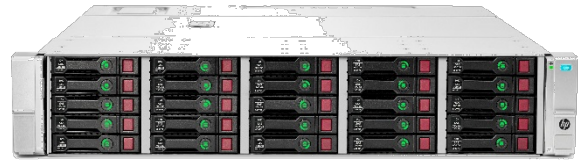


Overview

HPE ConvergedSystem 500 for SAP HANA Scale-up Configurations (v4) with the Intel® Xeon® E7 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 (4) with the Intel® Xeon® E7 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
- 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
- **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, and 7000+ SAP HANA systems shipped 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.

Overview

HPE ConvergedSystem 500 for SAP HANA Scale-up 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 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
- A choice of SUSE SLES for SAP HANA 12 SP1 Operating System or Red Hat Enterprise Linux for SAP HANA 7.2 Operating System
- Optional Hewlett Packard Enterprise Serviceguard for SAP HANA software, for automated, unattended High Availability and Disaster Tolerance
- 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 500 for SAP HANA system, including the software

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

[**http://www.hpe.com/info/sap/hana**](http://www.hpe.com/info/sap/hana)

For more information about HPE ProLiant DL580 Gen9, see [**http://www.hpe.com/servers/dl580gen9**](http://www.hpe.com/servers/dl580gen9)

For more information about HPE Integrated Lights Out, see [**http://www.hpe.com/info/ilo**](http://www.hpe.com/info/ilo)

For more information about HPE Serviceguard Software, see [**http://www.hpe.com/servers/sglx**](http://www.hpe.com/servers/sglx)

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

For information about HPE services, see: [**http://www.hpe.com/services/sap**](http://www.hpe.com/services/sap)

Standard Features

Hardware and Software HPE ConvergedSystem 500 for SAP HANA Scale-up Configurations with the Intel® Xeon® E7 v4 architecture are available in configurations ranging from 128GB to 4096GB.

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 v4 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 2048GB memory sizes only. Two socket or two CPU configurations in 1024GB, 1536GB and 2048GB 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 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.
- **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.

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.

Standard Features

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 HPE'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 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 as captured in the CID.
- Configuration of HPE ConvergedSystem for SAP HANA with customer network information (IP addresses, virtual local area networks (vLANs), etc.)
- 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.

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

Standard Features

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.

NOTE: Hewlett Packard Enterprise Deployment Accelerator Service for SAP HANA 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 customer requirements include, but are not limited to, responsibility to provide remote network connectivity for the HPE resources to the HPE ConvergedSystem 500 for SAP HANA Scale-up Configuration environment, customer agrees to allow international resources to deliver services, and customer interface with HPE team is English-speaking. Additional terms and limitations apply.

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 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 HPE's and SAP's 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 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.

Standard Features

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 Serviceguard 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, 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.

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.

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

Standard Features

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://h17007.www1.hp.com/us/en/enterprise/servers/warranty/>

NOTE: SSD Drives have a maximum usage limit. This is the maximum amount of data that can be written to the drive. Drives that have reached this limit will not be eligible for warranty coverage. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction. It does not apply to Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by Hewlett Packard Enterprise as consumable parts and/or that have reached maximum supported lifetime and/or the maximum usage limits as set forth in the manufacturer's operating manual, the product QuickSpecs, or the technical data sheet are not eligible for the defective media retention service feature option. Additional information is available at:

<https://www.hp.com/h20195/v2/GetPDF.aspx/04154378.pdf>

<https://www.hp.com/h20195/v2/GetDocument.aspx?docname=c04154378>

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.

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 500 for SAP HANA Scale-up Configurations with the Intel® Xeon® E7 v4 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 Deployment Service for SAP HANA:** For system integration, customer-specific customization, and comprehensive system quality assurance. Included as part of the ordering process.
- **HPE Deployment Accelerator Service for SAP HANA:** 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 HPE SAP HANA Compute Node	M0S71A
	Select the Memory Size SAP Certified configurations are available in the following memory sizes: 128GB, 256GB, 384GB, 512GB, 768GB, 1024GB, 1536GB, 2048GB, 3072GB and 4072GB. HPE SmartMemory in choices of Dual Rank 32GB, Quad Rank 32GB, or Quad Rank 64GB 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 32GB (1x32GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	728629-B21
	HP 32GB (1x32GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726722-B21
	HP 64GB (1x64GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726724-B21
	NOTE: 64GB DIMMs are available for 1024GB sizes or higher.	
	Select the Processor A choice of two processors based on the Intel® Xeon® E7 v4 architecture is available. Compute node with 128GB of memory are available with two CPUs only. Compute nodes with 256GB, 384GB, 512GB, 768GB, 1024GB, 1536GB or 2048GB of memory are available with two CPUs, or with four CPUs. Compute nodes with 3072TB or 4096TB of memory are available only with four CPUs.	
	HP DL580 Gen9 Intel® Xeon® E7-8890v4 (2.2GHz/24-core/165W) Processor Kit	816643-B21
	HP DL580 Gen9 Intel® Xeon® E7-8880v4 (2.2GHz/22-core/150W) Processor Kit	816645-B21
	NOTE: Two socket or two CPU configurations in 1024GB, 1536GB, and 2048GB memory sizes are only allowed for use with SAP Business Suite on HANA. The 2 CPU 2048GB and the 4CPU 4096GB sizes are only available with the Intel® Xeon® E7-8890v4 CPU	
	Select Optional Encryption License HP Secure Encryption per Server Entitlement	C9A82AAE

How to Order

Select the External Storage

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

HPE SAP HANA Scale-up Storage M0S72A

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.

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 M0S67A

HP 1200mm Shock Intelligent Rack M0S68A

HP Virtual Rack M0S66A

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/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 3Ph 8.6kVA/L15-30P 24A/208V Outlets (6) C19/Horizontal NA/JP PDU AF522A

HPE Intelligent Modular 3Ph 14.4kVA/CS8365C 40A/208V Outlets (6) C19/Horizontal NA/JP PDU AF533A

HPE Intelligent Modular 3Ph 17.3kVA/60309 60A 4-wire 48A/208V (6) C19/Horizontal NA/JP PDU AF523A

HPE Intelligent Modular 8.3kVA/CS8265C 40A/208V Outlets (6) C19/Horizontal NA/JP PDU AF521A

HPE Intelligent Modular 7.3kVA/60309 3-wire 32A/230V Outlets (6) C19/Horizontal INTL PDU AF525A

HPE Intelligent Modular 3Ph 22kVA/60309 5-wire 32A/230V Outlets (6) C19/Horizontal INTL PDU AF527A

***NOTE:** While the HPE 1075mm Shock Intelligent Rack or the HPE 1200mm Shock Intelligent Rack is

How to Order

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 and rack options:

<https://www.hpe.com/us/en/integrated-systems/rack-power-cooling.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.

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.

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

How to Order

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 SAP HANA Networking Switch Block (HPE Part Number P9P31A).. These switches are optional, and other compatible Hewlett Packard Enterprise switches may be used
- Optional - **One** HPE ConvergedSystem Quorum Server (Hewlett Packard Enterprise Part

How to Order

Number P9H81A). 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 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 500 for SAP HANA Scale-up order will include FE Deployment Services covering the factory integration and onsite installation and startup services.
HPE Deployment Accelerator Service for SAP HANA	HPE ConvergedSystem 500 for SAP HANA Scale-up orders will include the HPE Deployment Accelerator Service for SAP HANA providing quick, easy implementation, expert configuration support, and knowledge sharing.
HPE Disaster Tolerance Service	HPE ConvergedSystem 500 for SAP HANA Scale-up orders with a Dual Purpose configurations will include the HPE Disaster Tolerance Service.
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: <ul style="list-style-type: none"> • HPE SAP HANA High Availability Services- Provides Serviceguard Integration with SAP HANA. • HPE SAP HANA Disaster Tolerance Service (SAP HANA Replication) – Provides SAP HANA Replication 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. 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.

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 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 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. 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 500 for SAP HANA Scale-up Configurations with the Intel® Xeon® E7 v4 architecture are provide below.

HPE ConvergedSystem 500 for SAP HANA Compute Node based on the HPE ProLiant DL580 Gen9 Server	Dimensions (H x W x D) (with bezel)	6.88" x 17.48" x 29" (17.5cm x 44.4cm x 73.6cm)
	Weight (approximate)	<p>Maximum 116.56.0 lb (52.87 kg) (all hard drives, power supplies, DIMMs and processors installed)</p> <p>Minimum 70.94 lb (32.18 kg) (one hard drive, two power supplies, four DIMMs, and two processors installed)</p>
	Input Requirements (per power supply)	<p>Rated Line Voltage 100 - 120 VAC (1200W PS only) 200 - 240 VAC (1200W & 1500W PS)</p> <p>Rated Input Current 9.2A (100 VAC), 6.6A (200 VAC) - 1200W PS 8.3A (200 VAC) - 1500W PS</p> <p>Rated Input Frequency 50 to 60 Hz</p> <p>Rated Input Power 1000 W (120 VAC), 1320 W (230VAC) - 1200W PS 1652 W (at 230 VAC) - 1500W PS</p>
	BTU Rating	Maximum 3408 BTU/hr (120 VAC), 4500 BTU/hr (at 230 VAC) - 1200W PS 5637 BTU/hr (230 VAC) - 1500W PS
	Power Specifications	<p>NOTE: To review typical system power ratings use the Hewlett Packard Enterprise Power Advisor which is available online located at url: https://www.hpe.com/us/en/integrated-systems/rack-power-cooling.html</p> <p>- Click on the system of interest. Example: DL580 Gen9</p> <p>- Follow the instructions of the next screens.</p>
	Power Supply Output (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
	System Inlet Temperature	<p>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)..</p> <p>Non-operating -40° to 70°C (-40° to 158°F). Maximum rate of change is 20°C/hr (36°F/hr).</p>
	Relative Humidity (non-condensing)	<p>Operating 10% to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.</p> <p>Non-operating 5 to 95% relative humidity (Rh), 38.7°C</p>

Technical Specifications

		(101.7°F) maximum wet bulb temperature, non-condensing.
Altitude	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).
Acoustic Noise	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.	
	Typical configuration (Two Intel® Xeon® E7-4890 v2 processors, 8x16 GB DIMMs, five HDDs, Eight fans, Four power supplies)	
	Idle	
	<ul style="list-style-type: none"> • LWAd – 6.8 B • LpAm – 51.2 	
	Operating	
	<ul style="list-style-type: none"> • LWAd – 6.9 B • LpAm – 51.2 	
	Performance Configuration (Four Intel® Xeon® E7-4890 v2 processors, 16x16 GB DIMMs, Ten HDDs, Eight fans, Four power supplies)	
	Idle	
	<ul style="list-style-type: none"> • LWAd – 6.7 B • LpAm – 50.7 	
	Operating	
	<ul style="list-style-type: none"> • LWAd – 6.9 B • LpAm – 51.3 	
Emissions Classification (EMC)	FCC Rating Normative Standards	Class A 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

Technical Specifications

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	LED Indicators for HDDs	HPE SmartDrive Carrier Drives
	LED Indicators on Front Panel	Bi-color green/amber for health/fault Blue for UID Heartbeat LED Fault LED UID button/LED
	LED Indicators on Rear Panel	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
	Host Interface	8 x wide SAS 12Gb/s ports
	Maximum Number of Drives	25 2.5 inch (D3700) SAS or SATA drives
	Acoustics Noise	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. Idle Acoustic Noise (sound power) LWAd= 7.0 B Idle Acoustic Noise (sound pressure) LpAm - 53 dBA Operating Acoustic Noise (sound power) LWAd= 7.0 B Operating Acoustic Noise (sound pressure) LpAm - 53 dBA
	Temperature Range	Operating 50° to 104° F (10° to 40° C) Shipping -22° to 149° F (-30° to 65° C) NOTE: Rated 1°C per 1000 feet of elevation to 10,000 ft.
	Relative Humidity	Operating 10% to 90% Non-operating 0% to 95%
	Maximum wet bulb temperature	Long-term storage (operating) 82.4° F (28° C) Short-term storage 101.6° F (38.7° C)

Technical Specifications

	(non-operating)	
Input Power Requirements	Rated Input Voltage	100 to 240 VAC (Common- slot Power Supply)
	Rated Input Frequency	50 to 60 Hz (Common-slot Power Supply)
	Rated Input Current	6A/3A
	Input Power max	403W
Heat Dissipation (maximum)	1331/Btu/hr.1160.Btu/hr	[NOTE: standard conversion from Watts to Btu/hr = 3.413 Btu/hr per Watt]
RAID Support	See Quickspecs for Smart Array Controllers P421, P431, P822, P721m, P731m https://www.hpe.com/us/en/product-catalog/servers/smart-array-controllers-and-smart-host-bus-adapters.html	
	NOTE: For up to date compatibility, see the following URL for complete Smart Array Controller compatibility and support information: https://www.hpe.com/us/en/product-catalog/servers/smart-array-controllers-and-smart-host-bus-adapters.html	
Upgradeable Firmware	Yes, Offline only. Firmware updates available through hp.com	
Disk Drives and Enclosure Protocol Support	2.5 inch SAS 6/12Gb/s	
I/O Module	Connector Type	IPass (mini-SAS)
	Number of Ports	Two (One IN, other is OUT)
	Bandwidth	SAS-3 (12Gb/s)
	Protocols supported	SAS 3.0
	2U Rack Form Factor	Small Form Factor
	Dimensions (HxWxD)	3.44" x 17.64" x 21.48" in (8.7 x 44.8 x 54.6 cm)
	Weight (base unit)	38 lb (17.2 kg)
	Weight (with all SFF drives)	54.90 lb (24.9 kg)
	Shipping package dimensions	D3700 - 11.13" x 23.75" x 36.12" (SFF)
	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	85.82 x 57.87 x 35.43 in (218.00 x 147.00 x 90 cm)

Technical Specifications

packaging materials)

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.

Summary of Changes

Date	Version History	Action	Description of Change:
11-Jul-2017	From Version 4 to 5	Changed	Change name to reflect it as it is in PMaster
27-Mar-2017	From Version 3 to 4	Changed	Minor updates made thorough the document
18-Nov-2016	From Version 2 to 3	Changed	Minor updates made thorough the document
16-Sept-2016	From Version 1 to 2	Changed	Updated with information on how to order Serviceguard software
06-Jun-2016	Version 1	Created	QuickSpecs document created



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