October – December 2006
A Quarterly Product Catalog / Mita No. 302/05/2005

SEAGATE
STORAGE SOLUTIONS

COVER STORY
Seagate and Maxtor:
Powerfully Complementary. Simply More Benefits.

SPECIAL REPORT
Seagate Workload Management for Business-Critical Storage
## Disc Product Listing

### Barracuda 7200.10

<table>
<thead>
<tr>
<th>Capacity (GB)</th>
<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Ext X'fer Rate (MB/s)</th>
<th>Sustained Ext X'fer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200, 250, 300, 400, 500, 700</td>
<td>7200</td>
<td>SATA/100, SATA/300, PATA/100</td>
<td>8, 16</td>
<td>150</td>
<td>Up to 78</td>
<td>&lt; 2.7</td>
<td>68</td>
<td>5</td>
</tr>
</tbody>
</table>

### Barracuda 7200.9 (SATA) - Lower drive height and weight

<table>
<thead>
<tr>
<th>Capacity (GB)</th>
<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
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<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40, 80, 120, 160</td>
<td>7200</td>
<td>SATA/100, SATA/300</td>
<td>2, 8</td>
<td>150</td>
<td>Up to 83</td>
<td>2.7</td>
<td>68</td>
<td>5</td>
</tr>
</tbody>
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### Barracuda 7200.9 (PATA) - Standard 1" Height

<table>
<thead>
<tr>
<th>Capacity (GB)</th>
<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Ext X'fer Rate (MB/s)</th>
<th>Sustained Ext X'fer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40, 80, 120, 160</td>
<td>7200</td>
<td>PATA/100, PATA/300</td>
<td>2, 8</td>
<td>150</td>
<td>Up to 83</td>
<td>2.5</td>
<td>68</td>
<td>5</td>
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</tbody>
</table>

### Momentus 7200.2

<table>
<thead>
<tr>
<th>Capacity (GB)</th>
<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Ext X'fer Rate (MB/s)</th>
<th>Sustained Ext X'fer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>80, 100, 120, 160</td>
<td>7200</td>
<td>SATA/150, PATA/100</td>
<td>8</td>
<td>150</td>
<td>45.8</td>
<td>2.7</td>
<td>68</td>
<td>5</td>
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### Momentus 5400.2

<table>
<thead>
<tr>
<th>Capacity (GB)</th>
<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Ext X'fer Rate (MB/s)</th>
<th>Sustained Ext X'fer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40, 80, 120, 160</td>
<td>5400</td>
<td>SATA/150, PATA/100</td>
<td>8</td>
<td>150</td>
<td>44</td>
<td>2.3</td>
<td>68</td>
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### Momentus 5400 ED

<table>
<thead>
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<th>Cache (MB)</th>
<th>Max Ext X'fer Rate (MB/s)</th>
<th>Sustained Ext X'fer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40, 80, 120, 160</td>
<td>5400</td>
<td>SATA/150, PATA/100</td>
<td>8</td>
<td>150</td>
<td>44</td>
<td>2.3</td>
<td>68</td>
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### Momentus 5400 FDE.2

<table>
<thead>
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<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Ext X'fer Rate (MB/s)</th>
<th>Sustained Ext X'fer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>80, 160</td>
<td>5400</td>
<td>SATA/150</td>
<td>8</td>
<td>150</td>
<td>44</td>
<td>2.3</td>
<td>68</td>
<td>5</td>
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### Momentus 5400 PSD

<table>
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<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Ext X'fer Rate (MB/s)</th>
<th>Sustained Ext X'fer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>5400</td>
<td>SATA/300</td>
<td>2, 8</td>
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<td>250</td>
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<td>5</td>
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### DB35.3 Series

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<thead>
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<th>Capacity (GB)</th>
<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Ext X'fer Rate (MB/s)</th>
<th>Sustained Ext X'fer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>80, 120, 160, 200, 250, 320, 400, 500, 700</td>
<td>7200</td>
<td>CE-ATA</td>
<td>2, 8</td>
<td>150</td>
<td>250</td>
<td>2.5</td>
<td>68</td>
<td>5</td>
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### SV35.2 Series

<table>
<thead>
<tr>
<th>Capacity (GB)</th>
<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Ext X'fer Rate (MB/s)</th>
<th>Sustained Ext X'fer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>160, 250, 300, 750</td>
<td>7200</td>
<td>CE-ATA</td>
<td>2, 8</td>
<td>150</td>
<td>250</td>
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### LD25.2 Series

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<thead>
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<th>Capacity (GB)</th>
<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Ext X'fer Rate (MB/s)</th>
<th>Sustained Ext X'fer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20, 40, 60, 80</td>
<td>5400</td>
<td>SATA/150</td>
<td>2</td>
<td>150</td>
<td>275</td>
<td>2.7</td>
<td>1500 with Sensor</td>
<td>1</td>
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### EE25.1 Series

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<th>Capacity (GB)</th>
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<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Ext X'fer Rate (MB/s)</th>
<th>Sustained Ext X'fer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20, 30, 40</td>
<td>5400</td>
<td>PATA/100</td>
<td>2</td>
<td>150</td>
<td>275</td>
<td>2.7</td>
<td>1500 with Sensor</td>
<td>1</td>
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### ST18.1 Series

<table>
<thead>
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<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Ext X'fer Rate (MB/s)</th>
<th>Sustained Ext X'fer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>3600</td>
<td>CE-ATA</td>
<td>2</td>
<td>-</td>
<td>275</td>
<td>2.2</td>
<td>1500 with Sensor</td>
<td>1</td>
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### ST1.3 Series

<table>
<thead>
<tr>
<th>Capacity (GB)</th>
<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Ext X'fer Rate (MB/s)</th>
<th>Sustained Ext X'fer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Shock Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10, 12</td>
<td>3600</td>
<td>ATA</td>
<td>2</td>
<td>150</td>
<td>275</td>
<td>2.5</td>
<td>1500 with Sensor</td>
<td>1</td>
</tr>
</tbody>
</table>
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Barracuda 7200.10

The highest-capacity 3.5-inch disc drive

Applications
Your application needs determine the capacity, performance and interface requirements of your disc drive. The Barracuda 7200.10 offers multiple configurations to ensure optimal application performance for a wide range of uses.

Desktop and High-Performance PCs
- Gamer PCs
- Workstations
- High-end PCs
- Desktop RAID
- Mainstream PCs

Low-Cost Servers and External Storage
- xATA servers
- USB/FireWire/eSATA external storage

Powerful Features
Best-in-class reliability can be assured by a number of features:
- Perpendicular recording increases data density while decreasing moving parts for a more dependable drive.
- Adaptive Fly Height offers consistent read/write performance from the beginning to end of your computing workloads.
- Clean Sweep automatically calibrates your drive each time you power up.
- Directed Offline Scan runs diagnostics when storage access is not required.

Advantages of Perpendicular Recording
After more than ten years of research, perpendicular recording is now a proven technology. It increases capacity and dependability by storing data vertically, rather than horizontally. And vertically stored data bits mean increased data density—and more gigabytes per platter.

Key Features And Benefits
- Highest capacity in a single disc drive—up to 750GB of digital storage space
- The first 3.5-inch drive to support vertically-stored data bits, enabling industry-leading capacity in existing standard form factors
- A range of options from 8- or 16-Byte cache to interface choices of ATA/100, SATA 1.5Gb/s or SATA 3Gb/s to meet your specific needs
- Seagate SoftSonic motor enables whisper-quiet operation
- Enhanced G-Force Protection defends against handling damage
- Backed by a five-year warranty

Benefits of Low-Profile Drive
- Fewer handling damage incidents - Flipped PCBA protects electronics from damage due to handling and integration
- Reduced EMI - Flipped PCBA
- Better air flow - z-height reduction allows better system air flow
- Reduced system weight - Weight reduced by 134g to 366g from 500g

Seagate 5-Year Warranty

Barracuda 7200.9
(Lower Height & Weight)

160GB
ST3160812A PATA/100 8MB
ST3160812AS 3Gb/s 8MB
ST3160212A PATA/100 2MB

120GB
ST3120814A PATA/100 8MB
ST3120213A PATA/100 2MB

80GB
ST3802110A PATA/100 2MB

40GB
ST3402111A PATA/100 2MB

Barracuda 7200.9

160GB
ST3160812A PATA/100 8MB
ST3160812AS 3Gb/s 8MB
ST3160212A PATA/100 2MB

120GB
ST3120814A PATA/100 8MB
ST3120213A PATA/100 2MB

80GB
ST3802110A PATA/100 2MB

40GB
ST3402111A PATA/100 2MB

Barracuda 7200.9
(Lower Height & Weight)

160GB
ST3160811AS SATA 3Gb/s 8MB
ST3160811AS SATA 3Gb/s 2MB

120GB
ST3120811AS SATA 3Gb/s 8MB
ST3120811AS SATA 3Gb/s 2MB

80GB
ST3802111AS SATA 3Gb/s 8MB
ST3802111AS SATA 3Gb/s 2MB

40GB
ST3402111AS SATA 3Gb/s 2MB

Where performance and reliability unite. The Seagate Barracuda 7200.10 perpendicular disc drive boasts the industry’s highest capacity.
The 750GB Barracuda.
The biggest bang in the storage universe.

Seagate helps you build systems with greater space.
A proven design. Top reliability. A vast array of options. And even greater space. Seagate® continues to lead the storage world. Introducing the 750GB Barracuda hard drive. Now high-performance PCs, media workstations and other system applications can get more capacity and more potential with the industry-leading product selection from Seagate. With a standard 5-year warranty on all Barracuda drives—and even greater support and benefits available through the Seagate Partner Program—Seagate makes it easy to give your customers the space they need.

Learn more about the 750GB Barracuda.
Get detailed product information at www.seagate-asia.com/asean
Momentus 7200.2

2.5-inch storage for performance notebooks

Product Description
Momentus 7200.2 is a high-performance, 2.5-inch mobile disc drive that addresses the need for low-cost, high-performance storage in a 2.5-inch, standard notebook drive form factor.

- Notebooks and laptops are quickly replacing desktop PCs, but users do not want to sacrifice performance for size and flexibility.
- The need for very high capacity in the smallest available form factor has driven the usage of notebook drives into small form factor PCs, non-mission-critical blade servers, and simple DT RAID in either a performance notebook or a desktop subsystem enclosure.
- The applications that utilize 7200-RPM, 2.5-inch drives are more concerned with performance and size over battery life and power consumption.

Key Specifications for Momentus 7200.2
- 7200-RPM spindle speed
- 80-, 100-, 120- & 160-Gbytes capacities
- 250 Gs operating shock and 900 Gs non-operating shock
- ATA/100 and SATA/150 NCQ interfaces
- 8- & 16-MB cache (160GB only)

Applications for Momentus 7200.2
- Mobile PCs
- Notebooks, laptops and tablet PCs
- Performance notebook and workstations
- Small form factor servers
- Non-mission-critical blade servers
- DT/PC RAID in SFF enclosures/subsystems

Note: Momentus 7200.2 may be available in the channel in Q1CY07. Please contact Seagate or your respective distributors for information.

Key Features And Benefits
- QuietStep ramp load technology enables whisper-quiet load/unload acoustics.
- Enhanced G-Force Protection enables mobility in rugged notebook operating environments.
- Advanced manufacturing and the latest technology for the most reliable storage solutions ever.
- The industry’s most comprehensive compatibility and benchmark testing.
- Assured, steady supply from the industry’s only independent supplier of notebook drives.
### Momentus 5400.3

**2.5-inch storage for mainstream notebooks**

**The Seagate Advantage**

Seagate designed Momentus drives with the end customer in mind. With the best combination of performance and mobility, Momentus 5400.3 is ideal for mainstream notebook PCs. Additional features, such as Seagate QuietStep™ ramp load technology and a 5-year warranty for distribution, make Momentus 5400.3 the most obvious choice. These drives are also a good fit in certain non-PC applications, including external storage, printers/copiers, non-mission critical blade servers, and other storage applications that require robustness.

**Applications**

- Mainstream notebooks
- External 2.5-inch drives
- Printers and copiers
- Tablet PCs
- MP3 players

**Additional Features**

- QuietStep ramp load technology enables whisper-quiet load/unload acoustics
- Advanced manufacturing and latest technology for the most reliable storage solutions ever
- The industry's most comprehensive compatibility and benchmark testing
- Assured, steady supply from the industry's largest supplier of disc drives
- Seagate 5-year warranty for distribution demonstrates commitment to product reliability

### Momentus 5400 ED

**2.5-inch extended-duty ATA/SATA drives**

**The Seagate Advantage**

Seagate® Momentus 5400 ED drives maximize performance in a 24x7 environment, while providing excellent acoustics and shock tolerance and the widest choice in capacities.

**Best-Fit Applications**

- Small form-factor servers and workstations
- Blade servers
- Network routers
- Point-of-sale applications
- Web hosting
- Video surveillance

### Key Features And Benefits

- Perpendicular recording resets capacity limitations and enables Momentus® drives to easily reach the industry-leading 2.5-inch capacity of 160 Gbytes
- Nearly 50 percent more performance than systems with 4200-RPM drives
- 4200-like battery consumption lets users work longer
- Robust design and high shock tolerance enable mobility in rugged notebook operating environments
- 900 Gs of non-operating shock make the drive ideal for notebook PCs and industrial applications
- Serial ATA interface option offers blazing fast 1.5-Gbits/sec interface speed combined with NCQ for high performance

### Key Specifications

- 5400 RPM spindle speed
- 40-, 60-, 80-, 120- and 160-Gbyte capacities
- 350 Gs operating shock and 900 Gs non-operating shock
- ATA/100 or SATA/150 NCQ interface

### Key Advantages

- Designed for high performance in 24x7 power-on applications
- Wide range of capacity options from 40GB to 160GB
- Low power consumption for multi-drive enclosures
  - 1-amp start-up
  - SATA interface drives enable staggered spin-up
**Momentus 5400 PSD**

Less power, more reliability and the greatest performance in mobile storage.

**Product Description**

Seagate is developing hybrid drive technology as a new method to deliver intrinsic HDD benefits, including higher performance, faster boot-up time, more robustness and higher reliability. These benefits will first be realized in drives for notebook computers, but future applications could extend across the range of markets served by disc drive products. The Momentus 5400 PSD hybrid drive incorporates nonvolatile memory into the HDD. The drive pins the most commonly used hard drive data onto the nonvolatile cache, reducing access time. Hybrid drives offer many of the benefits of solid-state disc drives but at a fraction of the cost. Hybrid drives require no enduser intervention, since Microsoft Windows Vista automatically detects and manages the hybrid technology in the system.

**Key Specifications for Momentus PSD**

- 5400-RPM spindle speed
- Capacities up to 160GB
- 350 Gs operating shock, 900 Gs non-operating shocks
- SATA 3.0Gb/s interface

**Applications for Momentus PSD**

- Notebook computers
- Tablet PCs
- External storage

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**Momentus 5400 FDE.2**

Best-in-class protection for data at rest.

**Product Description**

The Seagate® Momentus 5400 FDE.2 drive is a hardware-based full disc encryption product that offers state-of-the-art data protection to personal and corporate notebook users. The Momentus 5400 FDE.2 drive is easy to use and simply requires a user password for authentication to ensure that everything on the hard disc drive, not just selected files or partitions, is secured with strong encryption technology. Data is protected from unauthorized access, whether a disc drive or system is stolen, retired or sold into a secondary resale channel. And with Disc Erase, the Momentus 5400 FDE.2 drive also eliminates the need for corporate IT departments to spend additional money to clean and dispose of drives scheduled for retirement.

**Key Specifications for Momentus 5400 FDE.2**

- Total data encryption, all the time—every time
- Convenient and easy to use—minimal configuration is required.
- Investment protection—stolen or out-of-service drives can be repurposed and remain fully protected.
- Instant encryption performance matches the throughput of the drive interface.
- Compatible with trusted platform modules (TPM)

**Applications for Momentus 5400 FDE.2**

- Notebook computers
- Tablet PCs
- External storage

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**Key Features And Benefits**

- Reduced power consumption—Seagate® Momentus 5400 PSD hybrid drives reduce power draw and extend battery life, especially important in mobile applications, by reducing platter spin time.
- Faster boot up and resume—Booting straight from the flash cache reduces delay. Likewise, data is available much more quickly after hibernation, since frequently accessed data is pinned to the flash cache before a system goes to sleep.
- Greater reliability—Reducing platter spin frequency extends drive life by reducing the mechanical wear of the drive due to power-on hours.
- Higher performance in Microsoft Windows Vista—Hybrid technology improves performance in short file reads/writes by utilizing the large nonvolatile cache.

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**Additional Features**

- Protected passwords
- Efficient implementation and flexibility
- Snoop-proof lock (using secure ATA commands)
- Stronger key protection (key is not in the clear)
- Fast and thorough drive repurposing
- On-the-fly quick erase
- Preboot authentication
- Seagate proprietary DriveTrust Technology (enables higher security)
- AES encryption (renders all data unreadable)
# Mass Storage Basics

## Reading the Seagate Model

### Enterprise Storage / SCSI

<table>
<thead>
<tr>
<th>Seagate Technology</th>
<th>9=2.5” Drive in GB</th>
<th>5=15K</th>
<th>0=10K</th>
<th>LC=LVD SCA</th>
<th>LW=LVD Wide</th>
<th>SS=Serial SCSI</th>
<th>NS=SATA Nearline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifier</td>
<td>3=3.5” Drive in GB</td>
<td>3=2.5” Drive</td>
<td>7=1.8” Drive</td>
<td>6=1.0” Drive</td>
<td>6=16MB</td>
<td>8=8MB</td>
<td>0=2MB</td>
</tr>
<tr>
<td>ST</td>
<td>3</td>
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<td>4</td>
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<td>4</td>
<td>1</td>
<td>AS</td>
<td>AS</td>
</tr>
</tbody>
</table>

Note: # represents:
- A=PATA, AS=SATA
- A=ATA/100, AS=SATA/150
- XS=External SATA
- CB=USB 2.0 & IEEE1394 Combo
- U or U2=USB 2.0 & IEEE1394

### Parallel ATA & Serial ATA

<table>
<thead>
<tr>
<th>Ultra ATA/100 (A)</th>
<th>Serial ATA/150 (AS)</th>
<th>Serial ATA/300 (AS)</th>
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</thead>
<tbody>
<tr>
<td>Max External Transfer Rate</td>
<td>100 MB/sec</td>
<td>150 MB/sec</td>
</tr>
<tr>
<td>Number of Drives Supported</td>
<td>4 (2/cable)</td>
<td>1 per port</td>
</tr>
<tr>
<td>Cable Length</td>
<td>18 inches (0.46m)</td>
<td>1 meter</td>
</tr>
<tr>
<td>Type of Connector</td>
<td>40-pin</td>
<td>Blade and Beam</td>
</tr>
<tr>
<td>Cable Type</td>
<td>80-conductor</td>
<td>4-wire differential</td>
</tr>
</tbody>
</table>

### SCSI

<table>
<thead>
<tr>
<th>Low Voltage Differential (LW)</th>
<th>Low Voltage Single Connector (LC)</th>
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<tbody>
<tr>
<td>Max External Transfer Rate</td>
<td>320 MB/sec</td>
</tr>
<tr>
<td>Number of Drives Supported</td>
<td>15</td>
</tr>
<tr>
<td>Cable Length</td>
<td>12 meters</td>
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<tr>
<td>Type of Connector</td>
<td>68-pin</td>
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<tr>
<td>Cable Type</td>
<td>64 typical</td>
</tr>
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</table>

### SAS & FC

<table>
<thead>
<tr>
<th>Serial Attached SCSI (SS)</th>
<th>Fibre Channel (FC)</th>
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<tbody>
<tr>
<td>Max External Transfer Rate</td>
<td>300 MB/sec</td>
</tr>
<tr>
<td>Number of Drives Supported</td>
<td>127</td>
</tr>
<tr>
<td>Cable Length</td>
<td>up to 10 meters</td>
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<tr>
<td>Type of Connector</td>
<td>64 typical</td>
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<tr>
<td>Cable Type</td>
<td>Full Duplex</td>
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### USB 2.0 & IEEE 1394 (FireWire)

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<thead>
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<th>FireWire 400</th>
<th>FireWire 800</th>
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<tr>
<td>USB 2.0</td>
<td>480 Mbits/sec</td>
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<td>Number of Drives Supported</td>
<td>127</td>
</tr>
<tr>
<td>Cable Length</td>
<td>up to 5 meters</td>
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<tr>
<td>Type of Connector</td>
<td>Series “B”</td>
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<tr>
<td>Cable Type</td>
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### Small Form Factor (SFF)

<table>
<thead>
<tr>
<th>CompactFlash (CF)</th>
<th>IDE ZIF (DE)</th>
<th>CE ATA ZIF (CA)</th>
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<tbody>
<tr>
<td>Max External Transfer Rate</td>
<td>33.3 MB/sec</td>
<td>66.7 MB/sec</td>
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<tr>
<td>Number of Drives Supported</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Cable Length</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Type of Connector</td>
<td>CompactFlash Type II (50-pin)</td>
<td>Seagate ZIF (40-pin)</td>
</tr>
<tr>
<td>Cable Type</td>
<td>N/A</td>
<td>N/A</td>
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</table>
Special Report
Seagate Workload Management for Business-Critical Storage

Introduction
Serial ATA (SATA) hard drives have rapidly found favor in many enterprise storage solutions, primarily due to their remarkably low cost-per-gigabyte and solid performance. While fundamentally rooted in the desktop, these budget-priced drives have become popular additions in datacenters. Augmenting mission-critical parallel SCSI and Serial Attached SCSI (SAS) drives in dense storage applications, desktop-class SATA drives deliver maximum capacity in external storage or low-cost server environments.

In an effort to contain storage expenses and work within ever-tighter budgets, IT professionals began specifying these low-cost hard drives in a multitude of enterprise environments. In some cases, they deployed desktop-class SATA drives in more demanding business-critical applications for which they were not designed; as a result, some drives experienced unusually high failure rates.

It soon became clear that storage managers needed a new hybrid class of business-critical drives, combining the low cost-per-gigabyte of desktop-class SATA drives with the enterprise-class reliability of expensive mission-critical drives.

Seagate® has collaborated closely with customers and key partners to better understand usage environments and customer requirements, in order to design business-critical storage solutions that cost-effectively deliver superior reliability in a variety of high-density storage applications. Investigating the root causes of desktop-class SATA failure rates, Seagate has analyzed specific environmental, application and drive characteristics that can contribute to premature failure.

By committing its unparalleled enterprise expertise and technology to analyzing the underlying factors that impact SATA reliability in enterprise environments, Seagate has pinpointed workload as a key determinant of SATA drive longevity and has applied this conclusion to the new Seagate Barracuda ES family of high-capacity enterprise drives. Incorporating a comprehensive suite of workload management (WLM) tools, Seagate Barracuda ES drives boast the highest reliability of any 7200-RPM drive in the industry, and are purpose-built for 24x7, business-critical applications.

Challenge: High SATA Failure Rate
Laboratory testing has confirmed the field experience of many IT professionals: When deployed in demanding enterprise applications (with their severe power-on hours and temperatures), desktop-class (PS) drives show more than twice the AFR of enterprise-class (ES) drives (figure 1). Not surprising, given that in such applications, desktop-class drives run hotter, with higher duty cycles and for more power-on hours than in desktop applications.

Enterprise-class drives have been traditionally identified by their interface (FC, SCSI or SAS), and are architected and built for IOPS and performance, while desktop-class drives (PATA, SATA) are optimized for single-user, low-load server and consumer electronics duties. In these less-demanding environments, a desktop-class drive need only deliver about half the peak IOPS of an enterprise-class drive.

However, the bursty nature of enterprise applications stresses the IOPS capability of desktop drives, ensuring they will see significantly more duty than they were designed for, with deleterious effects on reliability (figure 2).

Duty cycle and IOPS are just two important components of a drive’s workload. Workload refers to the usage pattern of the drive and encompasses a complex set of interacting metrics, including:
• Duty cycle (percentage of time a command is pending)
• IOPS
• Seek-number and seek-length distributions
• Read/Write ratio
• Burstiness (low activity punctuated by brief periods of very high activity)
With far lower IOPS than high-performance SAS and FC drives, desktop-class SATA drives are forced to work harder and longer to execute the same drive commands. This means higher duty cycles—and higher temperatures. Heat is the enemy of drive reliability, and business-critical workloads are a key contributor to elevated drive temperatures and higher failure rates.

Moreover, business-critical environments present additional thermal challenges. Their dense servers, large storage farms and rack-based data centers impair airflow and chassis cooling, which in turn raises drive temperatures still higher. Faster, hotter-running processors only exacerbate the problem.

Against this backdrop of significant reliability issues, business-critical hard drives are being developed and optimized for server and external storage (NAS, SAN, DAS RAID) solutions. Poised between mission-critical enterprise drives and desktop-class drives, this new breed of purpose-built SATA drives must deliver superior reliability if it is to succeed in the enterprise marketplace.

Solution: Seagate Workload Management

Business-critical hard drives are designed to be the workhorse infrastructure solution for server and storage environments. Higher capacity and lower cost are the hallmarks of these innovative drives, but enhanced reliability in enterprise applications is the foundation of their value proposition. Workload management technology makes this possible.

Workload management (WLM) is an optimized monitoring and management tool that tracks hard drive temperature and activity in business-critical environments. The significance of WLM is multifold:

- WLM helps optimize hard drive reliability in server and storage environments.
- WLM ensures business-critical drives do not overheat when workload spikes, ensuring higher reliability and longer life.
- WLM is not available in standard desktop products, where workload is not as demanding.
- WLM is a key new feature offered in business-critical SATA products.

Seagate Barracuda ES drives are specifically designed to address the needs of business-critical applications: high capacity at low cost-per-gigabyte, speedy performance and outstanding reliability. To achieve the latter, the Seagate Barracuda ES SATA drive employs an innovative WLM feature, read after write (RAW).

RAW is enabled if the drive's temperature is less than 18°C or greater than 58°C. If the write portion of the Write-Verify fails, the drive performs write recovery and posts a write error if unsuccessful. Should the verify portion of the Write-Verify fail, the Write-Verify is retried. If the verify still fails, a write error is reported to the host as a 03/0C00/11. The FC version of the Seagate Barracuda ES drive offers these additional WLM features:

1/3 STROKE IOPS LIMITER
At any given time, only one HDD in a typical SDVR system is actively writing video images. Though the rest of the drives in the system are idle, they are nevertheless kept spinning; this needlessly consumes power, produces more heat and entails additional wear on the drives.

LOW POWER MODE (LPM)
This feature disallows faster JIT (just-in-time) seek options when the temperature of the drive exceeds the specified trip temperature. LPM reduces heat generation and helps prevent temperatures from rising even higher, thus increasing reliability. Higher temperatures cause drive heads to fly lower; the combination of lower fly height and fast seeks greatly increases the risk of head/disk contact.

SERVO DEMAND ESTIMATOR MEASUREMENT (SDEM)
SDEM is a measurement of the voice coil motor's (VCM) resistance, which is used to determine the VCM temperature. When the VCM threshold temperature is reached, less current is driven through the coil, thus reducing its temperature. This enhances drive reliability by preventing the drive from operating outside its specified temperature range.

Conclusion

The reliability issues of desktop-class SATA drives are elegantly remedied with workload management. By challenging the status quo with core technologies, such as WLM, Seagate enables storage managers to confidently embrace high-capacity SATA drives as viable business-critical enterprise storage solutions.

Seagate has applied WLM to its new line of business-critical Seagate Barracuda ES drives, retaining the many benefits of SATA drives while significantly improving their core thermal capabilities. And WLM is only the first of many enhancements coming from the leader in enterprise storage solutions.

*Default set points, subject to change.

Cover Story

With the increasing popularity of the mobile lifestyle, demands posed by fast-changing market dynamics and the digital innovation, your ability to support these market challenges and growth opportunities will determine your continued business survival and competitiveness.

Today, only Seagate enables you to take advantage of two powerful and complementary product portfolios to gain 100% market coverage of all storage market segments. Combining Seagate’s innovation and breadth of premium products and services, strengthened by Maxtor’s pragmatic and cost-effective product range, Seagate now offers you the industry’s most expansive R&D prowess, storage expertise, comprehensive technical and business support and insights.

Our Commitment
We will continue to:
- **Offer Maxtor products**: Continued commitment to maintain and refresh Maxtor DiamondMax product line and roll out new offerings, such as the Maxtor MobileMax product line.
- **Honour all Seagate and Maxtor support and warranties**: Seagate asserts our responsibility on maintaining the industry-leading support and warranty for Seagate and Maxtor Products. Maintaining 5 years and 3 years warranty for Seagate and Maxtor products respectively, you can be assured of a seamless experience. We are here to ensure ease of repair or replacement of all Seagate and Maxtor products under the guidelines and terms of our warranty agreements.

At Seagate, we are committed to continually enhance your capabilities to support your customers with world-class offerings, so you can capture the fast growth of new storage market segments and reach more customers as a result. With the greater strength and scale of the combined company, we believe this offers the integrator, system builder and your customers more choices with two powerful value propositions. Distributors will also benefit from the ease and lower costs of doing business with Seagate.
The DiamondMax 20 drives are targeted at entry and mainstream computing applications, whereas the DiamondMax 21 drives provide higher capacities and more advanced features for mainstream systems with increased storage needs.

An excellent solution for integrators and system builders building mainstream ATA storage solutions, the DiamondMax family of hard drives provides the ideal combination of capacity, performance and reliability – at the right price.

For mainstream systems requiring advanced storage support, the DiamondMax drives’ Serial ATA interface delivers performance of up to 3.0Gb/s maximum data transfer rate. The robust drives also support Native Command Queuing to maximise efficiency and performance through the intelligent reordering of the command execution sequence. Choice of the ATA/100 interface also enables easy replacement and upgrade storage solutions for legacy PATA systems.

The Maxtor MobileMax notebook drive product line combines performance, durability and low power consumption in a slim, new 2.5” 5400 RPM mobile form factor, ideal for mainstream notebooks.

As the mobile lifestyle gains popularity, the MobileMax’s low power consumption enables notebook users to work and play longer. Mobile users also enjoy faster backups, now possible with MobileMax’s support for external drives with USB2.0. Users on-the-go can now work with more freedom, with the MobileMax’s optimisation to run hassle-free from a single USB cable in external storage applications.

What’s more, withstanding up to 900 Gs of non-operating shock and 250 Gs of operating shock, it is also rugged enough to support industrial applications and users on-the-go.

Targeted at helping you capture growth opportunities in the fast-growing notebook market, the MobileMax product line will extend your capabilities to support new customers in the small form factor external storage market.
2.5-in USB2.0 Portable Hard Drive

Specifications
- Spindle Speed: 5400-RPM
- Capacity: 40/80GB
- Cache: 2MB
- Spindle Speed: 7200-RPM
- Capacity: 100GB
- Cache: 8MB
- Non-Operating: 500 Gs shock
- 60GB: 1000 hours of digital music
- 80GB: 1330 hours of digital music
- 100GB: 32,000 digital photos
- 120GB: 120 hours of digital video
- 160GB: 80 exciting games

1.0-in USB2.0 Pocket Hard Drive

Specifications
- Capacity: 6GB & 8GB
- Cache: 2MB
- Spindle Speed: 3600-RPM
- Compatibility: PC and Mac
- Features: Password Protection (Win2K & XP only)
- 6.0GB: 100 hours of digital music, 1920 digital photos, 6 hours of digital video
- 8.0GB: 133 hours of digital music, 2560 digital photos, 8 hours of digital video

1.0-in CompactFlash Photo Hard Drive

Specifications
- Capacity: 4GB & 8GB
- Cache: 2MB
- Spindle Speed: 3600-RPM
- Compatibility: CF+ Type II
- No. of high resolution photos:
  - 4.0GB: 4548 9096
  - 8.0GB: 2560 5120
  - 2 Megapixel: 4548 9096
  - 3 Megapixel: 2560 5120
  - 4 Megapixel: 2048 4096
  - 5 Megapixel: 1636 3272
  - 6 Megapixel: 1280 2560

Mirra Sync & Share Personal Server

Specifications
- Capacity: 320GB & 500GB
- Network Requirement: High-speed internet connection
- Compatibility: PC & Mac
- Features:
  - Access: Retrieve digital content via the internet any time
  - Share: Share files with anyone simply and securely
  - Sync: Sync content automatically between network computers
  - Protect: continuous data protection for networked Macs and PCs
  - Enjoy: Connect to your content from wherever you are
Branded Solutions

Seagate Branded Solutions

3.5-in eSATA External Hard Drive

Specifications
Capacity: 300GB & 500GB
Cache: 16MB
Spindle Speed: 7200-RPM
Compatibility: PC and Mac
Features:
- 5x faster than USB2.0
- 3x faster than FireWire 800
- Includes 2-port PCI eSATA card

300GB: 5000 hours of digital music
500GB: 500 hours of digital video

3.5-in USB2.0 External Hard Drive

Specifications
Capacity:
- 80/120/160GB: Cache: 2MB
- 160/250/320GB: Cache: 8MB
Spindle Speed: 7200-RPM
Compatibility: PC
Non-Operating: 300 Gs Shock

120GB: 2000 hours of digital music
160GB: 51,200 digital photos
250GB: 250 hours of digital video
320GB: 160 exciting games

3.5-in Pushbutton Combo External Hard Drive

Specifications
Capacity:
- 200GB: Cache: 8MB
- 300/400/500/750GB: Cache: 16MB
Spindle Speed: 7200-RPM
Compatibility: PC and Mac
Features:
- FireWire 400 & USB2.0
- Stackable for daisy-chain using FireWire
200GB: 3330 hours of digital music
400GB: 128,000 digital photos
750GB: 375 exciting games

3.5-in Pushbutton USB2.0 External Hard Drive

Specifications
Capacity:
- 250/300/400/500GB
Cache: 16MB
Spindle Speed: 7200-RPM
Compatibility: PC and Mac
Features: USB2.0 only

300GB: 5000 hours of digital music
500GB: 500 hours of digital video
LD25.2 Series

20, 40, 60, 80 disc drives

The new LD25 Series drive delivers up to 80GB of storage in a form factor that will enable continued innovation in household technology system design. Compatible with systems interfacing with standard parallel and serial ATA devices. It is also compatible with legacy DMA and PIO modes used by low-cost motherboards.

Key Advantages
- 5400-RPM spindle speed
- 40- & 80-Byte capacity
- 20- & 60-Byte capacity for Video-Game consoles only
- PATA/100 and SATA/150 interfaces
- 500 Gs non-operating robustness
- < 2.7 bels whisper-quiet operation delivers pure enjoyment of digital media
- 1-amp start-up current ideal for low-power PATA systems and add-on storage device requirements

EE25.1 Series

Designed specifically for operation in “extreme environments”

The Seagate Advantage

The EE25 Series is designed specifically for operation in “extreme environments” using Seagate RunOn Technology, a feature set that drives reliable performance in high-vibration, high-humidity and extreme temperature conditions. Applications as mission critical as military field systems and as entertaining as automobile multimedia systems will benefit from the EE25 Series drive’s ability to deliver rich content under the harshest conditions.

Key Advantages
- 20-, 30- and 40-Byte capacities
- -30° to 85°C operating temperature range
- Up to 2.0 Gs operating vibration tolerance
- Optimized for high-humidity and high-altitude operation
- Head/disc contact sensing and real-time temperature reporting
- Mature fluid dynamic bearing motor technology operates at low acoustic levels

Best Applications
- Automotive entertainment, navigation and data delivery systems
- Industrial PCs used for process monitoring and data acquisition
- Military field imaging and information systems
DB35.3 Series

80GB to 750GB disc drives

The Seagate Advantage

DynaPlay Technology from Seagate gives manufacturers several features for controlling the drive’s operating parameters.

• Performance optimization tunes the drive for the sequential streaming needed for uninterrupted digital media.
• Drive security tools enhance fair use of digital programming by helping manufacturers implement appropriate digital rights management technologies.
• Power optimization allows the manufacturer more leeway in selecting cost-efficient power supplies. These tools also help to keep DVR internal temperatures under control for enhanced system reliability.

Applications

• Digital video recorders (DVR)
• Personal video recorders (PVR)
• Home media servers

Key Specifications

• Ten simultaneous standard TV streams
• Up to 750 hours of standard TV capacity
• Up to 125 hours of high-definition TV capacity
• 2.0-amp spinup power limit
• Low 7.5-watt operational power consumption

SV35.2 Series

3.5-inch hard drives for surveillance digital video recording

The first hard drive engineered for video surveillance recording applications

Key Features And Benefits

Improved SDVR Performance

• Video or data read/write profiles
• Performance hard drive infrastructure
• Up to 750GB capacity

Power Optimization

• Enables use of low-cost power supplies
• Power-on control of multiple drives

High Reliability

• Designed for 24x7 operation and high write duty cycles

Security Technology Focus

• A hard drive poised to grow unique features with an emerging industry

Seagate 5-Year Warranty

• Backed by the industry’s best warranty

Innovation

• Industry-leading capacity enabled by perpendicular recording technology

Key Advantages

• Power-optimized systems to reduce power consumption, lower heat dissipation, improve reliability and allow the use of low-cost, high-efficiency power supplies

Best-Fit Applications

• Video Surveillance Digital Video Recorder (SDVR)
• Video Surveillance Network Digital Video Recorder (SNVR)
• Direct-Attached JBOD Video Storage
• Network-Attached JBOD Video Storage
• Small Form Factor Video Surveillance Digital Recorder

Key Specifications

• Value-priced, high-reliability hard drives optimized for 24x7 operation in video surveillance applications
• Up to 100 days/camera (JPEG compressed, 640x480, 1 frame/sec)
• Up to 23 days/camera (MPEG4 compressed 720x480, 30 frames/sec)
• Low start-up current of 2.0 amps (at 12V typical)

Note: Some models of DB35.3 Series may not be available in the channels. Please contact Seagate or your respective distributors for information.
Consumer Electronics Compute

ST18 Series / ST1.3 Series

**ST18 Series**

160GB disc drives

The ST18 Series will offer compatibility with the new CE-ATA interface for handheld consumer devices. Seagate Design Service Centers can help with the transition to this highly efficient new standard. Additionally, the ST18 Series will support the IDE interface used in many current handheld devices.

**Applications**

Environments where the best combination of portability, reliability, and capacity are paramount, including:

- Personal media players
- Portable navigation systems
- Ultra-portable computing devices
- Digital video cameras
- Portable storage devices

**Key Specifications**

- 2.2-second startup time
- 275 mA average read current
- First 1.8-inch drive available with new CE-ATA interface
- 0\(^\circ\) C to 60\(^\circ\) C operating temperature range
- 2.2 bels operating acoustics—below human hearing range

**ST1.3 Series**

One-inch disc drive for mobile devices

**Key Advantages**

- Leading 12GB capacity for handheld systems—delivers maximum storage for high-fidelity music, high-resolution video, and digital photos in portable music and video devices, including mobile phones
- New small footprint: 40x30x5mm size delivers large capacity in a tiny space, enabling smaller HDD-based systems
- Optional drop sensor technology improves shock tolerance to 2000 Gs by sensing and protecting against day-to-day drops and dings when properly installed in mobile devices
- Uses 30% less power than its predecessors
- RunOn Technology improves HDD performance while in a high-vibration environment such as jogging, helps prevent media skipping
- One-second time-to-ready helps handheld devices start up faster
- RoHS-compliant in line with international environmental regulations
- Fluid dynamic bearing motors deliver near-silent performance
- Perpendicular recording technology promises rapid capacity growth for years to come
- Supports low-power modes for increased battery life in appropriately equipped host systems

**Best Fit Applications**

- Portable music & video players
- Handheld GPS systems
- Mobile phones
- USB storage devices
- PDAs
- Digital still & video cameras
- Personal photo printers

**ST18 Series**

<table>
<thead>
<tr>
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<th>Model Numbers</th>
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**ST1.3 Series**

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<tr>
<td>10.0GB</td>
<td>ST61012DEG, ST61012DEE</td>
</tr>
</tbody>
</table>

Note: ST1.3 Series are not available in the channels. Please contact Seagate or your respective distributors for information.
Seagate helps you build systems with greater space.
A proven design. Top reliability. A vast array of options. And even greater space. Seagate® continues to lead the storage world. Introducing the 750GB Barracuda hard drive. Now high-performance PCs, media workstations and other system applications can get more capacity and more potential with the industry-leading product selection from Seagate. With a standard 5-year warranty on all Barracuda drives—and even greater support and benefits available through the Seagate Partner Program—Seagate makes it easy to give your customers the space they need.

The 750GB Barracuda.
The biggest bang in the storage universe.
**Savvio 10K.2**

2.5-inch enterprise disc drive

**Product Description**
The second-generation Seagate® Savvio 10K.2 enterprise disc drive combines the coolest operating temperatures with a history-making reliability rating to ensure unrivalled efficiency in high-density storage environments. Utilizing perpendicular recording to double its available capacity to 146GB, Savvio 10K.2 also delivers up to 25 percent higher sequential performance.

Savvio enables space-constrained Fortune 2000 data centers to achieve higher IOPS performance in small form factor system configurations while maintaining unprecedented levels of reliability, including a nonrecoverable error rate that’s been improved by a factor of 10.

**Applications**
Applications utilizing high-density configurations where IOPS performance, energy efficiency and space-saving design are key, such as:
- Rack-optimized servers
- 1U RAID servers
- Server blades
- Rack-optimized storage arrays
- Space-constrained specialty applications

**Key Specifications**
- 146- and 73-Gbyte capacity with 16MB cache
- 3.8 msec average read and 4.4 msec average write seek times
- Up to 85 Mbytes/sec sustained transfer rate
- 0.55% AFR Reliability Rating @ Full 24x7 Operation
- 3Gb/s SAS & 4Gb/s FC interfaces
- 5-year warranty

**Key Features And Benefits**
- Small form factor and lowest power consumption of any enterprise drive yield better system airflow and cooler operation, enabling use of more powerful and hotter-running processors
- Sets new record for highest reliability rating ever achieved by a disc drive; brings enterprise-class storage to blade servers, reducing blade failures and replacements
- Perpendicular recording is fundamentally superior, enabling higher capacities and up to 25 percent faster sequential performance than the previous generation of Savvio drives
- The Savvio 2.5-inch form factor enables integration of more drives into smaller, more space-efficient chassis sizes to deliver higher IOPS/U than conventional 3.5-inch systems

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**Cheetah 10K.7**

Reliability, performance and low ownership cost

**Best-Fit Applications**
- Data warehousing and data mining
- Multi-user multimedia, imaging and video
- Cost per gigabyte RAID
- Entry-level to mainstream servers
- Network Attached Storage (NAS)
- Storage Area Networks (SAN)

**Key Specifications**
- 300-, 146- and 73-Gbyte capacity with 8MB cache
- 4.7-msec average read and 5.3-msec average write seek times
- Up to 80 Mbytes/sec sustained transfer rate
- Highest reliability in the industry at 0.62 % AFR
- Ultra320 SCSI and 2 Gbits/sec Fibre Channel interfaces
- 5-year warranty

**Key Features And Benefits**
- Highest reliability in the industry-designed for “full duty cycle” applications
- Seagate®-exclusive Background Media Scan and enhanced Error Correction Code
- Low power and cooling requirements
- Low acoustics
- Industry-leading Enterprise solutions with a choice of Ultra320 SCSI or 2 Gbits/sec Fibre Channel
Cheetah 15K.5

Mainstream enterprise disc drive storage

Lowest Cost of Ownership

The new Seagate® Cheetah 15K.5 enterprise disc drive employs innovative perpendicular recording technology to set new standards for storage cost-effectiveness. While doubling available capacity to 300GB, the Cheetah 15K.5 also delivers 30 percent higher sequential performance. This enables enterprises to meet their throughput and capacity requirements with fewer drives, significantly reducing total cost of ownership (TCO). Seagate designed the Cheetah 15K.5 for maximum reliability in demanding enterprise applications, including a nonrecoverable error rate that’s been improved by a factor of 10. Cheetah 15K.5 incorporates such Seagate-exclusive features as IRAW (Idle Read After Write), enhanced ECC (Error Correction Code) and BMS (Background Media Scan) to safeguard data integrity in the most rigorous environments.

Highest Reliability

• Seagate-exclusive new Error Correction Code process called Reverse ECC. Corrects more bits thanks to a new method of calculation. Helps maintain performance throughout the life of the drive and reduces the probability of lost data.
• Second generation enhanced high-threshold Background Media Scan, a Seagate exclusive features, proactively identifies and manages potential media defects during drive idle time. All done without using system bandwidth. It enables incipient errors to be corrected before data is lost. Enables lower TCO.
• Improved reliability with Idle Read After Write (IRAW). IRAW verifies data was properly written if the drive is idle and has previous write data in the drive buffer.

Key Specifications

• 300-, 146- and 73-Gbyte capacities
• 16MB cache
• 3.5-msec average read and 4.0-msec average write seek times
• Up to 125 MB/sec sustained transfer rate
• 0.62% AFR Reliability Rating @ Full 24/7 Operation
• SAS, Ultra320 SCSI, 2 Gb/s and 4 Gb/s Fibre Channel interfaces
• Acoustics as low as 3.0 bels
• 5-year warranty

Best-Fit Applications

All mainstream enterprise applications, such as:
• E-mail
• Business processing
• Transaction processing
• Decision support
• Storage Area Networks (SAN)
• Networked Attached Storage (NAS)
• Internet and e-commerce

The Seagate Advantage

• Fifth-generation Cheetah 15K is the fastest, highest capacity and most reliable ever; delivers lower TCO for a wide variety of enterprise applications.
• Cheetah 15K.5 employs perpendicular recording technology to deliver 300GB capacity with 30 percent faster sequential performance.
• Nonrecoverable error rate has been improved by a factor of 10, safeguarding data integrity and reducing risk exposure during RAID rebuilds.

Note: Some models of Cheetah 15K.5 may not be available in the Channels yet. Please contact Seagate or your respective distributors for information.
Barracuda ES

The highest-capacity drives for the enterprise

Product Description
Seagate® Barracuda ES is a new family of high capacity enterprise drives, providing 50 percent more storage space within the same system form factor than comparable drives. Barracuda ES drives leverage unparalleled Seagate enterprise technology to deliver the industry’s highest 7200-RPM reliability for 24x7 business-critical applications. Barracuda ES maximizes system availability and performance in high drive-count storage systems, thanks to enterprise multi-drive firmware features and best-in-class rotational vibration (RV) tolerance. These enhancements are critical when implementing dense storage solutions, especially in external storage environments (NAS, SAN or RAID systems) where a multitude of drives is often deployed.

Best Fit Applications
- Storage-hungry business applications
- Network Attached Storage (NAS)
- Maximum-capacity servers
- Rich media content storage—audio, video, image
- Reference and compliance data storage
- Enterprise backup and restore—D2D, virtual tape
- Collaboration—e-mail, messaging
- Infrastructure—web, print, file
- Storage Area Networks (SAN)
- Video Surveillance

Key Specifications - Barracuda ES
- Capacity: 250-, 400-, 500-, 750-Gbyte
- Native Command Queuing (NCQ)
- Hot-Pluggable & Staggered Spin
- 0.73% AFR @ 24x7 Operation
- Rotational Vibration @ 12.5 rad/sec²
- 8MB & 16MB Cache

Key Specifications - NL35 Series FC
- Capacity: 400-Gbyte & 500-Gbyte
- SCSI Tag Command Queuing (STCQ)
- 0.73% AFR @ 24x7 Operation
- Rotational Vibration @ 12.5 rad/sec²
- Dual-port Full-Duplex 2Gbits/s FC interface

Key Features And Benefits
- Serial ATA 3Gb/s interface available for all capacities
- WORKLOAD MANAGEMENT
  Monitors and manages drive temperature and activity to optimize drive reliability in multi drive environments
- HIGH ROTATIONAL VIBRATION TOLERANCE
  Best-in-class rotational vibration tolerance maintains performance in high-density environments, ideal for closely packed multi-drive system designs
- ERROR RECOVERY CONTROL
  Streamlines error recovery processes with configurable recovery time and fewer timeout errors
- ONE-STEP MICROCODE DOWNLOAD
  Simplifies multi-drive field upgrades with a single command
- WRITE SAME
  Executes large writes without host interface overhead

Highest-reliability 7200-RPM drive - 24x7 enterprise reliability from a Trusted Source
## Disc Product Listing

### Enterprise Compute

<table>
<thead>
<tr>
<th>Capacity (GB)</th>
<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Cap Xfer Rate (MB/s)</th>
<th>Sustained Xfer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Operating (Gs)</th>
<th>Warranty (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>36, 73, 146</td>
<td>10000</td>
<td>SAS/300</td>
<td>8, 16</td>
<td>320</td>
<td>400</td>
<td>&lt; 2.6</td>
<td>60</td>
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### Cheetah 15K.7

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<thead>
<tr>
<th>Capacity (GB)</th>
<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Cap Xfer Rate (MB/s)</th>
<th>Sustained Xfer Rate (MB/s)</th>
<th>Acoustics, Idle (bels)</th>
<th>Operating (Gs)</th>
<th>Warranty (Yrs)</th>
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</thead>
<tbody>
<tr>
<td>73, 146, 300</td>
<td>10000</td>
<td>Ultra330</td>
<td>8</td>
<td>320</td>
<td>400</td>
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### Cheetah 15K.5 / Cheetah 15K.4

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<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Max Cap Xfer Rate (MB/s)</th>
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<th>Acoustics, Idle (bels)</th>
<th>Operating (Gs)</th>
<th>Warranty (Yrs)</th>
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<tbody>
<tr>
<td>250, 400, 500, 730</td>
<td>7200</td>
<td>SATA/300</td>
<td>8, 16</td>
<td>320</td>
<td>200</td>
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### Branded Solutions

#### 1.0-in USB2.0 Pocket Drive

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<tr>
<th>Capacity (GB)</th>
<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Sustained Xfer Rate (MB/s)</th>
<th>Light/Music (hours)</th>
<th>Light/Photo (hours)</th>
<th>Power-On (sec)</th>
<th>Acoustics, Idle (bels)</th>
<th>Operating (Gs)</th>
<th>Warranty (Yrs)</th>
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<tr>
<td>4.0, 8.0</td>
<td>3600</td>
<td>USB2.0</td>
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<td>7</td>
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<td>2580</td>
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#### 1.0-in CompactFlash Photo Hard Drive

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<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
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<th>Light/Music (hours)</th>
<th>Light/Photo (hours)</th>
<th>Power-On (sec)</th>
<th>Acoustics, Idle (bels)</th>
<th>Operating (Gs)</th>
<th>Warranty (Yrs)</th>
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<td>3600</td>
<td>CF+ Type II</td>
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<td>7</td>
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#### 2.5-in USB2.0 Portable Hard Drive

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<th>Cache (MB)</th>
<th>Sustained Xfer Rate (MB/s)</th>
<th>Light/Music (hours)</th>
<th>Light/Photo (hours)</th>
<th>Power-On (sec)</th>
<th>Acoustics, Idle (bels)</th>
<th>Operating (Gs)</th>
<th>Warranty (Yrs)</th>
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<td>40, 60, 80, 100, 120, 160</td>
<td>5400</td>
<td>USB2.0</td>
<td>2, 8</td>
<td>Up to 2665</td>
<td>Up to 51,200</td>
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#### 2.5-in USB2.0 Portable Hard Drive

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<th>Sustained Xfer Rate (MB/s)</th>
<th>Light/Music (hours)</th>
<th>Light/Photo (hours)</th>
<th>Power-On (sec)</th>
<th>Acoustics, Idle (bels)</th>
<th>Operating (Gs)</th>
<th>Warranty (Yrs)</th>
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<td>100</td>
<td>7200</td>
<td>USB2.0</td>
<td>2, 8</td>
<td>Up to 2665</td>
<td>Up to 51,200</td>
<td>500</td>
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#### 3.5-in USB2.0 External Hard Drive

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<th>Spin Speed (RPM)</th>
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<th>Cache (MB)</th>
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<th>Light/Music (hours)</th>
<th>Light/Photo (hours)</th>
<th>Power-On (sec)</th>
<th>Acoustics, Idle (bels)</th>
<th>Operating (Gs)</th>
<th>Warranty (Yrs)</th>
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<td>400, 500</td>
<td>7200</td>
<td>USB2.0</td>
<td>2, 8</td>
<td>Up to 5300</td>
<td>Up to 100,400</td>
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#### 5.5-in eSATA External Hard Drive

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<th>Light/Music (hours)</th>
<th>Light/Photo (hours)</th>
<th>Power-On (sec)</th>
<th>Acoustics, Idle (bels)</th>
<th>Operating (Gs)</th>
<th>Warranty (Yrs)</th>
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<td>300, 500</td>
<td>7200</td>
<td>eSATA300</td>
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<td>Up to 8500</td>
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#### 3.5-in Pushbutton USB2.0 External Hard Drive

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<th>Capacity (GB)</th>
<th>Spin Speed (RPM)</th>
<th>Interface</th>
<th>Cache (MB)</th>
<th>Sustained Xfer Rate (MB/s)</th>
<th>Light/Music (hours)</th>
<th>Light/Photo (hours)</th>
<th>Power-On (sec)</th>
<th>Acoustics, Idle (bels)</th>
<th>Operating (Gs)</th>
<th>Warranty (Yrs)</th>
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<tbody>
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<td>USB2.0</td>
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#### 3.5-in Pushbutton Combo External Hard Drive

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<th>Light/Music (hours)</th>
<th>Light/Photo (hours)</th>
<th>Power-On (sec)</th>
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<th>Operating (Gs)</th>
<th>Warranty (Yrs)</th>
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<td>USB2.0, FireWire 400</td>
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### Mirra Sync and Share Personal Server

<table>
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<th>Capacity (GB)</th>
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<th>Sustained Xfer Rate (MB/s)</th>
<th>Light/Music (hours)</th>
<th>Light/Photo (hours)</th>
<th>Power-On (sec)</th>
<th>Acoustics, Idle (bels)</th>
<th>Operating (Gs)</th>
<th>Warranty (Yrs)</th>
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<tbody>
<tr>
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<td>Ethernet</td>
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</table>
Driving your On-Demand World.
Seagate unveils 10 new revolutionary storage products to get you ahead.

Leading today's digital storage space, Seagate is proud to deliver a complete suite of 10 storage solutions that is critical to power your on-demand world. From handheld and gaming, to automotive, notebook and desktop PCs, to external storage solutions and mission-critical enterprise applications, Seagate's coverage is truly unrivalled.

At Seagate, every drive is designed with our users in mind. We are committed to expand our storage solutions with new technology breakthroughs to support the growing trend for "anytime, anywhere" access to music, movies, photos, games, data and other digital content on a wide range of devices and applications.

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