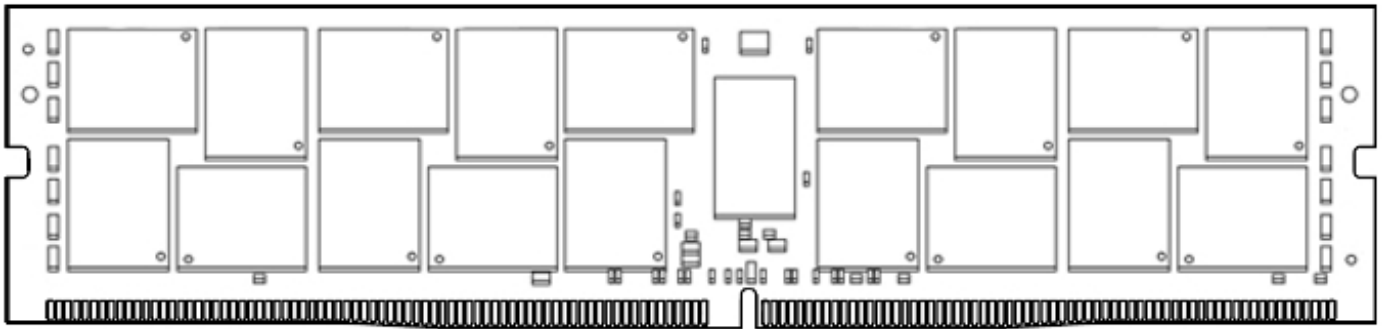


Overview

HPE DDR4 Standard Memory

Is finding reliable DRAM memory for your HPE ProLiant Server series in your data center a major challenge? When you choose HPE Standard Memory you get the same high quality, reliability, and confidence that come with your HPE ProLiant Gen9 Server series. DRAM quality and reliability are more important now than ever. Industry in memory require greater reliability and uptime. HPE Standard Memory in ProLiant Gen9 Servers it unlocks certain features available only with HPE Qualified Server memory. HPE Standard Memory enables for ProLiant Gen9 systems has passed the rigorous Hewlett Packard Enterprise qualification and testing processes.



What's New

- HPE Standard Memory DDR4 @2133 Memory supported on ProLiant Gen9 10/100 series Servers

Models

Registered DIMMs (RDIMMs)

HP 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Standard Memory Kit	803026-B21
HP 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Standard Memory Kit	803028-B21

Unbuffered DIMMs (UDIMMs)

HPE 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Unbuffered Standard Memory Kit	805667-B21
HPE 8GB (1x8GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Unbuffered Standard Memory Kit	819880-B21
HPE 8GB (1x8GB) Dual Rank x8 DDR4-2133 CAS-15-15-15 Unbuffered Standard Memory Kit	805669-B21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2133 CAS-15-15-15 Unbuffered Standard Memory Kit	805671-B21

Standard Features

What is HPE Standard Memory?	HPE Standard Memory is unique technology which is designed to work on 10/100 series Rack and Tower server. In Gen9 Server HPE Standard Memory has passed Hewlett Packard Enterprise's rigorous qualification and test processes. HPE Standard Memory is a certified HPE options and will provide a platform to allow future memory-related support enhancements through HPE Active Health System, System Insight Management and Insight Control management software.
Memory Quality and Reliability	Today's IT environments are seeing larger, more complex applications, an increase of mission-critical data moving to the server, increasing demand for transaction processing and critical server consolidation. Memory is a critical component of the information system, significantly defining the systems reliability, performance, and increasingly the overall server and data center power footprint. This is why HPE Qualified Server Memory undergoes intense rigorous qualification process that begins with using the highest quality components sourced from tier 1 DRAM suppliers. Only memory that meets Hewlett Packard Enterprise's strict requirements are selected to begin the HPE Memory Qualification process. Unlike most third party memory manufacturers, testing is performed and optimized on every HPE ProLiant server platform to ensure upmost compatibility, performance and reliability.
Performance	As HPE Standard Memory is certified, performance tested and tuned for HPE ProLiant, performance features of HPE Standard Memory are mapped to all the Intel processor which are used in 10/100 Series Rack and Tower Server.
Power Efficiency	Memory plays an increasingly larger part of the server's power consumption and choosing the most efficient memory is a critical component in reducing your data center's overall power and cooling requirements. This savings translates to reduced operating cost and a faster return on investment, freeing up IT budget spent on power and cooling. Hewlett Packard Enterprise is committed to helping you get the maximum benefit per watt out of your IT infrastructure. For example, HPE Standard Memory 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. This also simplifies the HPE memory portfolio making it easier to select the right memory.
Pre-Failure Alert	When used in conjunction with Systems Insight Manager, the SMART capable firmware enables fault prediction capabilities. If potential problems develop in one of the DIMMs, Systems Insight Manager lets you know in advance so you can have the DIMM replaced, before it fails, under warranty. NOTE: HPE memory is protected by a Pre-Failure Alert when used with HPE Systems Insight Manager, allowing memory to be replaced before failure under warranty. In addition, HPE memory is covered by a one or three-year limited on-site warranty period for the system in which they are installed. The memory warranty is automatically uplifted when used in a server for which a Care Pack is purchased. Please see the Support Services section below for additional services.
HPE Advanced Memory Error Detection Technology	In the ProLiant System ROM upgrade (version May 2011 or later), Hewlett Packard Enterprise enhanced memory error protection with HPE Advanced Memory Error Detection Technology. This innovation monitors several memory parameters and seeks out specific defects that either cause performance degradation or significantly increase the probability of a non-recoverable memory condition. By improving the prediction of critical memory error conditions, this technology prevents unnecessary DIMM replacement and increases server uptime. For more information on the HPE Advanced Memory Error Detection Technology: http://h20000.www2.hp.com/bc/docs/support/SupportManual/c02878598/c02878598.pdf
HPE Active Health System	Future ROM updates will enable HPE Standard Memory to will work in conjunction with HPE Active Health System which monitors changes to the server hardware configuration to enable lifecycle monitoring of memory health status. Having insight into memory related service events will shorten diagnosing problems

Standard Features

and deliver rapid resolutions if and when failures occur. Whereas Pre-Failure Alert simply notifies the administrator of an impending failure, HPE Standard Memory will provide insight with rich information on memory-related events like multi-bit errors or configuration issues.

Support Matrix Please see the following URL for the latest list of supported servers: <http://www.hpproliantoptions.com/>

Warranty For details on HPE Qualified Options Limited Warranty visit:
<http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

Other Resources For information regarding HPE Qualified Server Memory visit: <http://www.hp.com/products/memory>
For the latest updates on HPE Qualified Options visit: <http://www.hp.com/go/hpqo>

Service and Support

Service and Support HPE Technology Services for Industry Standard Servers

HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to Hewlett Packard Enterprise to help prevent problems and solve issues faster. Our support technology lets you tap into the knowledge of millions of devices and thousands of experts to stay informed and in control, anywhere, any time.

Protect your business beyond warranty with HPE Support Services

HPE Support Services enable you to order the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement for the selected support.

NOTE: This option is covered under the HPE Support Service(s) applied to the compute module. No separate HPE Support Service(s) need to be purchased.

HPE Support Center Personalized online support portal with access to information, tools and experts to support Hewlett Packard Enterprise business products. Submit support cases online, chat with Hewlett Packard Enterprise experts, access support resources or collaborate with peers. Learn more <http://www.hp.com/go/hpsc>
HPE's Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalize IT support anywhere, anytime.
HPE Insight Remote Support and HPE Support Center are available at no additional cost with a Hewlett Packard Enterprise warranty, HPE Support Service or Hewlett Packard Enterprise contractual support agreement.

NOTE: HPE Support Center Mobile App is subject to local availability

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.

Warranty / Service Coverage For ProLiant servers and storage systems, this service covers Hewlett Packard Enterprise -branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply.
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 any exchange of 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 exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual or the technical data sheet are not eligible for the defective media retention service feature option.

For more information To learn more on services for HPE ESSN Options, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Or visit:
<http://www.hp.com/services/proliant> or <http://www.hp.com/services/bladesystem>

Technical Specifications

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool:

<http://www.hp.com/go/ddr3memory-configurator>

Memory Subsystem Architecture

The memory subsystem architecture is dependent on the ProLiant Gen8 server platform.

For servers using the Intel® Xeon® E5-2XXX family processor series:

- **8 DIMM slots:** Four memory channels per installed processor with one DIMMs per channel for a total of four (4) DIMMs or a grand total of eight (8) DIMMs for the server.
- **16 DIMM slots:** Four memory channels per installed processor with two DIMMs per channel for a total of eight (8) DIMMs or a grand total of sixteen (16) DIMMs for the server.
- **24 DIMM slots:** Four memory channels per installed processor with three DIMMs per channel for a total of twelve (12) DIMMs or a grand total of twenty-four (24) DIMMs for the server.

For servers using the Intel® Xeon® E3-12XX/ i3-6XXX/G4XXX family processor series:

- **4 DIMM slots:** Four memory channels per installed processor with one DIMMs per channel or two DIMMs per channel for a total of four (4) DIMMs for the server.

For platform specific memory details please refer to the HPE ProLiant user guide at: <http://www.hp.com/support>.

General Memory Population Rules and Guidelines:

- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors and load the channels similarly whenever possible.
- When two processors are installed, balance the DIMMs across the two processors.
- White DIMM slots denote the first slot to be populated in a channel.
- Place the DIMMs with the highest number of ranks in the white slot when mixing DIMMs of different ranks on the same channel.
- Do not mix UDIMMs, RDIMMs or LRDIMMs.
- Quad rank RDIMMs are not supported in HPE ProLiant Gen8 servers.
- Quad rank LRDIMMs are capable of up to three DIMMs per channel.
- RDIMMs operating at either 1.35V or 1.5V may be mixed in any order, but the system will power them at the higher voltage.
- DIMMs of different speeds may be mixed in any order; the server will select a common optimal speed.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the memory type and number of installed processors.
- To realize the performance memory capabilities listed in this document, HPE Standard Memory is required.

Technical Specifications

ProLiant Gen9 Supported Memory Bandwidth for HPE ProLiant Gen9 Intel® Xeon® E5-2XXX/ E3-12XX/ i3-6XXX/G4XXX Processor Family

DIMM Rank ->	Unbuffered DIMM (UDIMM)				Registered DIMM (RDIMM)	
	Single Rank (1R)	Single Rank (1R)	Dual Rank (2R)	Dual Rank (2R)	Single Rank (1R)	Single Rank (1R)
DIMM Capacity ->	4GB	8GB	8GB	16GB	4GB	8GB
Voltage	Std Voltage 1.2V					
SLOTS THAT CAN BE POPULATED						
4 slot servers	4	4	4	4	4	4
8 slot servers	N/A	N/A	N/A	N/A	8	8
12 slot servers	N/A	N/A	N/A	N/A	12	12
16 slot servers	N/A	N/A	N/A	N/A	16	16
MAXIMUM CAPACITY (GB)*						
4 slot servers	16	32	32	64	16	32
8 slot servers	N/A	N/A	N/A	N/A	32	64
12 slot servers	N/A	N/A	N/A	N/A	48	96
16 slot servers	N/A	N/A	N/A	N/A	64	128
POPULATED DIMM SPEED (MT/s)						
1 DIMM Per Channel	2133	2133	2133	2133	2133	2133
2 DIMM Per Channel	2133	2133	2133	2133	2133	2133

Memory Speed by Processor Model

HPE ProLiant Gen8 Intel® Xeon® E5-2600 v3 Series Processor Family:

Processor Models

E5-2690 v3, E5-2680 v3, E5-2670 v3, E5-2667 v3, E5-2660 v3, E5-2650 v3, E5-2650L v3, E5-2643 v3, E5-2637 v3, E5-2683 v3, E5-2695 v3, E5-2697 v3, E5-2698 v3, E5-2699 v3, E5-2687W v3, E3-1220 v5, E3-1225 v5, E3-1230 v5, E3-1240L v5, E3-1240 v5, E3-1260L v5, E3-1270 v5, E3-1280 v5, i3-6100, i3-6300, G4400, G4500

E5-2623 v3, E5-2640 v3, E5-2630 v3, E5-2620 v3, E5-2630L v3

E5-2609 v3, E5-2603 v3

Supported Memory Speeds

DDR4 2133 MHz

DDR4 1866MHz

DDR4 1600MHz

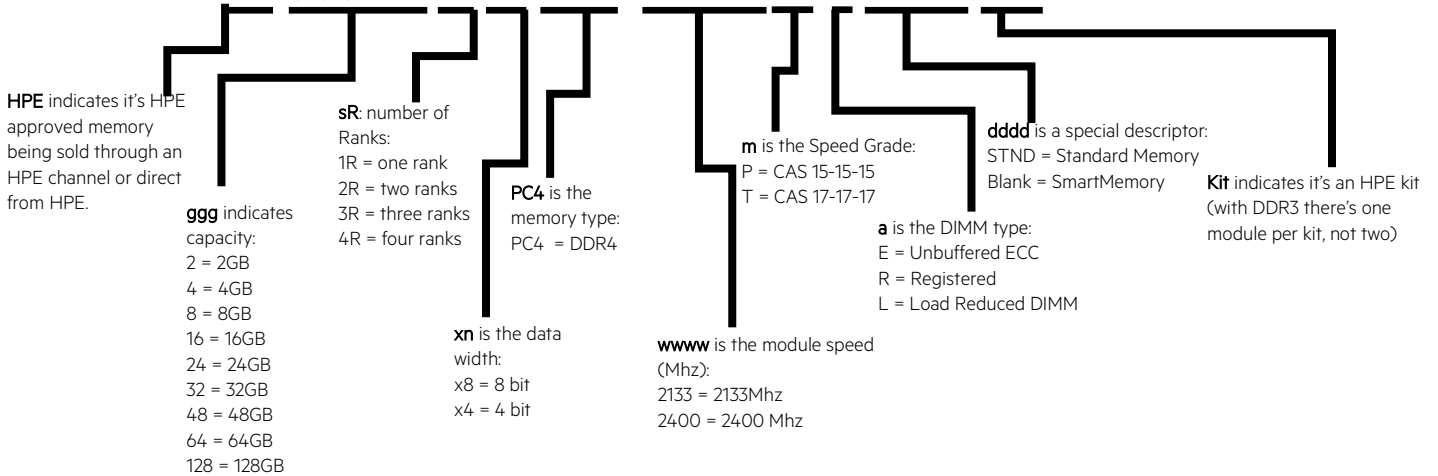
NOTE: Capacity references are rounded to the common gigabyte (GB) values.

- 2GB = 2,048MB
- 4GB = 4,096MB
- 8GB = 8,192MB
- 16GB = 16,384MB
- 32GB = 32,768MB

Technical Specifications

Memory Options Part Number Decoder

HPE gggGB sRxn PC4-wwwwm-a dddd Kit



For example, **HPE 8GB 1Rx4 PC4-2133P-R STND Kit** indicates an HPE Standard Memory DIMM with a 8GB capacity, single rank, a data width of 4, memory type of DDR4, 2133 registered, 15-15-15 latency, and an HPE kit.

Environment-friendly Products and Approach

End-of-life Management and Recycling

Hewlett Packard Enterprise offers end-of-life HPE 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 HPE equipment.

Summary of Changes

Date	Version History	Action	Description of Change
01-Dec-2015	From Version 3 to 4	Changed	Overview, Service and Support, and Technical Specifications sections were updated.
		Added	SKUs added in Overview section: 805667-B21, 819880-B21, 805669-B21, 805671-B21
20-Feb-2015	From Version 2 to 3	Changed	Overview, Technical Specifications sections were updated
05-Dec-2014	From Version 1 to 2	Changed	Note added on Overview section: NOTE: Available WW except EMEA



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