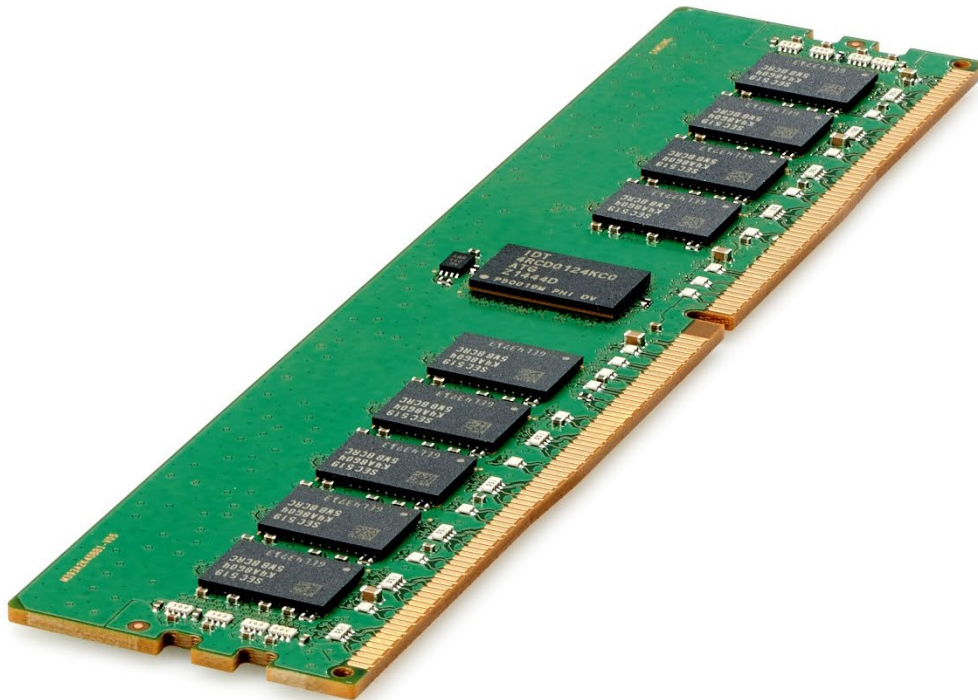


Overview

HPE DDR4 SmartMemory

HPE DDR4 SmartMemory 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 Gen9, Gen10, and Gen10 Plus 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 SmartMemory goes through additional rigorous qualification and testing processes that unlock extended memory performance features available only with HPE Gen9, Gen10, and Gen10 Plus servers. This extensive testing ensures that HPE server memory is completely compatible with and optimized for HPE servers.



HPE DDR4 SmartMemory

What's New

- HPE SmartMemory 3200 MT/s memory supported on HPE Gen10 Plus AMD servers

Overview

HPE 64GB (1x64GB) Dual Rank x4 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P06035-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P06035-H21
HPE 64GB (1x64GB) Dual Rank x4 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P06035-K21
HPE 8GB (1x8GB) Single Rank x8 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P07525-B21
HPE 8GB (1x8GB) Single Rank x8 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P07525-H21
HPE 8GB (1x8GB) Single Rank x8 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P07525-K21
HPE 8GB (1x8GB) Single Rank x8 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P07638-B21
HPE 8GB (1x8GB) Single Rank x8 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P07638-H21
HPE 16GB (1x16GB) Single Rank x4 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit.	P07640-B21
HPE 16GB (1x16GB) Single Rank x4 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P07640-H21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P07642-B21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P07642-H21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P07646-B21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P07646-H21
HPE 64GB (1x64GB) Dual Rank x4 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P07650-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P07650-H21
HPE 32GB (1x32GB) Single Rank x4 DDR4-3200 CAS-22-22-22 Registered Memory Kit	P38454-B21
HPE 32GB (1x32GB) Single Rank x4 DDR4-3200 CAS-22-22-22 Registered Memory Kit	P38454-H21
HPE 32GB (1x32GB) Single Rank x4 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P40007-B21
HPE 32GB (1x32GB) Single Rank x4 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P40007-H21
HPE 32GB (1x32GB) Single Rank x4 DDR4-3200 CAS-22-22-22 Registered Smart Memory Kit	P40007-K21
HPE 16GB (1x16GB) Single Rank x4 DDR4-3200 CAS-22-22-22 Registered Memory Kit	P56425-B21
HPE 32GB (1x32GB) Single Rank x4 DDR4-3200 CAS-22-22-22 Registered Memory Kit	P56427-B21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-3200 CAS-22-22-22 Registered Memory Kit	P56429-B21
HPE 64GB (1x64GB) Dual Rank x4 DDR4-3200 CAS-22-22-22 Registered Memory Kit	P56431-B21

Load-reduced Memory Kits

HPE 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Smart Memory Kit	815101-B21
HPE 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Smart Memory Kit	815101-H21
HPE 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Smart Memory Kit	815101-K21
HPE 64GB (1x64GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit	P00926-B21
HPE 64GB (1x64GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit	P00926-H21
HPE 64GB (1x64GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit	P00926-K21
HPE 128GB (1x128GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit	P11040-B21
HPE 128GB (1x128GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit	P11040-H21
HPE 128GB (1x128GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit	P11040-K21
HPE 64GB (1x64GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit	P19044-B21
HPE 128GB (1x128GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit	P19047-B21
HPE Synergy 64GB (1x64GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit	P28219-B21
HPE 128GB (1x128GB) Quad Rank x4 DDR4-3200 CAS-22-22-22 Load Reduced Smart Memory Kit	P06037-B21
HPE 128GB (1x128GB) Quad Rank x4 DDR4-3200 CAS-22-22-22 Load Reduced Smart Memory Kit	P06037-H21
HPE 128GB (1x128GB) Quad Rank x4 DDR4-3200 CAS-22-22-22 Load Reduced Smart Memory Kit	P06037-K21
HPE 256GB (1x256GB) Octal Rank x4 DDR4-3200 CAS-26-22-22 3DS Load Reduced Smart Memory Kit	P06039-B21
HPE 256GB (1x256GB) Octal Rank x4 DDR4-3200 CAS-26-22-22 Load Reduced 3DS Smart Memory Kit	P06039-H21
HPE 256GB (1x256GB) Octal Rank x4 DDR4-3200 CAS-26-22-22 Load Reduced 3DS Smart Memory Kit	P06039-K21
HPE 128GB (1x128GB) Quad Rank x4 DDR4-3200 CAS-22-22-22 Load Reduced Smart Memory Kit	P07652-B21
HPE 128GB (1x128GB) Quad Rank x4 DDR4-3200 CAS-22-22-22 Load Reduced Smart Memory Kit	P07652-H21
HPE 256GB (1x256GB) Octal Rank x4 DDR4-3200 CAS-26-22-22 3DS Load Reduced Smart Memory Kit	P07654-B21
HPE 256GB (1x256GB) Octal Rank x4 DDR4-3200 CAS-26-22-22 Load Reduced 3DS Smart Memory Kit	P07654-H21



Overview

HPE Synergy 256GB (1x256GB) Octal Rank x4 DDR4-3200 CAS-26-22-22 Load Reduced 3DS Smart Memory Kit P45867-B21

HPE 256GB (1x256GB) Octal Rank x4 DDR4-3200 CAS-26-22-22 Load Reduced 3DS Memory Kit P56435-B21

Un-Buffered DIMMs

HPE 8GB (1x8GB) Single Rank x8 DDR4-2666 CAS-19-19-19 Unbuffered Standard Memory Kit 879505-B21

HPE 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Unbuffered Standard Memory Kit 879507-B21

HPE 8GB (1x8GB) Single Rank x8 DDR4-3200 CAS-22-22-22 Unbuffered Standard Memory Kit P43016-B21

HPE 16GB (1x16GB) Single Rank x8 DDR4-3200 CAS-22-22-22 Unbuffered Standard Memory Kit P43019-B21

HPE 32GB (1x32GB) Dual Rank x8 DDR4-3200 CAS-22-22-22 Unbuffered Standard Memory Kit P43022-B21

Notes:

- New Hewlett Packard Enterprise Hardware Products may be manufactured using new materials or new and used materials equivalent to, or better than, new in performance and reliability, including newer materials that may not have been available at the time that the hardware product was originally introduced.
- 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.

Support for Sub-Numa Clustering (SNC) with 12 DIMMs (Gen10 Plus)

HPE 12 DIMM SNC2 Hemi SGX FIO Enablement Kit P26933-B21

Notes: Select this part number (known as a trigger SKU) to indicate how the memory should be configured in the unbalanced 12 DIMM configuration.



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.

-B21	-H21	-K21
COMPUTE	SPECIALIZED COMPUTE	STORAGE
HPE Cloudline CL2100/CL2200/CL2800/CL3100/CL4100/CL5200/CL5800 Servers HPE Composable Cloud for ProLiant DL HPE Converged System 700/750 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 DX170r/DX190r/DX200/DX560/DX4200 Servers HPE ProLiant MicroServer HPE ProLiant for Microsoft Azure Stack HPE ProLiant ML30/ML110/ML350 Servers HPE Synergy 480/660 Systems HPE Synergy D3940 Storage Module	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 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 Systems for BlueData Software	HPE Apollo 4200 Gen9/Gen10 Servers HPE Apollo 4200 Gen10 LFF Server for BlueData Software HPE Apollo 4510 Gen10 System HPE D3000/D6020/D8000 Disk Enclosures HPE D2220sb/D2500sb Storage Blade HPE Scalable Object Storage with Scality RING HPE SimpliVity 2600 HPE SimpliVity 325/380 Gen10 HPE Storage File Controllers HPE StoreEasy 1460/1560/1650/1660/1860
Notes :Disclaimer: This may not be a complete listing of applicable servers		



Standard Features

What is HPE SmartMemory?

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

Quality and Performance

HPE SmartMemory 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%.

HPE Active Health System

HPE SmartMemory 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 SmartMemory can provide rich insight into memory-related events like multi-bit errors or configuration issues.

Support Matrix

Please visit the following URL for the latest list of supported servers:

<http://www.hpe.com/servers/servermemoryconfigurator>

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>



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

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.

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

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.



Service and Support

General Memory Population Rules and Guidelines

For details on the memory population rules for HPE Intel Xeon Gen10 servers, visit:

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

For details on the memory population rules for HPE Intel Xeon Gen10 Plus servers, visit:

<http://www.hpe.com/docs/memory-population-rules-Gen10Plus>

For details on the memory population rules for HPE AMD Gen10 servers, visit:

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

For details on the memory population rules for HPE AMD Gen10 servers, visit:

<http://www.hpe.com/docs/amd-population-rules-Gen10Plus>



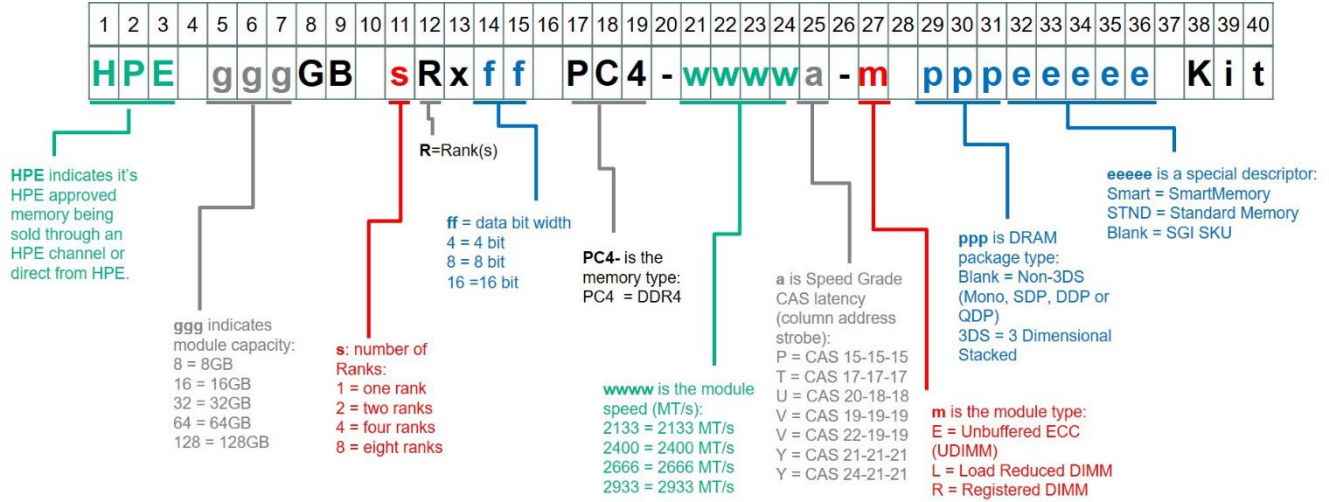
Technical Specifications

Memory Speed by Processor Model

For details on HPE server memory speeds, visit: <http://www.hpe.com/docs/memory-speed-table>

Memory options part number decoder

Short Name



Summary of Changes

Date	Version History	Action	Description of Change
01-Nov-2021	Version 28	Changed	Overview Section was updated
07-Sep-2021	Version 27	Changed	Overview Section & Models were updated
19-Apr-2021	Version 26	Changed	Models Section was updated
07-Dec-2020	Version 25	Changed	SKUs were updated in Models Section
15-Jun-2021	Version 24	Changed	SKUs were added in Models Section
06-Apr-2020	Version 23	Changed	Technical Specifications Section was updated
09-Dec-2019	Version 22	Changed	SKU Section was updated
02-Dec-2019	Version 21	Changed	Overview SKUs section was updated
07-Oct-2019	Version 20	Changed	Configuration Information section was updated
05-Aug-2019	Version 19	Changed	Overview Section was updated
17-May-2019	Version 18	Added	SKUs were added in Models sections: P19040- X21 , P19041- X21 ,P19042- X21 ,P19043- X21 ,P19044- X21 ,P19045- X21 ,P19046-B21,P19047- X21
02-Apr-2019	Version 17	Changed	Technical Specifications section was updated
17-Dec-2018	Version 16	Changed	Overview section was updated. SKU added in Overview section: P00423- X21 , 838089- X21 . SKU deleted in Overview section: 836220-B21
01-Oct-2018	Version 15	Changed	Overview section was updated.
06-Aug-2018	Version 14	Changed	Overview, Standard Features, and Service and Support sections were updated. SKUs were added in Models sections: P05592- X21 . Obsolete SKUs were deleted: 838079- X21 , 838089- X21 , P05580-B21, 838083- X21 , 726722-B21.
04-Jun-2018	Version 13	Changed	Overview, Standard Features, Service and Support sections were updated. SKUs added in Models section: 726718-B21, 726719-B21, 728629-B21, 805347- X21 , 836220-B21, 815097- X21 , 876181-B21, 838079- X21 , P05586-B21, 838081- X21 , 838089- X21 , P05588- X21 , 838083- X21 , P05590- X21 , 726722-B21, 726724-B21, 805353-B21, 809208-B21, 815102- X21 , 838085- X21 , 838087- X21 .
05-Mar-2018	Version 12	Changed	Obsolete SKUs deleted: 726717-B21, 759934-B21, 726720-B21.
04-Dec-2017	Version 11	Changed	Overview, Standard Features, and Service and Support sections were updated. SKUs added in Models section.
25-Sep-2017	Version 10	Changed	Overview, Standard Features, Platform Information, Service and Support, and Technical Specifications section were updated. Obsolete SKU was deleted: 792278-B21
11-Jul-2017	Version 9	Changed	Overview, Standard Features, Platform Information, Service and Support, and Technical Specifications section were updated. SKUs added in Platform Information section: 815097- X21 , 876181-B21, 815098- X21 , 835955- X21 , 815100- X21 , 815101- X21 , 815102- X21 .
13-Feb-2017	Version 8	Changed	Models section was updated.
06-Jun-2016	Version 7	Changed	Overview, Compatibility, Standard Features, Service and Support, and Technical Specifications sections were updated.
31-Mar-2016	Version 6	Changed	Overview, Overview, Standard Features, Service and Support, and Technical Specifications SKU added in Models section: 805347- X21 , 805349- X21 , 836220-B21, 805351- X21 , 805353-B21, 805358- X21 , 726718-B21, 726719-B21, 728629-B21, 726722-B21, 809208-B21
01-Jun-2015	Version 5	Changed	SKU added in Models section: 726724-B21 What 's new, Technical Specifications and models sections were updated.
30-Mar-2015	Version 4	Changed	Overview, Service and Support and Technical Specifications sections were updated. SKU added on Models: 728629-B21
16-Jan-2015	Version 3	Changed	Performance section on Standard Features was updated
01-Dec-2014	Version 2	Changed	Overview and Technical Specifications sections were updated
		Added	SKUs added to Models: 726717-B21, 759934-B21, 726720-B21, 792278-

Summary of Changes

Date	Version History	Action	Description of Change
09-Sep-2014	Version 1	New	New QuickSpecs.



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