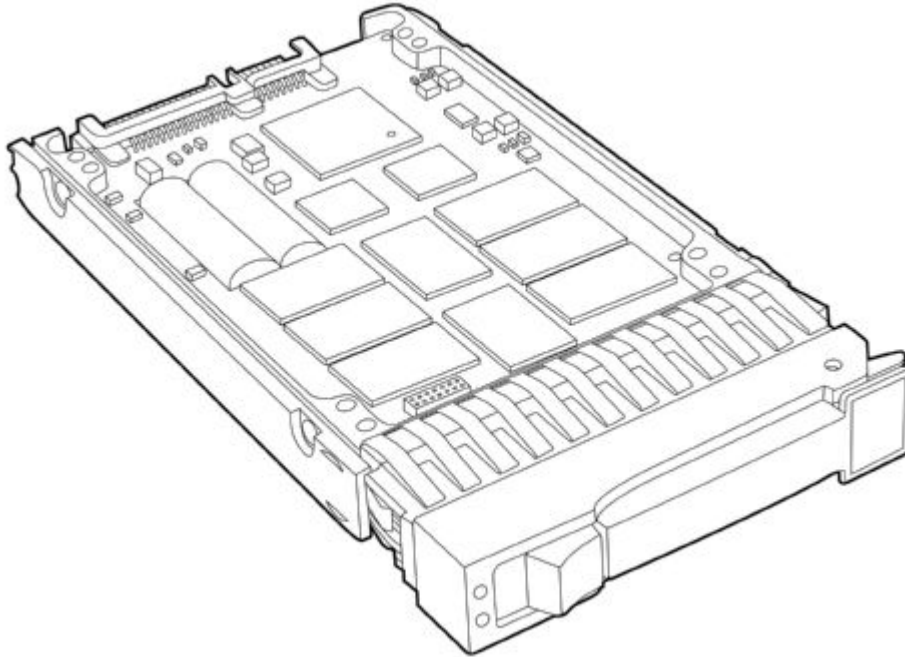Overview

HP is introducing the next generation of solid state drives for ProLiant servers. These solid state drives are 3Gb/second SATA interface in 100GB, 200GB and 400GB capacities. The products, based on NAND Multi Level Cell (MLC) flash technology are available as SFF and LFF hot plug devices on the HP universal drive carrier for general use across the ProLiant portfolio. They are also offered as a Non-hot plug devices for select non-hot plug environments. These drives deliver higher performance, lower latency and low power solutions when compared with traditional rotating media and fit seamlessly into the existing HP server infrastructure.

What's New
- New generation of solid state drives for enterprise mainstream workload environments. Available for use in SFF and LFF hot plug drive bays.

Overview

Models

SATA Hot Plug 2.5" Enterprise Mainstream Solid State Drives

HP 400GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636597-B21
HP 200GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636595-B21
HP 120GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive	572073-B21
HP 100GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636593-B21
HP 60GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive	572071-B21

SATA Hot Plug 3.5" Midline (MDL) Solid State Drives

HP 400GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636611-B21
HP 200GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636609-B21
HP 120GB 3G SATA LFF (3.5-inch) Midline 1yr Warranty Solid State Drive	570763-B21
HP 100GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636607-B21
HP 60GB 3G SATA LFF (3.5-inch) Midline 1yr Warranty Solid State Drive	570761-B21

SATA Non-hot Plug 2.5" Midline (MDL) Solid State Drives

HP 400GB 3G SATA MLC SFF (2.5-inch) Non-hot plug Enterprise Mainstream 3yr Wty Solid State Drive	636605-B21
HP 200GB 3G SATA MLC SFF (2.5-inch) Non-hot plug Enterprise Mainstream 3yr Wty Solid State Drive	636601-B21
HP 120GB 3G SATA SFF (2.5-inch) Non-hot plug Midline 1yr Wty Solid State Drive	572077-B21
HP 100GB 3G SATA MLC SFF (2.5-inch) Non-hot plug Enterprise Mainstream 3yr Wty Solid State Drive	636599-B21
HP 60GB 3G SATA SFF (2.5-inch) Non-hot plug Midline 1yr Wty Solid State Drive	572075-B21

Standard Features

What is SSD?	An enduring data storage device using semiconductor technology to store and access data which is non-volatile without the aid of an auxiliary power source.

Drive Quality

Today's distributed enterprise is seeing larger, more complex applications, an increase of mission-critical data moving to the server, increasing demand for transaction processing and critical server consolidation. In this environment, storage has become a critical component of the information system, significantly defining both the systems reliability and performance. This is why HP drives undergo an intense qualification process that eliminates firmware and O/S incompatibilities. All drive firmware is specific to our drives and is designed to maximize both functionality and compatibility. All our drives are proven to be reliable and tuned for optimum performance in the HP equipment for which they were designed.

Integration

Many issues customers have with third party drives are "simple" integration issues. When buying from another supplier, there is no guarantee that a drive has been correctly set for proper operation with ProLiant servers and storage systems. These incompatibilities can create problems in configuration, can rob your system of performance, or at their worst, can cause you to lose data. HP drives are specifically designed and tested for flawless operation in your HP equipment. The integration of hard drives in HP systems means that associated components are right for your ProLiant server.

Support Matrix

Please see the following URL for the latest list of supported servers and enclosures:
http://h18004.www1.hp.com/products/servers/proliantstorage/drives-enclosures/docs/index.html
NOTE: Non-hot plug devices are 15mm Z-height which restricts them those servers that can accept a 15mm device

Maximum Usage Limitations

NOTE: Excludes 60GB and 120GB product.

NAND Flash devices use semiconductor technology that has a finite amount of data that that can be written (program/erase cycle or P/E cycles). This is defined as the Maximum lifetime for the device.

HP Solid state drives (excluding 60GB and 120GB versions) are equipped with tools that can report the amount of lifetime remaining. Introducing HP SMARTSSD Wear Gauge™. In order to take advantage of SMARTSSD Wear Gauge™, Smart Array Firmware version 5.0 or greater is required and HP Array Configuration Utility (ACU) or HP Diagnostic Utility (ADU) must be running.
SNMP Storage Agents for both Microsoft® Windows® and Linux provide status and condition updates through traps, OS event logs and the HP System Management Homepage at:
http://h18013.www1.hp.com/products/servers/management/agents/index.html.

This solid state drive is supported with the following Smart Array controllers:

- HP Smart Array P212 Controller
- HP Smart Array P410 Controller
- HP Smart Array P411 Controller
- HP Smart Array P711m Controller
- HP Smart Array P712m Controller
- HP Smart Array P812 Controller

HP Direct Connect to the HP Smart Array B110i SATA RAID Controller is not supported in this tool.

The maximum lifetime for these devices is defined as

- 100GB MLC -A workload of 100% 4 KiB random writes (@ queue depth 16) to the device would deliver a maximum lifetime of 1.13 years, total of 981 TBW (terabytes written)

Standard Features

- 200GB MLC -A workload of 100% 4 KiB random writes (@ queue depth 16) to the device would deliver a maximum lifetime of 1.45years, total of 1963 TBW (terabytes written)
- 400GB MLC -A workload of 100% 4 KiB random writes (@ queue depth 16) to the device would deliver a maximum lifetime of 2.91years, total of 3926 TBW (terabytes written)

Warranty   3/0/0 warranty; Customer Self Repair (CSR) Subject to maximum usage limitations

Service and Support

Service and Support	**HP Technology Services** HP Technology Services offers you consultants and support experts to solve your most complex infrastructure problems. We help keep your business running, boost availability and avoid downtime. **Protect your business beyond warranty with HP Care Pack Services** When you buy HP Options, it's also a good time to think about what level of service you may need. HP Care Pack services provide total care and support expertise with committed response choices designed to meet your IT and business need.

Recommended HP Care Pack Services for optimal satisfaction with your HP product

Recommended Services	**3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service** Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged. http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE **HP ProLiant Server Hardware Installation** Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN

Related HP Care Pack Services to enhance your HP product experience

Related Services	**3-Year HP 6 hour Hardware Support Onsite Call-to-Repair Service** Provides an IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 hours of the initial service request to the HP Global Solution Center http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6636ENN **HP Proactive Select Service** Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN

Insight Remote Support	Delivers secure remote monitoring and support for HP servers and storage, 24x7 at no additional cost. Available as part of HP Warranty, Care Pack and Service Contract offers.

Parts and materials	HP will provide HP-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. Supplies and consumable parts will not be provided as part of this service; standard warranty terms and conditions apply. Parts and components that have exceeded their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual or the technical product data sheet will not be provided, repaired or replaced as part of this service.

Coverage	For ProLiant servers and storage systems, this service covers HP-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

Service and Support

replaced by HP 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 HP 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.

NOTE: Solid State Drives announced after April 1, 2011 that have exceeded the maximum supported lifetime and/or have exceeded the maximum usage limitation will not be supported under extended coverage packages or DMR

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

Technical Specifications

SATA Hot Plug 2.5" Enterprise Mainstream Solid State Drives

Application Information Solid State Drives offer high performance, low latency, low power solutions that fit seamlessly into the HP server infrastructure using HP's universal hot plug drive carrier

HP 400GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	**636597-B21**			
		Capacity	400GB	
		Height	15mm	
		Length x Width	Standard SFF	
		Interface	SATA	
		Transfer Rate Synchronous (Maximum)	3Gbs	
		Performance	Rotational Speed	N/A
			Random Reads	32,000 IOP/s
			Random Writes	10,000 IOP/s
			Sequential Reads	257MiB/s
			Sequential Writes	235MiB/s
		Physical Configuration	Logical Blocks	512 bytes
		Power	7W	
		Operating Temperature	0 - 60C	

HP 200GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	**636595-B21**			
		Capacity	200GB	
		Height	15mm	
		Length x Width	Standard SFF	
		Interface	SATA	
		Transfer Rate Synchronous (Maximum)	3Gbs	
		Performance	Rotational Speed	N/A
			Random Reads	32,000 IOP/s
			Random Writes	10,000 IOP/s
			Sequential Reads	257MiB/s
			Sequential Writes	235MiB/s
		Physical Configuration	Logical Blocks	512 bytes
		Power	7W	
		Operating Temperature	0 - 60C	

Technical Specifications

HP 120GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive	572073-B21	Capacity	120GB	
		Height	15mm	
		Length x Width	Standard SFF	
		Interface	SATA	
		Transfer Rate Synchronous (Maximum)	3Gbs	
		Performance	Rotational Speed	N/A
			Random Reads	>20,000 IOP/s
			Random Writes	>5,000 IOP/s
			Sequential Reads	230MB/s
			Sequential Writes	180MB/s
		Physical Configuration	Logical Blocks	512 bytes
		Power	2W	
		Operating Temperature	0 - 60°C	

HP 100GB 3G SATA MLC SFF (2.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636593-B21	Capacity	100GB	
		Height	15mm	
		Length x Width	Standard SFF	
		Interface	SATA	
		Transfer Rate Synchronous (Maximum)	3Gbs	
		Performance	Rotational Speed	N/A
			Random Reads	32,000 IOP/s
			Random Writes	6,000 IOP/s
			Sequential Reads	257MiB/s
			Sequential Writes	129MiB/s
		Physical Configuration	Logical Blocks	512 bytes
		Power	7W	
		Operating Temperature	0 - 60C	

Technical Specifications

HP 60GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive	572071-B21	**Capacity**	60GB	
		Height	15mm	
		Length x Width	Standard SFF	
		Interface	SATA	
		Transfer Rate Synchronous (Maximum)	3Gbs	
		Performance	Rotational Speed	N/A
			Random Reads	>20,000 IOP/s
			Random Writes	>5,000 IOP/s
			Sequential Reads	230MB/s
			Sequential Writes	180MB/s
		Physical Configuration	Logical Blocks	512 bytes
		Power	2W	
		Operating Temperature	0 - 60C	

SATA Hot Plug 3.5" Midline (MDL) Solid State Drives

Application Information Solid State Drives offer high performance, low latency, low power solutions that fit seamlessly into the HP server infrastructure using HP's universal hot plug drive carrier

HP 400GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636611-B21	**Capacity**	400GB	
		Height	15mm	
		Length x Width	Standard LFF	
		Interface	SATA	
		Transfer Rate Synchronous (Maximum)	3Gbs	
		Performance	Rotational Speed	N/A
			Random Reads	32,000 IOP/s
			Random Writes	10,000 IOP/s
			Sequential Reads	257MiB/s
			Sequential Writes	235MiB/s
		Physical Configuration	Logical Blocks	512 bytes
		Power	7W	
		Operating Temperature	0 - 60C	

Technical Specifications

HP 200GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636609-B21			
		Capacity	200GB	
		Height	15mm	
		Length x Width	Standard LFF	
		Interface	SATA	
		Transfer Rate Synchronous (Maximum)	3Gbs	
		Performance	Rotational Speed	N/A
			Random Reads	32,000 IOP/s
			Random Writes	10,000 IOP/s
			Sequential Reads	257MiB/s
			Sequential Writes	235MiB/s
		Physical Configuration	Logical Blocks	512 bytes
		Power	7W	
		Operating Temperature	0 - 60C	

HP 120GB 3G SATA LFF (3.5-inch) Midline 1yr Warranty Solid State Drive	570763-B21			
		Capacity	120GB	
		Height	15mm	
		Length x Width	Standard LFF	
		Interface	SATA	
		Transfer Rate Synchronous (Maximum)	3Gbs	
		Performance	Rotational Speed	N/A
			Random Reads	>20,000 IOP/s
			Random Writes	>5,000 IOP/s
			Sequential Reads	230MB/s
			Sequential Writes	180MB/s
		Physical Configuration	Logical Blocks	512 bytes
		Power	2W	
		Operating Temperature	0 - 60C	

Technical Specifications

HP 100GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636607-B21		
		Capacity	100GB
		Height	15mm
		Length x Width	Standard LFF
		Interface	SATA
		Transfer Rate Synchronous (Maximum)	3Gbs
		Performance	
		Rotational Speed	N/A
		Random Reads	32,000 IOP/s
		Random Writes	6,000 IOP/s
		Sequential Reads	257MiB/s
		Sequential Writes	129MiB/s
		Physical Configuration Logical Blocks	512 bytes
		Power	7W
		Operating Temperature	0 - 60C

HP 60GB 3G SATA LFF (3.5-inch) Midline 1yr Warranty Solid State Drive	570761-B21		
		Capacity	60GB
		Height	15mm
		Length x Width	Standard SFF
		Interface	SATA
		Transfer Rate Synchronous (Maximum)	3Gbs
		Performance	
		Rotational Speed	N/A
		Random Reads	>20,000 IOP/s
		Random Writes	>5,000 IOP/s
		Sequential Reads	230MB/s
		Sequential Writes	180MB/s
		Physical Configuration Logical Blocks	512 bytes
		Power	2W
		Operating Temperature	0 - 60C

SATA Non-hot Plug Midline (MDL) Solid State Drives

Application Information Solid State Drives offer high performance, low latency, low power solutions that fit seamlessly into select non-hot plug HP ProLiant server environments

Technical Specifications

HP 400GB 3G SATA MLC SFF (2.5-inch) Non-hot plug Enterprise Mainstream 3yr Wty Solid State Drive	636605-B21			
		Capacity	400GB	
		Height	15mm	
		Length x Width	Standard LFF	
		Interface	SATA	
		Transfer Rate Synchronous (Maximum)	3Gbs	
		Performance	Rotational Speed	N/A
			Random Reads	32,000 IOP/s
			Random Writes	10,000 IOP/s
			Sequential Reads	257MiB/s
			Sequential Writes	235MiB/s
		Physical Configuration	Logical Blocks	512 bytes
		Power	7W	
		Operating Temperature	0 - 60C	

HP 200GB 3G SATA MLC SFF (2.5-inch) Non-hot plug Enterprise Mainstream 3yr Wty Solid State Drive	636601-B21			
		Capacity	200GB	
		Height	15mm	
		Length x Width	Standard SFF	
		Interface	SATA	
		Transfer Rate Synchronous (Maximum)	3Gbs	
		Performance	Rotational Speed	N/A
			Random Reads	32,000 IOP/s
			Random Writes	10,000 IOP/s
			Sequential Reads	257MiB/s
			Sequential Writes	235MiB/s
		Physical Configuration	Logical Blocks	512 bytes
		Power	7W	
		Operating Temperature	0 - 60C	

Technical Specifications

HP 120GB 3G SATA SFF (2.5-inch) Non-hot plug Midline 1yr Wty Solid State Drive	**572077-B21**	**Capacity**	120GB	
		Height	15mm	
		Length x Width	Standard SFF	
		Interface	SATA	
		Transfer Rate Synchronous (Maximum)	3Gbs	
		Performance	Rotational Speed	N/A
			Random Reads	>20,000 IOP/s
			Random Writes	>5,000 IOP/s
			Sequential Reads	230MB/s
			Sequential Writes	180MB/s
		Physical Configuration	Logical Blocks	512 bytes
		Power	2W	
		Operating Temperature	0 - 60C	

HP 100GB 3G SATA MLC SFF (2.5-inch) Non-hot plug Enterprise Mainstream 3yr Wty Solid State Drive	**636599-B21**	**Capacity**	100GB	
		Height	15mm	
		Length x Width	Standard SFF	
		Interface	SATA	
		Transfer Rate Synchronous (Maximum)	3Gbs	
		Performance	Rotational Speed	N/A
			Random Reads	32,000 IOP/s
			Random Writes	6,000 IOP/s
			Sequential Reads	257MiB/s
			Sequential Writes	129MiB/s
		Physical Configuration	Logical Blocks	512 bytes
		Power	7W	
		Operating Temperature	0 - 60C	

Technical Specifications

HP 60GB 3G SATA SFF (2.5-inch) Non-hot plug Midline 1yr Wty Solid State Drive	572075-B21		
		Capacity	60GB
		Height	15mm
		Length x Width	Standard SFF
		Interface	SATA
		Transfer Rate Synchronous (Maximum)	3Gbs
		Performance Rotational Speed	N/A
		Random Reads	>20,000 IOP/s
		Random Writes	>5,000 IOP/s
		Sequential Reads	230MB/s
		Sequential Writes	180MB/s
		Physical Configuration Logical Blocks	512 bytes
		Power	2W
		Operating Temperature	0 - 60C

| **Environment-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. |
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