

QuickSpecs

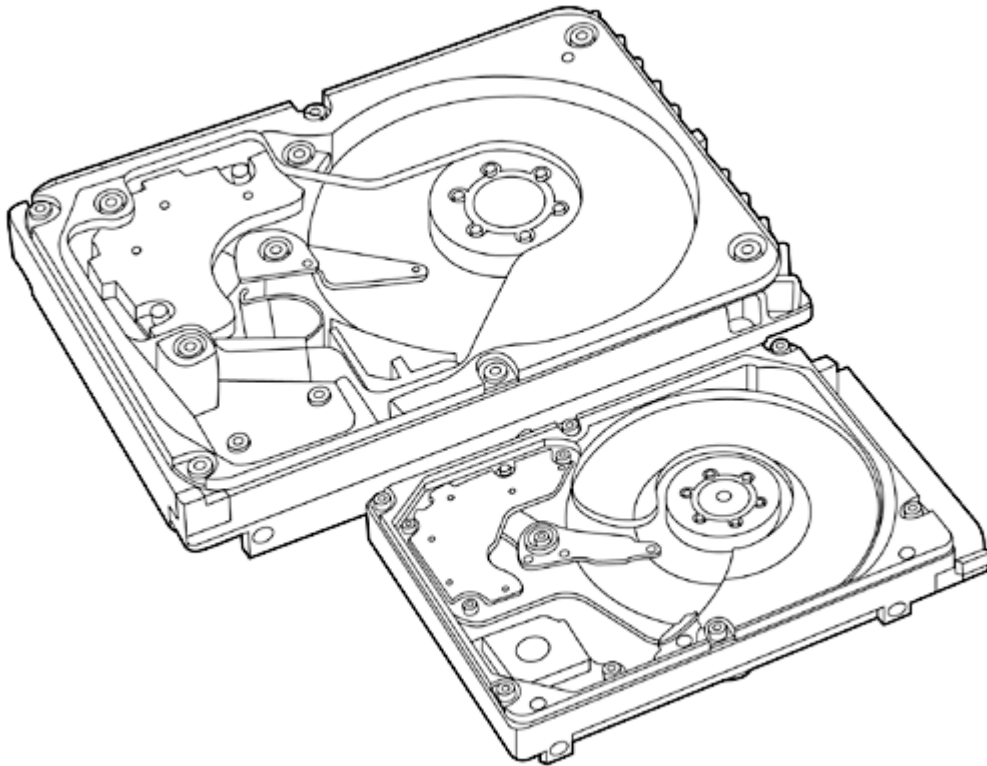
HP Serial-ATA (SATA) Hard Drive Option Kits

Overview

HP offers a variety of tested, HP-qualified, SMART* capable, SATA Hard Drives offering data integrity and availability in hot-pluggable models. HP Large Form Factor (3.5-inch) and Small Form Factor (2.5-inch) SATA drives provide the lowest cost per GB targeted for non-mission critical applications with low workloads of 40% or less. All SATA drives offer a one-year limited warranty.

All HP hard drives pass a rigorous qualification process, which ensures that every HP drive is proven to perform in your HP ProLiant server. Before final certification, all HP SATA hard drives are optimized for compatibility and functionality, including support of SMART and HP Systems Insight Manager.

*S.M.A.R.T.: Self Monitoring Analysis and Reporting Technology, first developed at HP, detects possible hard disk failure before it occurs, allowing replacement of the component before failure occurs.



What's New

- If you are looking for the current generation of SATA drives please see the following QuickSpecs:
http://h18004.www1.hp.com/products/quickspecs/13021_div/13021_div.html

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HP Serial-ATA (SATA) Hard Drive Option Kits

Overview

Models

NOTE: SATA Drive Write Cache is disabled by default to minimize the risk of data loss in case of power loss. For information on how to enable Drive Write Cache on SATA drives via supported controllers and HBAs and what precautions should be followed please visit: www.hp.com/go/SATA

SATA Hot Plug LFF (3.5-inch) Drives

HP 750GB 1.5G SATA 7.2K rpm LFF (3.5-inch) 1yr Warranty Hard Drive	432341-B21
HP 500GB 1.5G SATA 7.2K rpm LFF (3.5-inch) 1yr Warranty Hard Drive	395473-B21
HP 250GB 1.5G SATA 7.2K rpm LFF (3.5-inch) 1yr Warranty Hard Drive	349239-B21
HP 160GB 1.5G SATA 7.2K rpm LFF (3.5-inch) 1yr Warranty Hard Drive	349238-B21

SATA Non-Hot Plug LFF (3.5-inch) Drives

500GB 1.5G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug 1yr Warranty Hard Drive FIO	404469-B21
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NOTE: Factory Integrated Only.

HP 250GB 1.5G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug 1yr Warranty Hard Drive	411276-B21
HP 160GB 1.5G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug 1yr Warranty Hard Drive	411275-B21

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HP Serial-ATA (SATA) Hard Drive Option Kits

Standard Features

NOTE: For a brief, printer friendly data sheet that describes this product and informs you of the essential capabilities and specifications, please visit: <http://h71028.www7.hp.com/ERC/downloads/4AA0-0612ENW.pdf>.

Drive Quality

Today's entry-level servers and external storage solutions are seeing an increase in maximum storage capacity and demand for increased levels of drive quality. In the often-changing entry-level server and storage environment, storage has become a critical component of the information system, significantly defining both the systems reliability. This is why HP drives undergo an intense qualification process that eliminates firmware and O/S incompatibilities. All drives are proven to perform in the HP ProLiant and StorageWorks Modular Smart Array (MSA) storage systems for which they were designed.

Performance

Only those drives whose quality is suitable for an entry-level, external storage enclosures and server environments are selected through the HP qualification process. All our drives are proven to be reliable in the ProLiant server and MSA storage environment.

Native Command Queuing

Native Command Queuing (NCQ) is a technology designed to increase performance of SATA hard disk drives by allowing the individual hard disk to internally optimize the order in which received read and write commands are executed. This can reduce the amount of unnecessary going back-and-forth on the drive's heads, resulting in increased performance for workloads where multiple simultaneous read/write requests are outstanding, most often occurring in server or storage-type applications. Without NCQ the drive has to process and complete one command at a time. For NCQ to be enabled, it must be supported and turned on in the controller and in the hard drive itself.

NOTE: Please reference the HP Smart Array Controller website for NCQ enabled controllers at: <http://www.hp.com/products/smartarray>. Please see SATA hard drive Technical Specifications section for specific capacities supported with NCQ.

Integration

Many issues customers have with third party Serial-ATA drives are integration related issues. When buying from another supplier, there is no guarantee that a drive has been correctly set for proper operation with ProLiant entry-level servers or MSA enclosures. These incompatibilities can create problems in configuration, can rob your system of performance, or at their worst, can result in data corruption. HP hard drives are specifically designed and tested for flawless operation in your HP equipment. The integration of hard drives in HP systems means that cables, controllers, and firmware are right for your ProLiant entry level server or MSA enclosures.

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Standard Features

Pre-Failure Alert

When used in conjunction with a SMART Array Controller and Systems Insight Manager, the SMART capable firmware in HP hard drives enables extensive fault prediction capabilities. If potential problems develop in one of the drives, the Smart Array Controller, Systems Insight Manager and/or SMART hard disk drive lets you know in advance so you can have the drive replaced, before it fails, under warranty.

NOTE: All drives are protected by a Pre-Failure Alert when used with a HP Smart Array controller and Systems Insight Manager, allowing hard drives to be replaced before failure under warranty. In addition, all drives are covered by a 1 or 3 year limited on-site warranty, regardless of the warranty period of the system in which they are installed. However, the drive warranty is automatically uplifted when used in a server or MSA for which a care pack is purchased. Please see the below HP Care Pack Information section for additional services.

NOTE: SATA hard drives have a 1 year limited warranty regardless of the warranty period for the system in which they are installed.

Server and Storage Support

Please see the following URL for the latest list of supported servers and enclosures:
<http://www.hp.com/servers/hdd-documentation>

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Service and Support, HP Care Pack, and Warranty Information

HP Care Pack Information Keeping industry standard systems truly available requires high-quality service with a single point of contact. The HP Care Pack program is tailored specifically to protect your HP ProLiant system and options. These convenient packages allow you to maximize server utilization and performance with fewer resources. Care Pack services provide a range of life cycle support options that let you choose the service levels that meet your business requirements, from basic to mission-critical.

A full range of HP Care Pack hardware and software services are available including:

- Installation and start up
- Education courses
- Extended onsite hardware coverage hours from Next Business Day to 24 hours a day, 7 days a week with options including 4-hour response or 6-hour Call To Repair
- Comprehensive range of software technical support for Microsoft and Linux-based IT solutions helping to deliver high level of application availability.
- Response times range from 30 minutes for critical problems to 2 hours.
- System management, performance services and Mission Critical Support Solution

HP Premium integrated hardware and software support and Mission Critical offers are available either as Care Pack offers or as tailored solutions to meet your business needs. These solutions deliver high levels of application availability. Delivered by experienced, certified engineers, these packages help you maximize server utilization and performance with fewer resources. Available as Support Plus, Support Plus 24, Proactive 24, Critical Services and Mission Critical Partnership.

NOTE: For more information on HP Care Pack services, contact any of our worldwide sales offices or resellers or visit our worldwide Web site on the internet at: <http://www.hp.com/hps/carepack>

NOTE: For more complete information on HP Services offerings, customers and resellers, please visit us at: <http://www.hp.com/hps>

NOTE: Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

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HP Serial-ATA (SATA) Hard Drive Option Kits

Technical Specifications

SATA Hot Plug LFF (3.5-inch) Drives

HP 750GB 1.5G SATA 750GB 7,200 rpm
7.2K rpm LFF (3.5-inch)
1yr Warranty Hard Drive
432341-B21

Capacity	750,156 MB
Height	1.04 in (26.4 mm)
Width	4.36 in (110.7 mm)
Depth	7.43 inches (188.7mm)
Interface	Serial ATA
Transfer Rate (Maximum)	1.5 Gb/s
Native Command Queuing	Supported
Seek Time (typical reads, including settling)	Single Track 1 ms Average 11 ms Full-Stroke 22.0 ms
	Rotational Speed 7,200 rpm
Physical Configuration	Bytes/Sector 512 Logical Blocks 1,465,149,168
Operating Temperature (system inlet air temperature)	50° to 95° F (10° to 35° C)

HP 500GB 1.5G SATA 500GB 7,200 rpm
7.2K rpm LFF (3.5-inch)
1yr Warranty Hard Drive
395473-B21

Capacity	500,107 MB
Height	1.04 in (26.4 mm)
Width	4.36 in (110.7 mm)
Depth	7.43 inches (188.7mm)
Interface	Serial ATA
Transfer Rate (Maximum)	1.5 Gb/s
Native Command Queuing	Supported
Seek Time (typical reads, including settling)	Single Track 1 ms Average 11 ms Full-Stroke 22.0 ms
	Rotational Speed 7,200 rpm
Physical Configuration	Bytes/Sector 512 Logical Blocks 976,773,168
Operating Temperature (system inlet air temperature)	50° to 95° F (10° to 35° C)

HP 250GB 1.5G SATA 250GB 7,200 rpm
7.2K rpm LFF (3.5-inch)
1yr Warranty Hard Drive
349239-B21

Capacity	250,059 MB
Height	1.04 in (26.4 mm)
Width	4.36 in (110.7 mm)
Depth	7.43 inches (188.7mm)
Interface	Serial ATA



QuickSpecs

HP Serial-ATA (SATA) Hard Drive Option Kits

Technical Specifications

HP 160GB 1.5G SATA 160GB 7,200 rpm
7.2K rpm LFF (3.5-inch)
1yr Warranty Hard Drive
349238-B21

Transfer Rate (Maximum)	1.5 Gb/s	
Native Command Queuing	Supported	
Seek Time (typical reads, including settling)	Single Track	2.0 ms
	Average	11 ms
	Full-Stroke	22.0 ms
Physical Configuration	Rotational Speed	7,200 rpm
	Bytes/Sector	512
	Logical Blocks	488,397,168
Operating Temperature (system inlet air temperature)	50° to 95° F (10° to 35° C)	
Capacity	160,041 MB	
Height	1.04 in (26.4 mm)	
Width	4.36 in (110.7 mm)	
Depth	7.43 inches (188.7mm)	
Interface	Serial ATA	
Transfer Rate (Maximum)	1.5 Gb/s	
Native Command Queuing	Supported	
Seek Time (typical reads, including settling)	Single Track	2.0 ms
	Average	<11 ms
	Full-Stroke	23.0 ms
Physical Configuration	Rotational Speed	7,200 rpm
	Bytes/Sector	512
	Logical Blocks	312,581,808
Operating Temperature (system inlet air temperature)	50° to 95° F (10° to 35° C)	

SATA Non-Hot Plug LFF (3.5inch) Drives

500GB 1.5G SATA 7.2K 500GB 7,200 rpm
rpm LFF (3.5-inch) Non-hot Plug 1yr Warranty
Hard Drive FIO
[NOTE: Factory Integrated Only.](#)
404469-B21

Capacity	500,107 MB
Height*	1.028 in (26.1 mm)
Width	4.00 in (101.6 mm)
Depth*	5.787 in (147.0 mm)
Interface	Serial ATA
Transfer Rate (Maximum)	1.5 Gb/s
Native Command Queuing	Supported

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HP Serial-ATA (SATA) Hard Drive Option Kits

Technical Specifications

HP 250GB 1.5G SATA 250GB 7,200 rpm
7.2K rpm LFF (3.5-inch)
Non-hot Plug 1yr
Warranty Hard Drive
411276-B21

Seek Time (typical reads, including settling)	Single Track	1 ms
	Average	11 ms
	Full-Stroke	22.0 ms
	Rotational Speed	7,200 rpm
Physical Configuration	Bytes/Sector	512
	Logical Blocks	976,773,168
Operating Temperature (system inlet air temperature)	50° to 95° F (10° to 35° C)	

Capacity	250,059 MB	
Height*	1.028 in (26.1 mm)	
Width	4.00 in (101.6 mm)	
Depth*	5.787 in (147.0 mm)	
Interface	Serial ATA	
Transfer Rate (Maximum)	1.5 Gb/s	
Native Command Queuing	Supported	
Seek Time (typical reads, including settling)	Single Track	1.0 ms
	Average	11 ms
	Full-Stroke	22.0 ms
	Rotational Speed	7,200 rpm
Physical Configuration	Bytes/Sector	512
	Logical Blocks	488,397,168
Operating Temperature (system inlet air temperature)	50° to 95° F (10° to 35° C)	

HP 160GB 1.5G SATA 160GB 7,200 rpm
7.2K rpm LFF (3.5-inch)
Non-hot Plug 1yr
Warranty Hard Drive
411275-B21

Seek Time (typical reads, including settling)	Single Track	0.9 ms
	Average	<11 ms
	Full-Stroke	17.8 ms
	Rotational Speed	7,200 rpm
Physical Configuration	Bytes/Sector	512
	Logical Blocks	312,581,808



QuickSpecs

HP Serial-ATA (SATA) Hard Drive Option Kits

Technical Specifications

Operating Temperature 50° to 95° F (10° to 35° C)
(system inlet air
temperature)

* Maximum drive dimension

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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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.