Disaster Tolerance Service (SAP HANA Replication) – Provides SAP HANA Replication service

**HPE Support Services** Hewlett Packard Enterprise and SAP collaborate to resolve issues around SAP HANA. Customers get a dedicated, single point of contact for the whole solution-HPE ConvergedSystem 500 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 HPE ConvergedSystem 500 for SAP HANA requires both support from Hewlett Packard Enterprise from the choices outlined below and a separate software support agreement with SAP. The recommended Hewlett Packard Enterprise support level is HPE Proactive Care Advanced. The minimum required support level is HPE Proactive Care. In addition, customers may choose Hewlett Packard Enterprise Critical Service.

**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.**

**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 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

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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 Hewlett Packard Enterprise 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 Hewlett Packard Enterprise 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. These credits may also be used for assistance in implementing Hewlett Packard Enterprise HANA appliance updates.

### **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 500 for SAP HANA Scale-up Configurations with the Intel® Xeon® E7 v3 architecture are provide below.

<b>HPE ConvergedSystem 500 for SAP HANA Compute Node based on the HPE ProLiant DL580 Gen9 Server</b>	<b>Dimensions</b> (H x W x D) (with bezel)	6.88" x 17.48" x 29" (17.5cm x 44.4cm x 73.6cm)	
	<b>Weight</b> (approximate)	Maximum (all hard drives, power supplies, DIMMs and processors installed)	116.56.0 lb (52.87 kg)
		Minimum (One hard drive, two power supplies, four DIMMs, and two processors installed)	70.94 lb (32.18 kg)
	<b>Input Requirements</b> (per power supply)	Rated Line Voltage	100 - 120 VAC (1200W PS only) 200 - 240 VAC (1200W & 1500W PS)
		Rated Input Current	9.2A (100 VAC), 6.6A (200 VAC) - 1200W PS 8.3A (200 VAC) - 1500W PS
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	1000 W (120 VAC), 1320 W (230VAC) - 1200W PS 1652 W (at 230 VAC) - 1500W PS
	<b>BTU Rating</b>	Maximum	3408 BTU/hr (120 VAC), 4500 BTU/hr (at 230 VAC) - 1200W PS 5637 BTU/hr (230 VAC) - 1500W PS
	<b>Power Specifications</b>	<b>NOTE:</b> To review typical system power ratings use the Hewlett Packard Enterprise Power Advisor which is available online located at url: <a href="http://www.hp.com/go/proliant-energy-efficient">http://www.hp.com/go/proliant-energy-efficient</a> or <a href="http://www.hp.com/go/hppoweradvisor">http://www.hp.com/go/hppoweradvisor</a> - Click on the system of interest. Example: DL580 Gen9 - Follow the instructions of the next screens.	
	<b>Power Supply Output</b> (per power supply)	Rated Steady-State Power and Maximum Peak Power	800 W (100 VAC low line), 900 W (120 VAC low line), 1200W (200 - 240 VAC) for 1200W PS 1500W (200 - 240V) for 1500W PS
	<b>System Inlet Temperature</b>	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F)..
		Non-operating	-40° to 70°C (-40° to 158°F). Maximum rate of change is 20°C/hr (36°F/hr).

**Technical Specifications**

<b>Relative Humidity</b> (non-condensing)	Operating	10% to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
<b>Altitude</b>	Operating	3048 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
<b>Acoustic Noise</b>	<p>Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 24°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.</p> <p>Typical configuration (Two Intel® Xeon® E7-4890 v2 processors, 8x16 GB DIMMs, five HDDs, Eight fans, Four power supplies)</p> <p>Idle</p> <ul style="list-style-type: none"> <li>• LWAd – 6.8 B</li> <li>• LpAm – 51.2</li> </ul> <p>Operating</p> <ul style="list-style-type: none"> <li>• LWAd – 6.9 B</li> <li>• LpAm – 51.2</li> </ul> <p>Performance Configuration (Four Intel® Xeon® E7-4890 v2 processors, 16x16 GB DIMMs, Ten HDDs, Eight fans, Four power supplies)</p> <p>Idle</p> <ul style="list-style-type: none"> <li>• LWAd – 6.7 B</li> <li>• LpAm – 50.7</li> </ul> <p>Operating</p> <ul style="list-style-type: none"> <li>• LWAd – 6.9 B</li> <li>• LpAm – 51.3</li> </ul>	

**Technical Specifications**

<b>Emissions Classification</b> (EMC)	<b>FCC Rating</b>	Class A
	<b>Normative Standards</b>	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

**NOTE:** Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

**HPE SAP HANA Scale-up Storage based on the HPE D3700 Storage Enclosure**

<b>LED Indicators for HDDs</b>	HPE SmartDrive Carrier Drives
<b>LED Indicators on Front Panel</b>	Bi-color green/amber for health/fault Blue for UID Heartbeat LED Fault LED UID button/LED
<b>LED Indicators on Rear Panel</b>	I/O Module LED (2) identify/On/Fault; Port (2) Link good/ link fault UID button/LED Heartbeat LED Fault LED Fan LED Power supply LED
<b>Host Interface</b>	8 x wide SAS 12Gb/s ports
<b>Maximum Number of Drives</b>	25 2.5 inch (D3700) SAS or SATA drives
<b>Acoustics Noise</b>	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.
<b>Idle Acoustic Noise (sound power)</b>	LWAd= 7.0 B
<b>Idle Acoustic Noise (sound pressure)</b>	LpAm - 53 dBA
<b>Operating Acoustic</b>	LWAd= 7.0 B

## Technical Specifications

	<b>Noise (sound power)</b>	
	<b>Operating Acoustic Noise (sound pressure)</b>	LpAm - 53 dBA
<b>Temperature Range</b>	<b>Operating</b>	50° to 104° F (10° to 40° C)
	<b>Shipping</b>	-22° to 149° F (-30° to 65° C) <b>NOTE:</b> Rated 1°C per 1000 feet of elevation to 10,000 ft.
<b>Relative Humidity</b>	<b>Operating</b>	10% to 90%
	<b>Non-operating</b>	0% to 95%
<b>Maximum wet bulb temperature</b>	<b>Long-term storage (operating)</b>	82.4° F (28° C)
	<b>Short-term storage (non-operating)</b>	101.6° F (38.7° C)
<b>Input Power Requirements</b>	<b>Rated Input Voltage</b>	100 to 240 VAC (Common- slot Power Supply)
	<b>Rated Input Frequency</b>	50 to 60 Hz (Common-slot Power Supply)
	<b>Rated Input Current</b>	6A/3A
	<b>Input Power max</b>	403W
<b>Heat Dissipation</b> (maximum)	1331/Btu/hr.1160.Btu/hr [ <b>NOTE:</b> standard conversion from Watts to Btu/hr = 3.413 Btu/hr per Watt]	
<b>RAID Support</b>	See Quickspecs for Smart Array Controllers P421, P431, P822, P721m, P731m <a href="http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/index.html">http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/index.html</a>	
	<b>NOTE:</b> For up to date compatibility, see the following URL for complete Smart Array Controller compatibility and support information: <a href="http://h18006.www1.hp.com/products/servers/proliantstorage/arraycontrollers/index.html">http://h18006.www1.hp.com/products/servers/proliantstorage/arraycontrollers/index.html</a>	
<b>Upgradeable Firmware</b>	Yes, Offline only. Firmware updates available through hp.com	
<b>Disk Drives and Enclosure Protocol Support</b>	2.5 inch SAS 6/12Gb/s	
<b>I/O Module</b>	<b>Connector Type</b>	IPass (mini-SAS)
	<b>Number of Ports</b>	Two (one IN, other is OUT)
	<b>Bandwidth</b>	SAS-3 (12Gb/s)
	<b>Protocols supported</b>	SAS 3.0
	<b>2U Rack Form Factor</b>	Small Form Factor
	<b>Dimensions (HxWxD)</b>	3.44" x 17.64" x 21.48" in (8.7 x 44.8 x 54.6 cm )
	<b>Weight (base unit)</b>	38 lb (17.2 kg)
	<b>Weight (with all SFF drives)</b>	54.90 lb (24.9 kg)
	<b>Shipping package</b>	D3700 - 11.13" x 23.75" x 36.12" (SFF)

## Technical Specifications

### dimensions

**Shipping weight (Gross)** 78lbs (35.38kg)

#### HPE 1075mm Shock Intelligent Rack

**Total Cabinet Area** 79.00 x 44.30 x 23.54 in (200.66 x 112.52 x 59.79 cm)

**Shipping (with packaging materials)** 85.35 x 50.87 x 35.43 in (216.80 x 129.20 x 90 cm)

**Static Load\*** 3000 lb (1361 kg)

**Dynamic Load\*\*** 2500 lb (1134 kg)

#### HPE 1200mm Shock Intelligent Rack

**Total Cabinet Area** 79.00 x 51.19 x 23.54 in (200.66 x 130.02x 59.79 cm)

**Shipping (with packaging materials)** 85.82 x 57.87 x 35.43 in (218.00 x 147.00 x 90 cm)

**Static Load\*** 3000 lb (1360.78 kg)

**Dynamic Load\*\*** 3000 lb (1360.78 kg)

#### Rack Airflow Requirements

##### (RACK) series cabinets

The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The Hewlett Packard Enterprise 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).

##### NOTE:

\* Static weight capacity is the total weight capacity of all equipment installed the rack once placed in a datacenter and the leveling feet have been extended.

\*\* Dynamic weight capacity is the total weight capacity of all equipment installed in the rack that can be rolled into place in a datacenter

#### Environment-friendly Products and Approach

##### End-of-life management and recycling

Hewlett Packard Enterprise offers end-of-life Hewlett Packard Enterprise product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to:

<http://www.hp.com/go/green>. To recycle your product, please go to:

<http://www.hp.com/go/green> or contact your nearest Hewlett Packard Enterprise sales office.

Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard Enterprise web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.



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## Technical Specifications

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## Summary of Changes

Date	Version History	Action	Description of Change:
19-Feb-2016	From Version 3 to 4	Changed	Minor updates made throughout the QuickSpecs
22-Jan-2016	From Version 2 to 3	Changed	Content updated on the entire document.
01-Dec-2015	From Version 1 to 2	Changed	Changes made throughout the QuickSpecs
17-Aug-2015	Version 1	Created	QuickSpecs document created



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