



# HP Disk Drives—Entry, Midline, and Enterprise

Expanded portfolio provides more options for a better solution fit

## Overview

- Utilize low-cost Entry drives for limited I/O workloads
- Meet your external storage requirements with reliable, high-capacity Midline drives
- Experience high performance and reliability in heavy workload environments with Enterprise drives

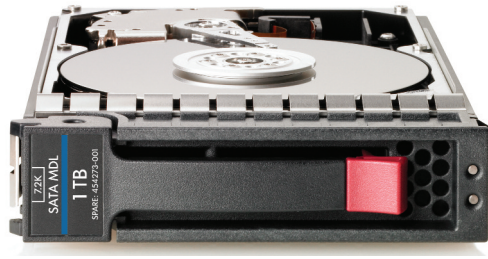
When it comes to ensuring availability of mission-critical data and protecting your information, hard disk drive technology is a key component. Unfortunately, though, it's not always simple. Do you wonder which hard drive will provide the best fit for your particular environment or usage requirement? Have you thought about what you can do to minimize drive failures? Do you anticipate complications when integrating and managing multiple drives within your system?

These are valid issues, which is why HP has been working to alleviate customer concerns and increase confidence, especially through our Universal Drive Strategy. Our simplified, universal product design makes it easier for customers, like you, to integrate, operate, manage, and eventually upgrade your

HP hard disk drives. Product consistency allows you to operate more flexibly through improved management capabilities and easy, low-cost replacement, when that time comes. The universal design of HP hard disk drives also provides investment protection through product familiarity and compatibility with other generations of hard drives.

## Quality you can count on

To assure our customers of the quality and reliability of HP hard disk drives, we perform rigorous testing on all of our drives to make sure they integrate easily and perform optimally within your environment. HP hard disk drives undergo an intense qualification process—as part of our HP Hard Disk Drive Qualification (HDDQ) System—that virtually eliminates data integrity problems, firmware and operating system incompatibilities, and other causes of data corruption or premature failure. All drive firmware is specific to our drives and is designed to maximize both functionality and compatibility. And all of our drives are proven to perform in the HP systems for which they were designed.



HP 1TB 3G SATA 7.2K 3.5" Midline HDD



HP 72GB 3G SAS 15K SFF Dual-Port Enterprise HDD

“The HDDQ initiative is one that provides a sustainable advantage for HP through clearly-defined qualification expectations and deliverables. This, in turn, drives our (the supplier) resource management process to ensure the correct level of human and equipment capital are in place to support HP’s time-to-market product launch.”  
—Seagate Technology, Inc.

## Expanded solution offering provides a better fit for your needs

At HP, we’ve been working diligently to satisfy a range of storage requirements from our Entry Serial ATA (SATA) drives and Enterprise Serial-Attached SCSI (SAS) drives. Depending upon budgetary and system requirements, both interfaces offer distinct benefits in terms of price, reliability, and performance. In addition, we’ve expanded our portfolio, offering a new class of Midline drives—which you may know in the industry as “nearline” or “bulk storage” SATA drives—to provide you with a high-capacity external storage solution with cost and availability benefits. From our low-cost Entry drives (best suited for boot disk and basic applications in entry servers), to our high-capacity Midline drives with enhanced reliability, and finally our Enterprise drives for mission-critical heavy I/O workloads, HP has the drive—or combination of drives—to provide you with a truly comprehensive solution.

## HP Entry drives—affordable SATA drives for low I/O, non-mission-critical requirements

Entry hard disk drives provide the best price advantage for entry servers needing boot disk and internal storage deployments. Easy to use and implement, these hard disk drives are designed for low-to-moderate workloads (<40%) in non-mission-critical environments. They deliver a level of performance and reliability that is suitable for basic operations and applications, including:

- Reference storage and disk backup and restore systems
- Archiving and distribution systems
- Server and storage configurations: low-cost servers, JBOD, or RAID

Hard disk drive technology is not a one-size-fits-all solution. To meet a range of price/reliability requirements, our solutions have been designed to support distinct environments and workloads. In order to minimize drive failure, it’s imperative that Entry drives be used for basic applications only. If you need additional storage capacity or much higher levels of reliability, you should consider Midline or Enterprise hard disk drive solutions.

## HP Midline drives—delivering enhanced reliability and the highest capacity for external storage

Our valued customers have been requesting design and reliability improvements for larger capacity SATA drives; and to meet these needs, we have expanded our portfolio to include new Midline drives (with both SATA and SAS interfaces).

Fulfilling your high-capacity internal and external storage needs without breaking your budget, HP Midline drives also provide increased reliability—over Entry class SATA drives—with features such as rotational vibration sensors to accommodate the environmental stresses found in multidrive and external storage solutions.

Typical applications for use with HP Midline drives include:

- Backup
- Archiving and referencing
- Video editing
- File and print
- Storage multidrive configurations
- Scale-out data centers

HP Midline drives also have a SAS interface option with dual port connectivity. This provides a redundant path from the controller to the drive for increased data availability, including tolerance for HBA failure, cable failure, and expander failure.

Important to note is the fact that HP Midline drives are designed with components intended for low-to-moderate workloads in non-mission-critical environments. Therefore, it's essential that you avoid using them in an environment with a greater than 40% I/O workload.

## HP Enterprise drives—mission-critical reliability without I/O workload constraints

Ideal for critical, heavy duty cycle applications, Enterprise disk drives are designed for maximum reliability, high performance, scalability, error management, and unconstrained I/O workloads—including customer relationship management (CRM) or enterprise resource planning (ERP) applications.

HP Enterprise hard disk drives are best suited to handle:

- Highly transactional, customer-facing applications (such as search engines and e-commerce environments)
- Performance- and reliability-oriented requirements where throughput and uptime are critical

Since the SAS interface is based on the industry-leading SCSI specification, the enhanced reliability will satisfy your need for continuity in the data center.

The SAS architecture also lets system designers install SAS drives or SATA drives or a mixture of both in the same box. So, as your storage requirements change, you can easily transition between technologies without upgrading your entire infrastructure.

## Differentiating between HP Entry, Midline, and Enterprise drives

The chart below enables you to easily discern between HP Entry, Midline, and Enterprise drives and the benefits that each provides.

	Entry drives	Midline drives		Enterprise drives	
Description	Lowest unit cost, performance, and reliability intended for entry-level servers	High-capacity, lowest \$/GB drives designed with economical reliability and performance		State of the art design for maximum reliability and performance	
Example applications	Low I/O, non-mission-critical applications, boot disk, and entry server storage	High-capacity environments: external storage, backups, archival, reference, redundant highly-available applications		Mission critical, high I/O environments: large database, e-mail/ messaging, ERP, and CRM	
Reliability and workload	Reliability for non-mission-critical entry server environments, appropriate for <40% workloads	Approximately 2 times Entry drive reliability based on <40% workload		Ultimate reliability appropriate for intensive I/O, up to 3.5 times Entry drive reliability based on unconstrained workloads	
Interface	SATA	SATA	SAS	SCSI	SAS
Capacity	3.5" 160GB SFF 120GB	3.5" 250GB–1TB	3.5" 750GB–1TB	3.5" 72–300GB	3.5" 72–300GB SFF 36–146GB
Connectivity	Single-port	Single-port	Dual-port	Single-port	Single- and Dual-port
RPM	5.4K, 7.2K	7.2K	7.2K	10K, 15K	10K, 15K
Transfer rate	1.5G and 3G	3G	3G	3G	3G
Warranty	1 year	1 year	1 year	3 year	3 year

## Why HP?

Our goal at HP is to provide high-quality drives that satisfy your needs—and enhance your experience. With our expanded hard drive portfolio, you now have greater flexibility to choose devices that fit your needs in terms of their reliability, performance, and cost attributes.

Our drives have been tested and optimized to work together, which helps minimize installation time and potential down time. And our universal design means you're assured a familiar, hassle-free experience—every time!

Being able to select the drives that are right for your environment and then knowing—with confidence—that those drives will integrate easily and perform optimally is true peace of mind. And this is exactly what you get when you choose HP.

### For more information:

For more information on HP hard disk drive technology and the options available to you, please contact your local HP representative or visit [www.hp.com/products/harddiskdrives](http://www.hp.com/products/harddiskdrives).

## HP Services

HP Care Pack services for HP BladeSystem and ProLiant servers and storage provide support for all HP-branded hardware options qualified for inclusion in your server at the time of purchase or afterwards at no additional cost. HP Care Pack services help increase uptime and productivity with rapid-response support on a 24x7 or 13x5 basis. Both options feature same-day 4-hour onsite assistance when service issues cannot be resolved remotely. And for business-critical server and storage environments, where down time is not an option, HP offers 24x7 6-hour call to repair.

Across the globe, companies rely on HP servers to reliably process their most critical business tasks. To complement the performance and reliability of HP ProLiant and BladeSystem servers, HP and its network of channel partners—the largest in the industry—provide a full set of services designed to unleash the power of your hardware and software investment.

We offer the best of both worlds: the strong global presence and proven experience of HP, and a familiar local presence in our HP channel partners. With more than 69,000 trained HP service professionals and 70,000 channel-partner service experts worldwide, we can provide local resources when and where you need them.

Offerings include:

- A comprehensive services portfolio including IT consulting, systems integration, installation and startup services, migration support, hardware and software support, outsourcing, recovery services, and more
- Expert support for today's heterogeneous storage, SAN and NAS, data backup technologies, and multivendor storage products
- End-to-end services for Information Lifecycle Management (ILM) solution planning, architecture design, implementation, integration, and ongoing support
- A single point of accountability and collaborative approach to help you cut cost and complexity when managing and maintaining your HP ProLiant server, BladeSystem, and storage environment, and protecting your IT investments

For more information, visit:  
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