

TECHNOLOGY OVERVIEW

Serial ATA

Seagate native Serial ATA offers enhanced system flexibility, performance and robustness with features that legacy and bridge technology cannot match



KEY FEATURES AND BENEFITS

- Native Command Queuing for higher performance in transactional workloads and hyper-threaded environments
- New latching cables and connectors for ease of integration
- Hot plug for quick maintenance and improved system availability

KEY SPECIFICATIONS

- 1.5 Gbit or 150 Mbytes per second
- Dedicated one drive per cable
- No master/slave jumpers
- Thinner cables and connectors
- Backward compatible with software and OS

THE SEAGATE ADVANTAGE

Seagate native Serial ATA offers enhanced system flexibility, performance and robustness with features that legacy and bridge technology cannot match.

Parallel ATA	Serial ATA	SATA Advantage
Up to 133 Mbytes/sec	Up to 150 Mbytes/sec (1.5 Gbits/sec)	Faster, and room for expansion
Tiny jumpers	No master/slave, point to point	Ease of use
18-inch cable	Up to 39-inch (1-meter) cable	Ease of integration
2-inch-wide ribbon cable	Thin cable (1/4-inch)	Improved system airflow
80 conductor	7-wire differential (noise canceling)	Eliminates data integrity problems
40 pin and socket	Blade and Beam connector (snap in)	Ease of use
2-inch-wide data connector	1/2-inch-wide data connector	Ease of integration
Onboard DMA controller	First-party DMA support	Performance enhancement
High 5V tolerance for legacy drives	Low voltage (.25V) tolerance	Design improvement
Limited (legacy command queuing)	Intelligent Data Handling	Performance enhancement
—	Hot Swap	Ease of integration/use
CRC on data only	CRC on data, command, status	Enhanced data protection

“This hard drive belongs in Mensa.” – Tom Mainelli, PC World

Serial ATA

PRODUCT DESCRIPTION

Serial ATA is the latest interface standard that replaces legacy ATA in desktop, consumer electronics, notebooks and entry network storage systems. Seagate®, the innovative leader in disc storage and interface development, leads this transition by delivering the first native Serial ATA solution to these markets.

APPLICATIONS

- Desktop performance PCs
- Workstations
- Entry servers
- Low-cost bulk storage
- Network storage

INTRODUCING AN ADVANCED SATA FEATURE: NCQ

Native Command Queuing (NCQ) is among the advanced features introduced in the Serial ATA II: Extensions to Serial ATA 1.0 Specification. NCQ is a powerful technology designed to increase performance and endurance by allowing the drive to internally optimize the execution order of workloads. Intelligent reordering of commands within the drive's internal command queue helps improve performance of queued workloads by minimizing mechanical positioning latencies on the drive.

Operating systems such as Microsoft Windows and Linux are increasingly taking advantage of multi-threaded software or processor-based Hyper-Threading Technology. These features have a high potential to create workloads where multiple commands are outstanding to the drive at the same time. By utilizing NCQ, the potential disc performance is increased significantly for these workloads. Native Command Queuing achieves high performance and efficiency through efficient command reordering. In addition, there are three new capabilities that are built into the Serial ATA protocol to enhance NCQ performance: race-free status return, interrupt aggregation, and First-Party DMA. To learn more about NCQ, go to the Seagate Serial ATA resource site at www.seagate.com/products/interface/sata/.

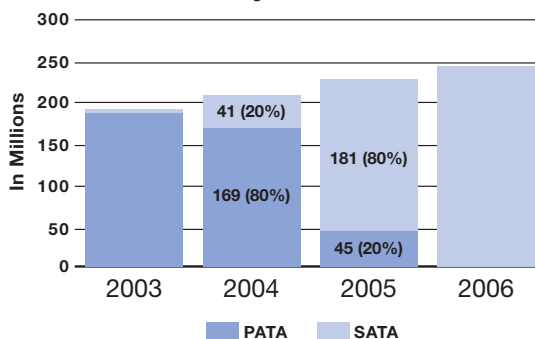
COMPATIBILITY

The Serial ATA Working Group utilized the Parallel ATA protocol to enable existing software and drivers to function in a Serial ATA environment. As the first manufacturer to ship Serial ATA hard drives, Seagate has the industry's most experienced and comprehensive compatibility testing.

ENABLING NEW OPPORTUNITIES

- The HDD industry ships around 200 million parallel ATA drives per year
- Expect the full transition from Parallel ATA to Serial ATA by the end of 2006
- From notebook to desktop and desktop to entry server, Serial ATA is the interface designed for tomorrow's growth

Desktop Transition to SATA
Source: Seagate Market Research



As the industry leader in Serial ATA, Seagate will continue to supply the leading-edge Serial ATA technology features such as NCQ, hot plug, staggered spin, and the development of higher interface transfer rates that make the transition from legacy to Serial ATA more beneficial for storage solutions.

For more information, go to www.seagate.com

Storage Segments

Network Storage

Server Storage

High-Density Storage

Nearline Storage

Low-Cost Server

PC Commercial

PC Consumer

Notebook

DVR

Gaming/Audio/Other

Handheld

