

### Overview

#### HPE DDR5 Smart Memory

As CPU core counts continue to increase, bandwidth per core cannot continue to scale with DDR4. New memory architectures are required to meet next-generation bandwidth per core requirements in x86 CPUs. With the changing landscape of ever-increasing CPU core counts, DDR5 was designed to increase bandwidth delivered to systems.

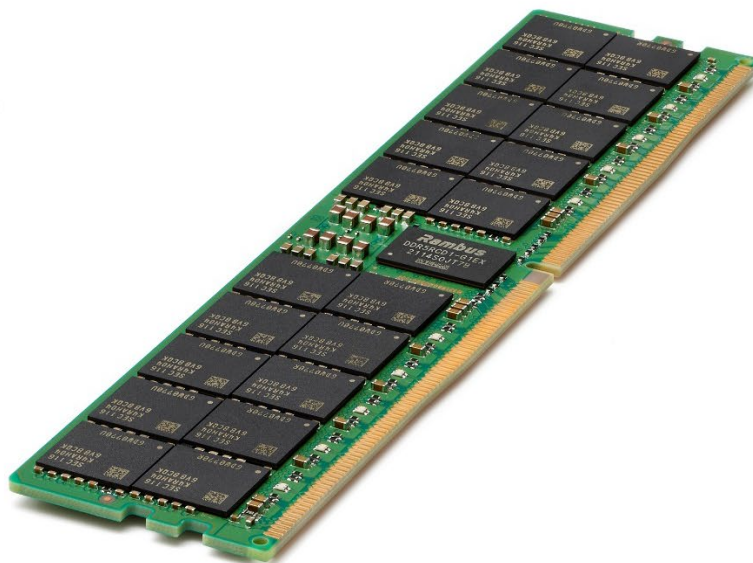
DDR5 is the latest evolution in DRAM, delivering a long list of new features designed to increase reliability, availability, and serviceability (RAS); reduce power; and dramatically improve performance – all features that modern data centers require.

Advanced workloads resulting from rapidly expanding datasets and compute-intensive applications have fueled processor core count growth which will be bandwidth-starved by current DDR4 DRAM technology over time. DDR5, the most technologically advanced DRAM to date, will enable the next generation of server workloads by delivering as much as an 85% increase in memory performance. DDR5 doubles memory density while improving reliability at a time when data center system architects seek to supply rapidly growing processor core counts with increased memory bandwidth and capacity.

The need for higher bandwidth and density has been posing a huge challenge for the tech industry, and DDR5 is the new standard that is expected to meet these requirements for years to come.

HPE DDR5 Smart Memory delivers great performance, reliability, and efficiency. Our large selection of server memory solutions provides the compatibility, capacity and bandwidth you need to productively manage your expanding workload with HPE ProLiant Gen11 servers, Apollo family servers, Synergy systems, and Blade systems.

As workloads grow and data center trends such as server virtualization, cloud computing, and the use of large database applications increase the need for higher-capacity memory with greater uptime, the quality and reliability of DRAM become ever more important. HPE Smart Memory goes through additional rigorous qualification and testing processes that unlock extended memory performance features available only with HPE Gen11 servers. This extensive testing ensures that HPE server memory is completely compatible with and optimized for HPE servers.



**HPE DDR5 Smart Memory**

#### What's New

- HPE DDR5 Smart Memory 4800 MT/s memory supported on HPE Gen11 AMD and Intel based servers

## Overview

### Models

#### Registered Memory Kits

HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P50309-B21
HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43322-B21
HPE 16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43322-K21
HPE 32GB (1x32GB) Single Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P50310-B21
HPE 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P50311-B21
HPE 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43328-B21
HPE 32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43328-K21
HPE 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P50312-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43331-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	P43331-K21
HPE 96GB (1x96GB) Dual Rank x4 DDR5-4800 CAS-46-45-45 EC8 Registered Smart Memory Kit	P66675-B21
HPE 96GB (1x96GB) Dual Rank x4 DDR5-4800 CAS-46-45-45 EC8 Registered Smart Memory Kit	P66676-B21
HPE 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	P50313-B21
HPE 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	P43334-B21
HPE 128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	P43334-K21
HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	P50314-B21
HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	P43337-B21
HPE 256GB (1x256GB) Octal Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit	P43337-K21

#### Notes:

- Memory DIMM availability for a specific server platform is dependent upon completion of certification testing.
- Memory compatibility may vary or be limited within a specific server family depending upon the specific configuration being requested. Because each server environment and requirements can vary, memory compatibility is based not only upon the server family, but may also be affected by the amount and type of additional hardware options installed within a specific server configuration. For this reason, some HPE memory DIMMs may be qualified for a server model or family and yet occasionally not be supported with limited configurations within that server family.
- Please consult with the HPE server QuickSpecs or your HPE representative if you have any questions regarding memory compatibility with a specific HPE server configuration.

#### Fast Fault Tolerance Factory Setting

HPE Smart Memory Fast Fault Tolerance FIO Setting

875293-B21

#### Notes:

- Select this part number to enable HPE Fast Fault Tolerance, which allows server memory to run at the resiliency of double device data correction (DDDC), but with significantly higher performance. HPE Fast Fault Tolerance is available on all HPE Gen10 servers with an Intel® central processing unit.



## Overview

XXXXXX-**X21** is SKU designation formed by a common six digit part number and a **-X21** suffix that identifies a SKU that is available across multiple server family lines. Refer to the table below to find the SKU suffix that applies to the specific server product line this option can be ordered with.

<b>-B21</b>	<b>-H21</b>	<b>-K21</b>
<b>COMPUTE Server Line</b>	<b>SPECIALIZED COMPUTE Server Line</b>	<b>STORAGE Line</b>
HPE Cloudline CL2100/CL2200/CL2800/CL3100/CL4100/CL5200/CL5800 Servers HPE Composable Cloud for ProLiant DL HPE ProLiant BL460c/BL660c Servers HPE ProLiant DL20/DL160/DL180 Servers HPE ProLiant DL325/DL360/DL380/DL385/DL560/DL580 Servers HPE ProLiant DX360/DX380 Servers HPE ProLiant MicroServer HPE ProLiant for Microsoft Azure Stack HPE ProLiant ML30/ML110/ML350 Servers HPE Synergy 480/660 Systems HPE ProLiant DX170r/DX190r, DX2000 Servers HPE ProLiant DX560 Gen10 server HPE ProLiant DX4200 Gen10 server	HPE Apollo 35/40/70 Systems HPE Apollo 2000/6000 Servers HPE XL170r/XL190r/XL270d (Apollo 6500) Gen10 Server for BlueData Software HPE Converged System 300/500/700/750 HPE Edgeline Systems and Servers HPE Integrity BL860c i6/BL870c i6/BL890c i6 Server Blades HPE Integrity MC990 X Server HPE Integrity rx2800 i6 Server HPE Integrity Superdome HPE SGI 8600 System HPE Solutions for SAP HANA (TDI)	HPE Apollo 4200 Gen9/Gen10 Servers HPE Apollo 4200 Gen10 LFF Server for BlueData Software HPE Apollo 4510 Gen10 System HPE D2220sb/D2500sb Storage Blade HPE D3000/D6020/D8000 Disk Enclosures HPE Scalable Object Storage with Scalify RING HPE SimpliVity 2600 HPE SimpliVity 325/380 Gen10 HPE Storage File Controllers HPE StoreEasy 1460/1560/1650/1660/1860  Disclaimer: This may not be a complete listing of applicable servers



## Standard Features

### What is HPE Smart Memory?

HPE Smart Memory uniquely optimizes memory performance on HPE ProLiant Rack and Tower servers, Apollo family servers, Blade systems, and Synergy systems. Authenticated HPE Smart Memory supports extended memory performance in the competitive landscape and provides customers with service enhancement through HPE Active Health Systems and other HPE proprietary software.

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### Quality and Performance

HPE Smart Memory undergoes a rigorous qualification process to provide customers with the highest server memory quality options. Its performance is tested and optimized for HPE servers, supporting unique features only available with HPE servers and systems. In addition, it enhances memory throughput up to 23% and achieves an improvement in latency of up to 25%.

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### HPE Active Health System

HPE Smart Memory works in conjunction with the 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 problem diagnosis and deliver rapid resolutions if and when failures occur. Whereas the pre-failure alert simply notifies the administrator of an impending failure, HPE Smart Memory can provide rich insight into memory-related events like multi-bit errors or configuration issues.

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### Reporting Correctable memory errors

Beginning with the HPE Gen10 Plus server generation, the server ROM will provide an option that allows users to control the RAS policies, (including the ability to expose corrected memory errors to the OS and allow it to log them which may make them visible to the user). This new ROM option may be set to either “Firmware First” or “OS First” mode.

#### Firmware First Mode

When in Firmware First Mode (default), the BIOS will implement RAS features as before, to monitor corrected errors and log an event for any cases where the customer needs to take action on corrected errors. The OS will not monitor and log corrected errors.

#### Operating System (OS) First Mode

In OS First Mode, corrected errors are unmasked to the OS and the OS will control the policy for logging corrected errors. With some operating systems, while in OS First mode, corrected errors are unmasked to the OS and the OS will control the policy for logging corrected errors. Additionally, the OS may be able to create its own protection from these events by triggering a Page Retire, or other OS level mitigation. When these events happen, they are not deemed to be a trigger for a service action.

With the understanding that corrected memory errors are an expected and natural occurrence and that no action is required based on OS logging of corrected errors (unless the BIOS has also logged an event – which would also occur in the “Firmware First” mode), HPE recommends that this option is left in its default “Firmware First” setting.

However, for customer installations which choose to configure this option for “OS First” mode, no service action should be triggered based solely on the OS logging of corrected memory errors. Service action should only occur if the errors are logged to the Integrated Management Log (IML) by the BIOS.

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### Other Resources

For the latest updates on HPE Server Options, visit: <http://www.hpe.com/us/en/servers/memory.html>

For more information on HPE Persistent Memory options, visit: <https://www.hpe.com/us/en/servers/persistent-memory.html>

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## Service and Support

### HPE Support Center

HPE Support Center offers personalized online support portal with access to information, tools and experts to support HPE business products. Submit support cases online, chat with HPE experts, access support resources or collaborate with peers. Learn more: <https://www.hpe.com/us/en/services/it-support.html>

The HPE Support Center mobile app helps you resolve issues yourself or quickly connect to an agent for live support. Now you can get access to personalize IT support anywhere, anytime.

**Notes:** The HPE Support Center mobile app is subject to local availability

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### Parts and Materials

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

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

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### Warranty / Service Coverage

For ProLiant servers and storage systems, this service covers HPE branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, tower UPS products, and external monitors up to 22 inches 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.

For details on the HPE Server Options limited warranty, visit:

[https://support.hpe.com/hpsc/doc/public/display?docId=emr\\_na-c00383139](https://support.hpe.com/hpsc/doc/public/display?docId=emr_na-c00383139)

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### General Memory Population Rules and Guidelines

For details on the memory population rules for HPE Gen11 servers, visit:

<http://www.hpe.com/docs/memory-population-rules>

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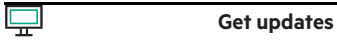
## Summary of Changes

<b>Date</b>	<b>Version History</b>	<b>Action</b>	<b>Description of Change</b>
05-Sep-2023	Version 4	Changed	QuickSpecs name was updated
06-Feb-2023	Version 3	Changed	Model Section and SKUs were updated
10-Jan-2023	Version 2	Changed	Overview Section was updated
10-Nov-2022	Version 1	New	New QuickSpecs.



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