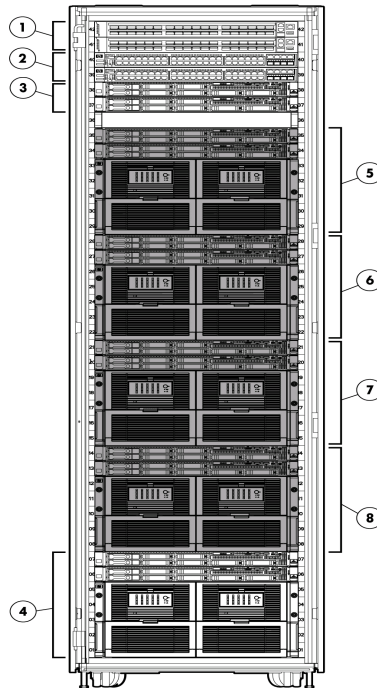## Overview

Base Rack - Front View

1. HP InfiniBand FDR 36 Port Switch (2)
2. HP Ethernet Switch 5120-24 G (2)
3. Passive Scale Unit: HP AppSystem for PDW Passive Server Block (DL360p Gen8 server) (2)
4. Base Scale Unit: HP AppSystem for PDW Active Server Block (HP ProLiant DL360p Gen8 server) (2)+ HP AppSystem for PDW Storage Block (D6000) (1)
5. Optional: (Available in future release) Fourth Active Scale Unit: HP AppSystem for PDW Active Server Block(HP ProLiant DL360p Gen8 server) (2)+ HP AppSystem for PDW Storage Block (D6000) (1)
6. Optional: Third Active Scale Unit: HP AppSystem for PDW Active Server Block(HP ProLiant DL360p Gen8 server) (2)+ HP AppSystem for PDW Storage Block D6000 (1)
7. Optional: Second Active Scale Unit: HP AppSystem for PDW Active Server Block(HP ProLiant DL360p Gen8 server) (2)+ HP AppSystem for PDW Storage Block D6000 (1)
8. Optional: First Active Scale Unit: HP AppSystem for PDW Active Server Block (HP ProLiant DL360p Gen8 server) (2)+ HP AppSystem for PDW Storage Block (D6000) (1)

What's New

- HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse has been redesigned with a new hardware architecture including a new entry level ¼ rack footprint (2 active nodes) with the ability to expand to 64 nodes and up to 6 Petabyte (PB). Additionally performance will be enhanced with the latest HP ProLiant Gen8 servers coupled with InfiniBand FDR networking along with Microsoft SQL Server 2012 advancements to drive improvements in query speed and scan rates.
- To provide next generation performance at scale, SQL Server 2012 Parallel Data Warehouse uses the new updateable version of xVelocity columnstore combined with an MPP engine for seamless linear scale out.

At A Glance

Overview

HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse a dedicated data warehouse appliance offering massive parallel scale-out query processing, allows users to scale up to much higher levels of performance and capacity than single SMP systems can offer. HP and Microsoft have engineered this joint offering based on multiple HP ProLiant servers (working in parallel through an MPP software layer to function as a single entity), HP ProLiant Servers, D6000 direct attach storage, high-speed, low-latency interconnects, Microsoft SQL Server 2012 Parallel Data Warehouse software, and HP and Microsoft services and support. HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse lets you scale out data warehouse solutions to petabytes of data for the most demanding business needs. Queries run against tables containing trillions of rows of data are returned in seconds, providing new levels of scalability and performance for large enterprises. Through the use of massively parallel technology, HP's dense servers and storage subsystems, we are able to achieve outstanding performance.

HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouses are fully integrated and tested. The HP solution starts with a single rack, each containing up a minimum of two active compute nodes, and two passive nodes, expanding in this software release to eight active compute nodes With the expansion rack, the solution can extend to a maximum of 64 compute nodes. The shared-nothing software architecture is coupled to the hardware solution, pre-installed and optimized to achieve balanced throughput, I/O and processing power. User choices within the pre-configured appliance are minimal; The fine-tuned configuration allows customers to choose size and form factor of disks in the data racks and back up, PDU type, and additional services.

The HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse base rack contains multiple HP ProLiant DL300 series servers and HP D6000 direct attach storage. The functions within the base rack include:

- The Base Scale Unit/Active Scale Unit(s) (Server Blocks (2) and Storage Block (1)) is where the physical data warehouse or data mart is stored.
  - Two types of tables are leveraged: replicated tables with copies stored on every node and distributed tables where separate physical tables on multiple compute nodes are logically joined through metadata stored on the control node. Tables are stored on the compute nodes, with the data stored on each node's D6000 storage. By balancing the data across compute nodes and storing different table types appropriately (small dimension tables are replicated; very large fact or transaction tables with billions or even trillions of rows are distributed), the HP AppSystem for Parallel Data Warehouse is able to access the data in parallel and achieve high levels of I/O throughput. The massively parallel architecture gives our solution the speed to provide user queries with significantly higher levels of I/O throughput than may be achieved on a scale up SMP system. Customers may choose disk size, and PDU type (single phase or three phase for redundancy).
- The Passive Server Block (active/passive HA cluster), with optional third node provides the follow functionality:
  - Accept queries from users, and creates an MPP execution plan which instructs one or more compute nodes to execute some portion of the query, often in parallel. Some queries will enter directly, such as from Microsoft Excel or Power View (Microsoft Excel 2013), while others may go through an application tier or OLAP cube such as SQL Server Analysis Services.
  - Acts internally as the domain controller for all the servers in the HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse and provides the interface for DBAs or data center operations to access and manage the overall solution.
- Optional: Data Integration Platform (Landing/Backup Server Block) provides the follow functionality:
  - Landing Zone: Where cleansed data is stored before loading data into the data warehouse. An optional 10GbE card is available for faster network access to the Landing Zone server.
  - Dedicated Backup Node with the appropriate associated storage. The Backup Node and associated storage has the capacity to back-up the entire data warehouse locally which allows for faster recovery times if data needs to be re-accessed. The determination of appropriate backup storage is determined by the customer's disk choice and number of data racks ordered. HP and Microsoft have worked together to optimize the backup (full and differential backups) . An optional 10GbE or FC 8G card is available for faster network access to the Backup Server.
    - For a 2 active server node configuration, the DL380 Gen8 with internal storage also serves as the backup target
    - For added backup functionality, or if additional ETL or data load storage is needed an additional D6000 direct attach storage can be added to support:
      - up to 4 active server node configuration, the D6000 is configured with 24 disks
      - up to 8 active server configuration, the D6000 is configured with 48 disks

Overview

- Select 1, 2 or 3 TB capacity based on same selection on the storage node.
  - Insight Remote Support Server Host
    - HP has developed a proactive service and support experience that automates many day-to-day tasks and helps proactively reduce risk.

    - Information is sent to HP call center staff, which can remotely log in and determine if the problem can be resolved immediately or if it needs an onsite visit.

For more information about the HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse see:
http://www.hp.com/solutions/microsoft/pdw
For more information about HP ProLiant servers see: http://h18004.www1.hp.com/products/servers/platforms
For more information about HP Insight software, see: http://www.hp.com/go/insight
For more information about Storage products, see: www.hp.com/go/storage
For more information about HP Racks see: http://h18004.www1.hp.com/products/servers/proliantstorage/racks/index.html
For more information about the HP and Microsoft partnership see: http://h71028.www7.hp.com/enterprise/cache/8161-0-0-0-121.html
For information about HP services see: www.hp.com/services/microsoft

How to Order

How to order HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse

The method for purchasing the HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse is simple. Start by ordering a Base Scale Unit which is comprised of two Active Server Blocks, two Passive Server Blocks, and one Storage Block. You can expand add up to four additional active scale units (fourth scale unit will be operational in a future software release).

NOTE: All racks purchased must be co-located, side by side.
NOTE: For detailed ordering information please see the Configuration Information section of this QuickSpec.
NOTE: With all HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse orders, the following services are part of the solution:

● Factory Express Project Management services to oversee factory and customer site-installation activities. This also includes pro-active communication, planning and scheduling for a coordinated installation at the customer site.
● Factory services to default configure, rack, and cable the infrastructure in a rack,
● Site assessment,
● Installation and start up services,
● Choice of HP support to meet your business needs. The recommended HP support level is HP Proactive care (with a choice of 4 hr onsite response 24X7 or 6 hr call-to-repair) plus the HP Personalized Support Option. The minimum required support level is HP Proactive Care 24X7.

While HP is building the HP AppSystem for Parallel Data Warehouse for a given customer, an assigned project manager from HP Technology Services will start managing a team to begin planning the rollout of the implementation service, including engaging with the customer on environmental requirements and related details. HP will start the actual implementation of the equipment as soon as possible after its arrival date at the customer site. Additional details on the Implementation and Startup Service is detailed in the implementation section below.

Standard Features

HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse software	Microsoft SQL Server 2012 Parallel Data Warehouse uses massively parallel processing (MPP) to deliver high performance and scalability on SQL Server 2012, Windows Server® 2012 and industry-standard hardware. The MPP architecture helps enable better scalability, better and more predictable performance, reduced risk and a lower cost per terabyte than other data warehousing solutions.

In symmetric multi-processing (SMP) architecture, query processing occurs entirely within one physical instance of a database. CPU, memory and storage impose physical limits upon speed and scale. A SQL Server 2012 Parallel Data Warehouse data warehouse appliance partitions large tables across multiple physical nodes, each node having dedicated CPU, memory and storage, and each running its own instance of SQL Server, in a parallel shared nothing architecture. SQL Server 2012 Parallel Data Warehouse delivers improved performance through its unique design.

NOTE: Your use of Microsoft SQL Server 2012 Parallel Data Warehouse Edition which includes the Virtual Machine Manager component of Microsoft System Center 2012 Standard SP/1 on this server hardware is subject to the terms and conditions of the Volume License program agreement under which you have acquired licenses to these Microsoft products. You may not use the above software without first acquiring valid server and/or client access licenses from Microsoft or its authorized distributor or reseller. For more information see: http://www.microsoft.com/sqlserver/en/us/get-sql-server/how-to-buy.aspx. Microsoft Windows Server 2012 for use with Microsoft SQL Server 2012 Parallel Data Warehouse Edition provided on this server hardware is subject to the Microsoft Software License Terms provided to you by Hewlett-Packard Company or its authorized reseller. The genuine Certificate of Authenticity label affixed to the server hardware identifies licensed software.

HP AppSystem for Parallel Data Warehouse Implementation Service (onsite), plus additional services	The onsite Implementation and Startup Service consists of these steps::

- 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 HP AppSystem for Parallel Data Warehouse requirements
- Upon delivery to customers site, unpack and inspect for damages
- Integrate racks in to customers environment, power, network cabling
- Racks interconnect cabling
- Configuration of the network connections towards the customer environment and connection verification
- Install and configure HP Insight Remote Support (if applicable)
- Conduct basic appliance level functionality testing using the provided "Sanity" tool.
- Familiarize customer with the equipment and with basic processes (HP-side only)
- Instruct customer on how to place support calls

In addition to the HP AppSystem for Parallel Data Warehouse Implementation Service, HP highly recommends HP Education Services (for customer training and education) and additional Technical Services, as well as in-depth installation or implementation services as may be needed.

For additional information please visit:

HP Education Services: www.hp.com/learn/proliant
Technical Services: www.hp.com/services/technicalservices
Deployment Services: www.hp.com/services/deployment

Standard Features

Warranty Services	The HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse infrastructure is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. As the HP AppSystem for Parallel Data Warehouse is a solution made up of many components, the warranty across the different components will vary. The HP AppSystem for Parallel Data Warehouse requires customers purchase a minimum of 3 year HP ProactiveCare (24x7 hardware/software support with 4 hour onsite hardware response), bringing the support service level of all components to a consistent level

---

HP Financial Services	To support customers' transition, HP 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 HP Financial Services Representative. In the United States, call 1-888-277-5942. In Canada, dial 1-800-HP-LEASE. For more information please visit: www.hp.com/hpfinancialservices for links to HP Financial Services around the world.

Rack Airflow Requirements	**HP 642 1075mm Shock Intelligent Series Rack** The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The HP 642 1075mm Shock Intelligent Series Rack s provide enhanced airflow for maximum cooling (81% total open area on HP rack front doors), allowing these racks to be fully loaded with servers using the latest processors. - 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).

Configuration Information - Factory Integrated Models

NOTE: This section lists the required steps for ordering an HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse. NOTE: With all rack orders the HP and Microsoft software will be installed at the factory. Licenses are not included for SQL Server 2012 Parallel Data Warehouse software and must be ordered separately. HP and Microsoft collaborate together to resolve customer HP AppSystem for Parallel Data Warehouse issues. Support for the HP AppSystem for Parallel Data Warehouse requires support from both HP and from Microsoft. HP 3yr Proactive Care 24X7 (included) is the minimum required HP support level with the option to upgrade to a higher support level to meet your business needs. Software support for the Microsoft software must be purchased from Microsoft.

Step 1: Order the HP AppSystem for Microsoft SQL Server 2012 PDW - Base Rack Block

HP AppSystem for PDW - Base Rack Block

HP AppSystem for PDW - Base Rack Block includes the following:

A2E74A

One (1) HP 642 1075mm Shock Intelligent Series Rack includes:

- Two (2) HP Switch 5120-24G
- Two(2) HP IB FDR 36P Managed Switch

Step 2: Order Power Distribution Unit (PDU)

HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse

Choice of three phase or single phase Modular Power Distribution Unit (PDU)

- **Three-phase (2 PDUs per rack):**
  ○ HP 40A 3 Phase NA/JP Core Only Intelligent Modular Power Distribution Unit (PN AF533A). **OR**
  ○ HP 32A 3 Phase Intl Intelligent Modular Power Distribution Unit (PN AF527A).
- **Single-phase (4 PDUs per rack):**
  ○ HP 24A NA/JP Core Only Intelligent Modular Power Distribution Unit (PN AF520A). OR
  ○ HP 32A Intl Core Only Intelligent Modular Power Distribution Unit (PN AF525A)

Step 3: Order the HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse Base Scale Unit

HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse Base Scale Unit

HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse Base Scale Unit is comprised of: HP AppSystem for PDW Active Server Block (2), HP AppSystem for PDW Passive Server Block (2) ;HP AppSystem for PDW Storage Block (choice of 1, 2 or 3 TB) (1)

A2E75A (2) and A2E81A(2) and A2E76A(1) or A2E77A (1) or A2E78A (1)

Base Scale Unit

- Two (2) HP AppSystem for PDW Active Server Block each includes:
  ○ One (1) HP ProLiant DL360p Gen8 (2x E5-2690) Server includes:
    ▪ Sixteen (16) HP 16GB (2R x 4) PC3-12800R (DDR3-1333) Memory
    ▪ Two (2) HP 600GB 6G SAS 10K 2.5in
  ○ HP iLO Advanced 1-Server including 1 yr. 24x7 software support
  ○ Microsoft Windows Server 2012 Standard Edition
  ○ Microsoft SQL Server 2012 Parallel Data Warehouse
- Two (2) HP AppSystem for PDW Passive Server Block each includes:

Configuration Information - Factory Integrated Models

- ○ One (1) HP ProLiant DL360p Gen8 (2x E5-2690) Server includes:
    - ■ Sixteen (16) HP 16GB (2R x 4) PC3-12800R (DDR3-1333) Memory
    - ■ Two (2) HP 600GB 6G SAS 10K 2.5in
- ○ HP iLO Advanced 1-Server including 1 yr. 24x7 software support
- ○ Microsoft Windows Server 2012 Standard Edition
- ○ Microsoft SQL Server 2012 Parallel Data Warehouse
- ● Optional: (1) HP AppSystem for PDW Passive Server Block each includes:
    - ○ One (1) HP ProLiant DL360p Gen8 (2x E5-2690) Server includes:
        - ■ Sixteen (16) HP 16GB (2R x 4) PC3-12800R (DDR3-1333) Memory
        - ■ Two (2) HP 600GB 6G SAS 10K 2.5in
    - ○ HP iLO Advanced
    - ○ Microsoft Windows Server 2012 Standard Edition
    - ○ Microsoft SQL Server 2012 Parallel Data Warehouse
- ● One (1) HP AppSystem for PDW Storage Block- choose from the following options:
    - ○ Option 1 (1 TB option)
        - ■ One (1) HP D6000 Disk Enclosure
            - ● Seventy (70) HP 1TB 6G SAS 7.2K 3.5in DP MDL HDD
    - ○ Option 2 (2 TB option):
        - ■ One (1) HP D6000 Disk Enclosure
            - ● Seventy (70) HP 2TB 6G SAS 7.2K 3.5in DP MDL HDD
    - ○ Option 3 (3 TB option):
        - ■ HP D6000 Disk Enclosure
            - ● Seventy (70) HP 3TB 6G SAS 7.2K 3.5in DP MDL HDD

NOTE: The SQL Server 2012 Parallel Data Warehouse software is preinstalled and preconfigured. Licenses must be purchased separately.

User Data Capacity	User Data (TB) - Single Rack				
Topology	2 Active Servers	4 Active Servers	6 Active Servers	8 Active Servers	10 Active Servers (future version)
1 TB disks	76 TB	151 TB	227 TB	302 TB	378 TB
2 TB disks	151 TB	302 TB	453 TB	605 TB	756 TB
3 TB disks	227 TB	453 TB	680 TB	907 TB	1133 TB

Configuration Information - Factory Integrated Models

User Data Capacity			User Data (TB) - Base Rack + Expansion Rack(s)			
Topology	16 Active Servers (2 racks)	24 Active Servers (3 racks)	32 Active Servers (4 racks)	40 Active Servers (5 racks)	48 Active Servers (6 racks)	56 Active Servers (7 racks)
1 TB disks	605 TB	907 TB	1209 TB	1511 TB	1814 TB	2116 TB
2 TB disks	1209 TB	1814 TB	2418 TB	3023 TB	3627 TB	4232 TB
3 TB disks	1814 TB	2720 TB	3627 TB	4534 TB	5441 TB	6347 TB

NOTE: User data capacity is calculated based on disks allocated to database space, factored in the formatted capacity and RAID1, as well as 5x compression ratio.
NOTE: SQL Server 2012 Parallel Data Warehouse uses the newest version of xVelocity memory-optimized columnstore, which is both updateable and clustered. By reorienting data in a column rather than a traditional row store, organizations can see next-generation performance (up to 50 times) by reducing the query time from hours to seconds and high compression on their data (up to 15 times). This is due to the grouping of data in a columnar format (containing values from multiple rows) that allows for higher efficiency in both storage and the returned dataset . The ability to permanently convert traditional row store tables with the updateable columnstore of xVelocity is another new feature, which dramatically reduces storage (by up to 70 percent) while still providing real-time data warehouse query performance.

Step 4: Order additional HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse Active Scale Unit (Optional)

HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse Active Scale Unit is comprised of: HP AppSystem for PDW Active Server Block (2), HP AppSystem for PDW Storage Block (choice of 1, 2 or 3 TB) (1)

HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse Active Scale Unit	**Active Scale Unit**	A2E75A (2) and A2E76A(1) or A2E77A (1) or A2E78A (1)

Two (2) HP AppSystem for PDW Active Server Block each includes:

- One (1) HP ProLiant DL360p Gen8 (2x E5-2690) Server includes:
  - Sixteen (16) HP 16GB (2R x 4) PC3-12800R (DDR3-1333) Memory
  - Two (2) HP 600GB 6G SAS 10K 2.5in
- HP iLO Advanced 1-Server including 1 yr. 24x7 software support
- Microsoft Windows Server 2012 Standard Edition
- Microsoft SQL Server 2012 Parallel Data Warehouse

One (1) HP AppSystem for PDW Storage Block- choose from the following options:

- Option 1 (1 TB option)
  - One (1) HP D6000 Disk Enclosure
    - Seventy (70) HP 1TB 6G SAS 7.2K 3.5in DP MDL HDD
- Option 2 (2 TB option):

Configuration Information - Factory Integrated Models

- ○ One (1) HP D6000 Disk Enclosure
  - ■ Seventy (70) HP 2TB 6G SAS 7.2K 3.5in DP MDL HDD
- ● Option 3 (3 TB option):
  - ○ HP D6000 Disk Enclosure
    - ■ Seventy (70) HP 3TB 6G SAS 7.2K 3.5in DP MDL HDD

NOTE: The SQL Server 2012 Parallel Data Warehouse software is preinstalled and preconfigured. Licenses must be purchased separately.

Step 5: Order Data Integration Platform (Landing/Back-up Block) (Optional)

HP AppSystem for Microsoft SQL Server 2012 Parallel Data Warehouse Landing/Back-up Block

One (1) HP AppSystem for PDW Landing Zone/Back-up Block which includes:

A2E80A (1)

- ● One (1) HP ProLiant DL380p Gen8 (E5-2670) Server includes:
  - ○ Eight (8) HP 8GB (2R x 4) PC3-12800R (DDR3-1333) Memory
  - ○ Twelve (12) HP 1 TB 6G SAS 7.2K 3.5in
- ● HP iLO Advanced 1-Server including 1 yr. 24x7 software support
- ● Microsoft Windows Server 2012 Standard Edition

If additional storage is required for the landing block (based on the number of HP AppSystem for PDW Active Server Blocks, you may select the D6000 Disc Enclosure with the following options:

- ○ For 4 or 6 Active Server node configuration: Twenty-four (24) HP 1 TB 6G SAS 7.2K 3.5in (Select 1, 2 or 3 TB)
- ○ For 8 Active Server node configuration: Forty-eight (48) HP 1 TB 6G SAS 7.2K 3.5in (Select 1, 2 or 3 TB)

NOTE: The Data Integration Platform (Landing/Back-up Block) is not integrated into HP AppSystem for Parallel Data Warehouse rack, it ships separately, or can be integrated into its own rack.

Step 6: Choose HP Care Pack Support

HP Care Pack Support

The minimum required support level is HP Proactive Care and will be included as the default support selected.

- ● HP and Microsoft collaborate together to resolve customer HP AppSystem for Parallel Data Warehouse issues. Support for the HP AppSystem for Parallel Data Warehouse requires both support from HP from the choices outlined below and a separate software support agreement with Microsoft.
- ● The recommended HP support level is HP Proactive Care plus the HP Personalized Support Option.
- ● In addition, customers may choose HP Critical Service. All of these support choices provide specially aligned, collaborative reactive processes between HP and Microsoft for seamless resolution of any HP AppSystem for Parallel Data Warehouse issues.

To upgrade support levels, one of the following support offers may be selected:

NOTE: Each of these support levels include hardware and software reactive support and

Configuration Information - Factory Integrated Models

are available with DMR (defective media retention). Support for the Microsoft software has to be purchased separately from Microsoft.

HP Critical Service - 3yr, 4yr or 5yr
HP Critical Service HA112A3, HA112A4, HA112A5
HP Critical Service with DMR HG932A3, HG932A4, HG932A5
Provides comprehensive proactive and reactive support designed for businesses that run essential mission-critical applications where downtime is not an option. Reduce the risks of downtime and maximize availability using ITIL best practices for mission-critical applications. Call-to-repair reactive support provides access to the Global Mission Critical Solution Center to enable quick resolution. The proactive services included in HP Critical service will be coordinated with Microsoft's proactive services that come with Microsoft Premier Mission Critical, if applicable.

HP Proactive Care - 3yr, 4yr or 5yr

Step 1: Select Proactive Care Reactive Service:

- HP Proactive Care 24x7 H1K92A3, H1K92A4, H1K92A5
- HP Proactive Care 24x7 with DMR H1K93A3, H1K93A4, H1K93A5
- HP Proactive Care 6 hour CTR H1K94A3, H1K94A4 , H1K94A5
- HP Proactive Care 6 hour CTR w/DMR H1K95A3, H1K95A4 , H1K95A5

Step 2: Add Personalized Support Option
HP Personalized Support Option H4B58A3, H4B58A4, H4B58A5
HP Proactive Care - HP Proactive Care begins with providing all of the benefits of proactive monitoring and reporting along with rapid reactive care. You also receive enhanced reactive support, through access to HP's expert reactive support specialists. You can customize your reactive support level by selecting either 6 hour call-to-repair or 24x7 with 4 hour onsite response.
HP Proactive Care with the HP Personalized Support Option - Adding the Personalized Support Option for HP Proactive Care is highly recommended. The Personalized Support option builds on the benefits of HP Proactive Care Service, providing you an assigned Account Support Manager who knows your environment and delivers support planning, regular reviews, and technical and operational advice specific to your environment. These proactive services will be coordinated with Microsoft's proactive services that come with Microsoft Premier Mission Critical, if applicable.

HP Proactive Select - 3yr, 4yr or 5yr

NOTE: Proactive Select is in addition to the above support choices.
HP 3Y Proactive Select 30 credits SVC HK696A3
HP 3Y Proactive Select 90 credits SVC HG921A3
HP 3Y Proactive Select 180 credits SVC HG922A3
HP 3Y Proactive Select 540 credits SVC HG923A3
HP 3Y Add 10 Proactive Select Credit SVC HG924A3
HP 4Y Proactive Select 40 credits SVC HK696A4
HP 4Y Proactive Select 120 credits SVC HG921A4
HP 4Y Proactive Select 240 credits SVC HG922A4
HP 4Y Proactive Select 720 credits SVC HG923A4
HP 4Y Add 10 Proactive Select Credit SVC HG924A4
HP 5Y Proactive Select 50 credits SVC HK696A5

Configuration Information - Factory Integrated Models

HP 5Y Proactive Select 150 credits SVC HG921A5
HP 5Y Proactive Select 300 credits SVC HG922A5
HP 5Y Proactive Select 900 credits SVC HG923A5
HP 5Y Add 10 Proactive Select Credit SVC HG924A5

HP Proactive Select - And to address your ongoing/changing needs, HP recommends adding Proactive Select credits to provide tailored support options from a wide menu of services, designed to help you optimize capacity, performance, and management of your HP AppSystem for Parallel Data Warehouse environment. These credits may also be used for assistance in implementing updates for the solution. As your needs change over time you flexibly choose the specific services best suited to address your current IT challenges.

Technical Specifications

Technical Specifications	Dimensions (per rack)	Height	42U, 78.816 in (200.19cm)
		Width	23.535 in (59.78 cm)
		Depth	42.741in (108.56 cm)
	Shipping Dimensions (per rack, with packaging materials)	Height	85.35 in (216.80 cm)
		Width	35.43 in (90cm)
		Depth	50.87 in (129.20 cm)
	Maximum load	Rack	2250 lb (726kg)
	Color	Doors	Black with Silver extrusion
		Frame	Black
	Clearance (for air flow and access)	Front	48 in (121.9 cm)
		Rear	30 in (76.2 cm)
	Temperature range	Operating	50° to 90° F (10° to 35° C)
		Non-Operating	-22° to 140° F (-30° to 60° C)
	Relative humidity	Operating	15 to 85% relative humidity (Rh)
	Altitude	Operating	3000 meters maximum.
	Power Usage -Operating	Rack (2 active nodes)	3.7kW (17.8A at 208V)
		Rack (4 active nodes)	5.9kW (28.4A at 208V)
		Rack (6 active nodes)	8.1kW (38.9A at 208V)
		Rack (8 active nodes)	10.3kW (49.5A at 208V)
	BTU rating, maximum	Rack (2 active nodes)	13000 BTU/hr
		Rack (4 active nodes)	20500 BTU/hr
		Rack (6 active nodes)	28000 BTU/hr
		Rack (8 active nodes)	35000 BTU/hr
	Power Connections	**Three-Phase Power**	NA/Japan **or** International Option
		Per rack	(2) CS8365C or (2) IEC60309 532P6W
		Single-Phase Power	NA/Japan **or** International Option
		Per rack	(4) NEMA L6-30p or (4) IEC60309 332P6
	External Network Connections	**Location**	Connection Speed/Connection Type
		Ethernet Switch 1	10GbE / SFP+
		Ethernet Switch 2	10GbE / SFP+
		Infiniband Switch 1	IB FDR / QSFP
		Infiniband Switch 2	IB FDR / QSFP
		Ethernet Switch 1	1 GbE / RJ45
		Ethernet Switch 2	1 GbE / RJ45

NOTE: No direct sustained sunlight.
NOTE: The maximum load for the HP Intelligent Series Rack is 3000 lb (907.18kg).

Technical Specifications

Environmental-friendly products and approach	End-of-life management and recycling	Hewlett-Packard offers end-of-life HP 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 HP sales office. Products returned to HP 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 web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.