Seagate

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

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Sustained X'fer Rate MB/s	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
200, 250, 320, 400, 500, 750	7200	SATA/150 SATA/300 PATA/100	8, 16	150 300 100	Up to 78	< 2.7	68	5

Barracuda 7200.9 (SATA) - Lower drive height and weight

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Sustained X'fer Rate MB/s	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
40, 80, 120, 160	7200	SATA/150, SATA/300	2, 8	150 300	Up to 80	2.7	63	5

Barracuda 7200.9 (PATA) - Standard 1" Height

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Sustained X'fer Rate MB/s	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
40, 80, 120, 160	7200	PATA/100	2, 8	100	Up to 83	2.5	63	5

Momentus 7200.2

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Sustained X'fer Rate MB/s	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
80, 100, 120, 160	7200	SATA/150, PATA/100	8	150 100	45.8	2.5	250	5

Momentus 5400.3

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Sustained X'fer Rate MB/s	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
40, 60 80, 100, 120, 160	5400	SATA/150, PATA/100	8	150 100	44	2.3	350	5

Momentus 5400 ED

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Sustained X'fer Rate MB/s	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
40, 60 80, 100, 120, 160	5400	SATA/150, PATA/100	8	150 100	44	2.3	350	5

Momentus 5400 FDE.2

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Sustained X'fer Rate MB/s	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yr)
80, 160	5400	SATA/150	8	150	44	2.3	350	5

Momentus 5400 PSD

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Sustained X'fer Rate MB/s	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yr)
60, 80, 100, 120, 160	5400	SATA/300	128, 250	300	44	2.3	350	5

DB35.3 Series

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Std Definition TV (hours)	High Definition TV (hours)	Simultaneous SDTV Stream	Simultaneous HDTV Stream	Warranty (Yrs)
80, 120, 160, 200, 250, 320, 400, 500, 750	7200	SATA/300 PATA/100	8, 16	750	125	10 @ 256 Byte host buffer per stream	10 @ 2MB host buffer per stream	5

SV35.2 Series

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	JPEG Capacity @ 1 fps	MPEG4 Capacity @ 30fps	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
160, 250, 500, 750	7200	SATA/300 PATA/100	8, 16	100 days per camera	23 days per camera	< 2.8	63	5

LD25.2 Series

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Start-up Power (Amps)	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
20, 40, 60, 80	5400	SATA/150 PATA/100	2	150 100	1.0	< 2.7	100	1

EE25.1 Series

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Start-up Power (Amps)	Operating Temperature	Shock, Operating (Gs)	Warranty (Yrs)
20, 30, 40	5400	PATA/100	8	100	1.1	-30ºC to 80ºC	200	1

ST18.1 Series

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Sustained X'fer Rate MB/s	Read Current (mAmps)	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
60	3600	CE-ATA	2	-	275	2.2	1500 with Sensor	1

ST1.3 Series

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Sustained X'fer Rate MB/s	Start-up Power (Amps)	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
10, 12	3600	ATA	2	10.2	1.0	< 1.9	2000 with Sensor	1

Index

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7000 Ang Mo Kio Avenue 5 Singapore 569877
Tel: 65-6485-3888 Fax: 65-6485-4715

Seagate Authorised
Hard Disc Drive Distributors

ASEAN / SAARC		CONTACT NUMBER
Malaysia:	Achieva Malaysia	603-7955-1768
	Esys Malaysia	603-7880-8049
	FTEC Resources	603-7625-1138
	M-Link System	603-7728-9003
Thailand:	Dcomputer Thailand	66-02-677-6200
	Synnex Thailand	66-02-553-8888
Indonesia:	Achieva Indonesia	62-21-612-3612
	Jayacom	62-21-629-7178
	Terra Computer System	62-31-502-0142
		62-21-626-6780
Philippines:	Achieva Philippines	63-2-636-8071
	Glee Electronics	63-2 -633-4533/34
	Millennium Philippines	63-2-363-7777
Singapore:	Achieva Singapore	65-6749-5832
	Esys Singapore	65-6547-0250
	Ingram Micro Singapore	65-6298-0888
Vietnam:	AceCom	65-6353 7767
	Achieva Vietnam	848-827-0236
		848-827-0237
	Genuine CC	848-862-1230
India:	Esys India	91-11-5181-1694
	Ingram Micro India	91-44-2233-3071
	Redington India	91-44-4224-3535
Pakistan:	eSys Pakistan (Pvt.) Ltd	92-21-221-6220-1
	Marsons Pakistan	92-21-587-3449/3450
Bangladesh:	Esys Bangladesh	88-02-9672947

Australia / New Zealand

Australia:	Achieva Australia	61-2-9742-3288
	Esys Australia	61-2-9648-5220
	Ingram Micro Australia	61-2-9381-6000
	Synnex Australia	61-3-8540-8888
New Zealand:	Datastor New Zealand	64-9-476-1777
	Ingram Micro New Zealand	64-9-410-0100
	VST New Zealand	64-9-444-8448

China / Hong Kong

Laser	852-2305-2228
VST Hong Kong	852-2786-1836
Esys China	86-21-5048-4898
Xander	852-3590-8383
Alpha Leader	86-10-8267-6888

Japan

Esys Japan	81-3-5281-0601
Nissho Electronics	81-3-3544-8414
Shuttle Eight	81-3-3407-5481
Synnex K.K.	81-3-5688-2340
Toyota Tsusho	81-52-584-8774

Korea

Daewon Computer	82-2-2004-7636
Esys Korea	82-2-3274-0369
PC Direct	82-2-719-3300

Taiwan

Synnex Taiwan	886-2-2506-3320
Taiwan Aries	886-2-2345-6622

Asia Pacific
Presales & Technical Support Service

Country	Toll Free Number
Australia	1800-14-7201
China	800-810-9668
Hong Kong	800-90-0474 / 001-800-0830-1730
Indonesia	001-803-1-003-2165
India	1800-180-1104
Japan	0034-800-400-554
Malaysia	1-800-80-2335
New Zealand	0800-443988
Singapore	800-1101-150
Taiwan	00-800-0830-1730
Thailand	001-800-11-0032165

Barracuda 7200.10

Barracuda 7200.10 table

Barracuda 7200.10		
750GB	ST3750640A	PATA 16MB
	ST3750640AS	SATA 3Gb/s 16MB
500GB	ST3500630A	PATA 16MB
	ST3500630AS	SATA 3Gb/s 16MB
400GB	ST3400620A	PATA 16MB
	ST3400620AS	SATA 3Gb/s 16MB
320GB	ST3320620A	PATA 16MB
	ST3320620AS	SATA 3Gb/s 16MB
250GB	ST3250620A	PATA 16MB
	ST3250620AS	SATA 3Gb/s 16MB
	ST3250820A	PATA 8MB
	ST3250820AS	SATA 3Gb/s 8MB
200GB	ST3200820A	PATA 8MB
	ST3200820AS	SATA 3Gb/s 8MB

Barracuda 7200.10 (Lower Height & Weight)		
160GB	ST3160815A	PATA 8MB
	ST3160815AS	3Gb/s 8MB
	ST3160215A	PATA 2MB
80GB	ST380815A	PATA 8MB
	ST380215A	PATA 2MB

Barracuda 7200.9		
160GB	ST3160812A	PATA/100 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
	ST3160211AS	SATA 3Gb/s 2MB
120GB	ST3120811AS	SATA 3Gb/s 8MB
	ST3120211AS	SATA 3Gb/s 2MB
80GB	ST380811AS	SATA 3Gb/s 8MB
	ST380211AS	SATA 3Gb/s 2MB
40GB	ST340211AS	SATA 3Gb/s 2MB

Where performance and reliability unite. The Seagate Barracuda 7200.10 perpendicular disc drive boasts the industry's highest capacity

Seagate 5-Year Warranty

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 Specifications

* 7200-RPM spin speed
* Family of capacities from 80GB to 750GB
* Interfaces: SATA 3Gb/s, SATA 1.5Gb/s, Parallel ATA 100
* 8- and 16-Mbyte cache options
* Maximum sustained data transfer rate: 78 Mbytes/sec
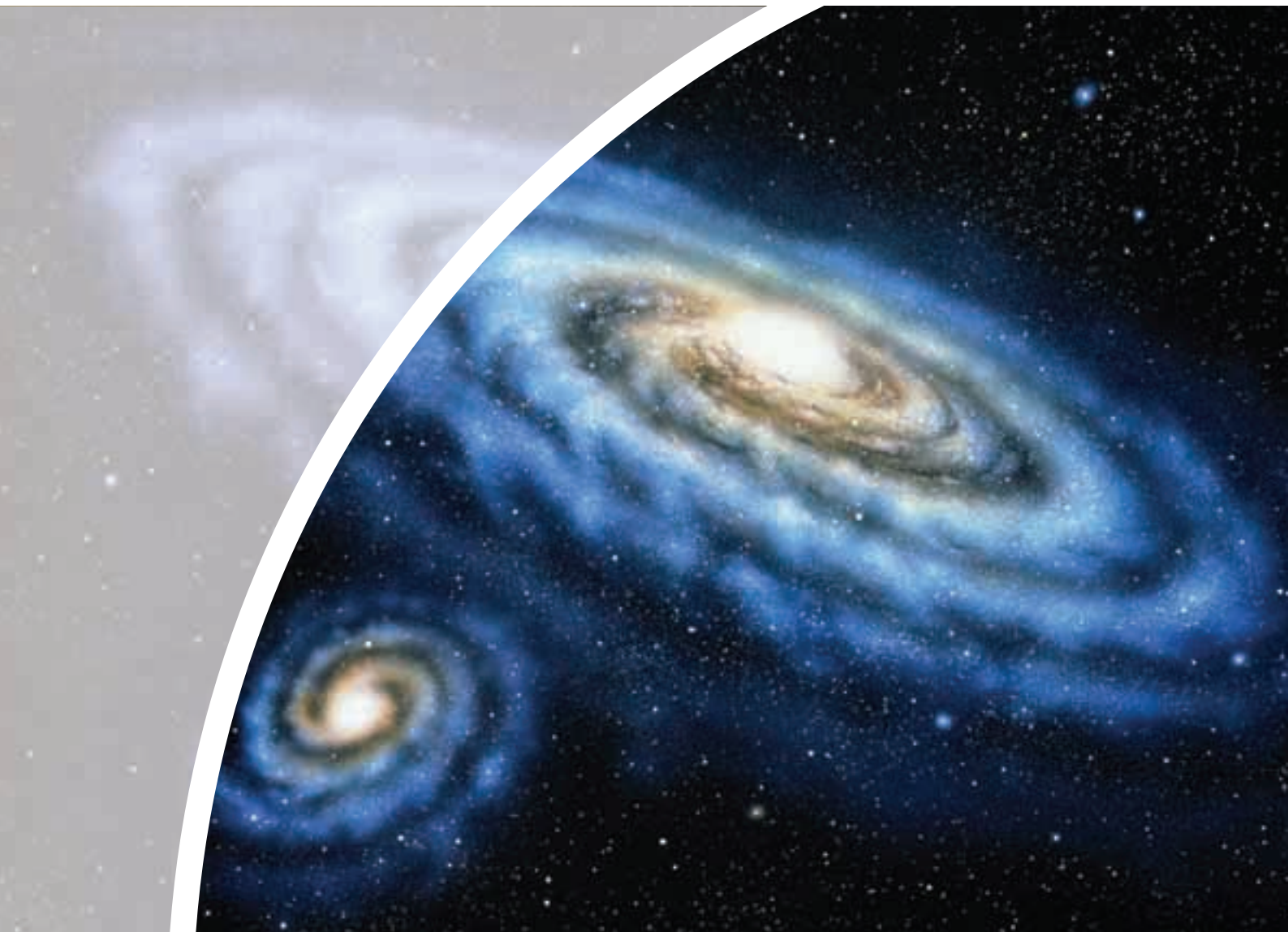* Operating shock: 68 Gs

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-Mbyte 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

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

Seagate

Momentus 7200.2

Momentus 7200.2			
160GB	ST9120823AS	SATA 1.5Gb/s	8MB
120GB	ST9120823AS	SATA 1.5Gb/s	8MB
100GB	ST9100821AS	SATA 1.5Gb/s	8MB
80GB	ST980813AS	SATA 1.5Gb/s	8MB

Note: **Momentus 7200.2 may be available in the channel in Q1CY07.**

Please contact Seagate or your respective distributors for information

Momentus 7200.1			
100GB	ST910021A	PATA	8MB
	ST910021AS	SATA 1.5Gb/s	8MB
80GB	ST980825A	PATA	8MB
	ST980825AS	SATA 1.5Gb/s	8MB

The freedom of mobility and maximum productivity with 7200-RPM performance

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

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 / Momentus 5400 ED

Momentus 5400.3

160GB	ST9160821A	PATA 8MB
	ST9160821AS	SATA 1.5Gb/s 8MB
120GB	ST9120822A	PATA 8MB
	ST9120822AS	SATA 1.5Gb/s 8MB
100GB	ST9100828A	PATA 8MB
	ST9100828AS	SATA 1.5Gb/s 8MB
80GB	ST980815A	PATA 8MB
	ST980811AS	SATA 1.5Gb/s 8MB
40GB	ST940815A	PATA 8MB

The industry's first perpendicular recording technology drive

Seagate 5-Year Warranty

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

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

Momentus 5400 ED

160GB	ST9160821AB	PATA 8MB
	ST9160821SB	SATA 8MB
120GB	ST9120822AB	PATA 8MB
	ST9120822SB	SATA 8MB
100GB	ST9100828AB	PATA 8MB
	ST9100828SB	SATA 8MB
80GB	ST980815AB	PATA 8MB
	ST980815SB	SATA 8MB

Seagate 5-Year Warranty

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 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 / FDE.2

Momentus 5400 PSD

Momentus 5400 PSD		
160GB	ST91608220AS	SATA 3Gb/s 256MB
	ST91608120AS	SATA 3Gb/s 128MB
120GB	ST91208220AS	SATA 3Gb/s 256MB
	ST91208120AS	SATA 3Gb/s 128MB
100GB	ST91008220AS	SATA 3Gb/s 256MB
	ST91008110AS	SATA 3Gb/s 128MB
80GB	ST9808210AS	SATA 3Gb/s 256MB
	ST9808110AS	SATA 3Gb/s 128MB
60GB	ST9608210AS	SATA 3Gb/s 256MB
	ST9608110AS	SATA 3Gb/s 128MB

Extend your notebook mobility, improve storage reliability and increase performance at a low cost per gigabyte

Note: **Momentus 5400 PSD / FDE may not be available in the Channels.**

Please contact Seagate or your respective distributors for information.

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

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.

Momentus 5400 FDE.2		
160GB	ST9160824AS	SATA 1.5Gb/s 8MB
80GB	ST980816AS	SATA 1.5Gb/s 8MB
60GB	ST960816AS	SATA 1.5Gb/s 8MB

Strong, transparent, hardware-based data protection to prevent, unauthorized access to data on lost or stolen systems

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.
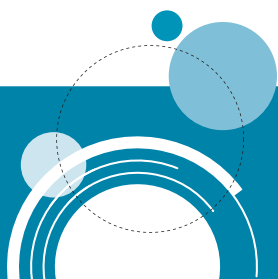
Key Specifications for Momentus 5400 FDE.2
*   Total data encryption, all the time—every time
*   Convenient and easy to use—minimal configuration is required.
*   Investment protection—stolen or out-of-service drives can be repurposed and remain fully protected.
*   Instant encryption performance matches the throughput of the drive interface.
*   Compatible with trusted platform modules (TPM)

Applications for Momentus 5400 FDE.2
*   Notebook computers
*   Tablet PCs
*   External storage

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)

Reading the Seagate Model

Enterprise Storage / SCSI

Identifier	Form Factor	Capacity	Reserve	RPM	Generation	Interface
Seagate Technology	9=2.5" Drive 3=3.5" Drive	in GB		5=15K 0=10K		LC=LVD SCA LW=LVD Wide SS=Serial SCSI NS=SATA Nearline FC=Fibre Channel
ST	**3**	**500**	**6**	**4**	**1**	**AS**

Identifier	Form Factor	Capacity	Cache	# of Disc	Special Feature	Interface
Seagate Technology	3=3.5" Drive 9=2.5" Drive 7=1.8" Drive 6=1.0" Drive	in GB	6=16MB 8=8MB 0=2MB			A=PATA, AS=SATA ACE=PATA CE, SCE=SATA CE AB=PATA 24/7, SB=SATA 24/7 AV=PATA Surveillance SV=SATA Surveillance CF=Compact Flash DE=IDE ZIF, CA=CE ATA #-RK=Retail kit (see note)

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

Personal/Branded Storage

Parallel ATA & Serial ATA

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

SCSI

	Low Voltage Differential (LW)	Low Voltage Single Connector (LC)
Max External Transfer Rate	320 Mbytes/sec	320 Mbytes/sec
Number of Drives Supported	15	15
Cable Length	12 meters	12 meters
Type of Connector	68-pin	80-pin SCA
Cable Type	64 typical	64 typical

SAS & FC

	Serial Attached SCSI (SS)	Fibre Channel (FC)
Max External Transfer Rate	300 Mbytes/sec	400 Mbytes/sec (dual loop)
Number of Drives Supported	127	125
Cable Length	up to 10 meters	30m (copper) / 10km (Fiber optics)
Type of Connector	64 typical	128
Cable Type	Full Duplex	Full Duplex

USB 2.0 & IEEE 1394 (FireWire)

	USB 2.0	FireWire 400	FireWire 800
Max External Transfer Rate	480Mbits/sec	400 Mbit/sec	800 Mbit/sec
Number of Drives Supported	127	63	63
Cable Length	up to 5 meters	up to 4.5 meters	up to 10 meters
Type of Connector	Series "B"	6-pin FireWire 400	9-pin FireWire 800
Cable Type	USB 2.0 compliant	IEEE 1394a	IEEE 1394b

Small Form Factor (SFF)

	CompactFlash (CF)	IDE ZIF (DE)	CE ATA ZIF (CA)
Max External Transfer Rate	33.3 Mbytes/sec	66.7 MBytes/sec	66.7 MBytes/sec
Number of Drives Supported	1	1	1
Cable Length	N/A	N/A	N/A
Type of Connector	CompactFlash Type II (50-pin)	Seagate ZIF (40-pin)	Seagate ZIP (18-pin)
Cable Type	N/A	N/A	N/A

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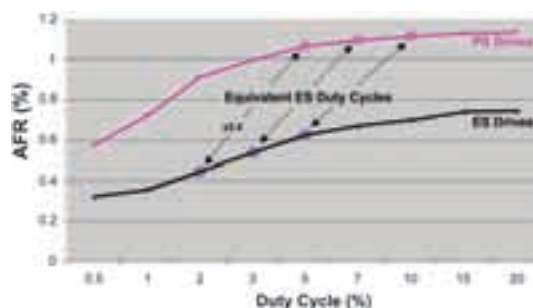
It soon became clear that storage managers needed a new hybrid class of business-critical drives, combining the low cost-per-gigabyte of desktop-class SATA drives with the enterprise-class reliability of expensive mission-critical drives.

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.
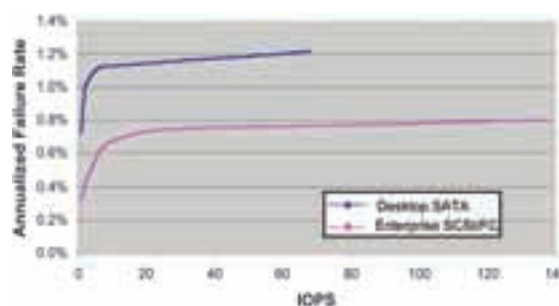
Challenge: High SATA Failure Rate

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*. A Write command will be converted to a Write-Verify, which follows the error recovery path for writes and reads.

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.

Seagate and Maxtor:
Powerfully Complementary. Simply More Benefits.

Both Brands: At-A-Glance

- **Seagate Brand**:
  Delivers leading technology and best-in-class channel service and support to provide retail and channel customers with the widest selection of storage solutions at a competitive price premium.

Seagate

- **Maxtor Brand**:
  Offers fundamental mainstream capacities, features and performance for entry and basic HDD needs. Focused on supporting only distributor and channel customers with products available at the best competitive price.

Maxtor

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.

DiamondMax

Value Storage Solution for Entry and Mainstream, Home and Office PC Applications

If you require a hard drive with the ideal balance of capacity, basic performance and reliability, the latest Maxtor DiamondMax 3.5", 7200 RPM hard drive series is an excellent choice for entry and mainstream, home and office PC applications. Providing excellent value with solid performance, the DiamondMax drives offer popular capacities from 40GB to 320GB, with 2MB and 8MB cache support for mainstream performance.

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 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.

MobileMax

Delivering Performance, Durability and Low Power Consumption for Mainstream Notebooks, External Storage and Industrial Applications

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.

Seagate Branded Solutions

2.5-in USB2.0 Portable Hard Drive

Specifications

Spindle Speed	: 5400-RPM	
Capacity	: 40/80GB	Cache : 2MB
	: 60/80/100/120/160GB	Cache : 8MB
Spindle Speed	: 7200-RPM	
Capacity	: 100GB	Cache: 8MB
Compatibility	: PC and Mac	
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	**8.0GB**
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

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 / EE25.1 Series

LD25.2 Series

LD25.2 Series		
80GB	ST980210AS	SATA 2MB
	ST980210A	PATA 2MB
40GB	ST940210AS	SATA 2MB
	ST940210A	PATA 2MB

LD25.1 Series		
40GB	ST9402115AS	SATA 2MB
	ST9402115A	PATA 2MB
20GB	ST920217AS	SATA 2MB
	ST920217A	PATA 2MB

Note: LD25 Series is not available in the channels. Please contact Seagate or your respective distributors for information.

Big capacity in a small form factor for video-game console and other technology applications

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-Gbyte capacity
- 20- & 60-Gbyte 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

Key Features And Benefits

- Stationary videogame consoles
- Digital Video Recorders (DVR)
- Low-profile computing devices

EE25.1 Series

EE25.1 Series		
40GB	ST940813AM	PATA 8MB
	ST940814AM	PATA 8MB
30GB	ST930813AM	PATA 8MB
	ST930814AM	PATA 8MB
20GB	ST920813AM	PATA 8MB
	ST920814AM	PATA 8MB

Note: EE25 Series is not available in the channels. Please contact Seagate or your respective distributors for information.

Highly reliable storage for extreme environmental conditions, such as automotive, industrial PC, field computing and military applications

Seagate 5-Year Warranty

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-Gbyte capacities
- -30º to 85ºC 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 / SV35.2 Series

DB35.3 Series

750GB	ST3750840ACE	PATA 8MB
	ST3750840SCE	SATA CE 8MB
500GB	ST3580830ACE	PATA 8MB
	ST3500830SCE	SATA CE 8MB
400GB	ST3400820ACE	PATA 8MB
	ST3400820SCE	SATA CE 8MB
320GB	ST3320820ACE	PATA 8MB
	ST3320820SCE	SATA CE 8MB
250GB	ST3250820ACE	PATA 8MB
	ST3250820SCE	SATA CE 8MB

Note: Some models of DB35.3 Series may not be available in the channels.

Please contact Seagate or your respective distributors for information.

High reliability, customized performances and massive capacity for the next generation of DVRs

Seagate
5-Year
Warranty

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

Key Features And Benefits

- DynaPlay technology—optimizes the drive for operation in a DVR environment
- High capacity—enables new television services such as video on demand, high-definition DVRs and home media centers
- DriveTrust Technology delivers the ability to lock the drive to a host system, improving content security as part of a system digital rights management (DRM) program
- Long-haul reliability—designed for worry-free digital video recorder (DVR) operation, season after season
- Industry-leading capacity enabled by perpendicular recording technology

SV35.2 Series

750GB	ST3750640AV	PATA 16MB
	ST3750640SV	SATA 3Gb/s 16MB
500GB	ST3500630AV	PATA 16MB
	ST3500630SV	SATA 3Gb/s 16MB
320GB	ST3320620AV	PATA 16MB
	ST3320620SV	SATA 3Gb/s 16MB
250GB	ST3250820AV	PATA 8MB
	ST3250820SV	SATA 3Gb/s 8MB
160GB	ST3160815AV	PATA 8MB
	ST3160815SV	SATA 3Gb/s 8MB

The first hard drive engineered for video surveillance recording applications

Seagate
5-Year
Warranty

SV35.2 Series

3.5-inch hard drives for surveillance digital video recording

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)

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

ST18 Series / ST1.3 Series

ST18 Series

160GB
ST760211DE	ZIF IDE	2MB
ST760211DEG	ZIF IDE	2MB
ST760211CA	CE ATA	2MB
ST760211CAG	CE ATA	2MB

Enabling the portable digital media experience

Primary applications : CE products
Secondary applications : Notebooks

ST1.3 Series

12.0GB	ST612712DEG	ZIF Free-Fall Sensor
	ST612712DE	ZIF
10.0GB	ST610712DEG	ZIF Free-Fall Sensor
	ST610712DE	ZIF

Note: ST1.3 Series are not available in the channels. Please contact Seagate or your respective distributors for information.

High capacity and robustness in a smaller footprint for embedded handheld systems and mobile phones

ST18 Series

60GB 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°C to 60°C operating temperature range
- 2.2 bels operating acoustics—below human hearing range

ST1.3 Series

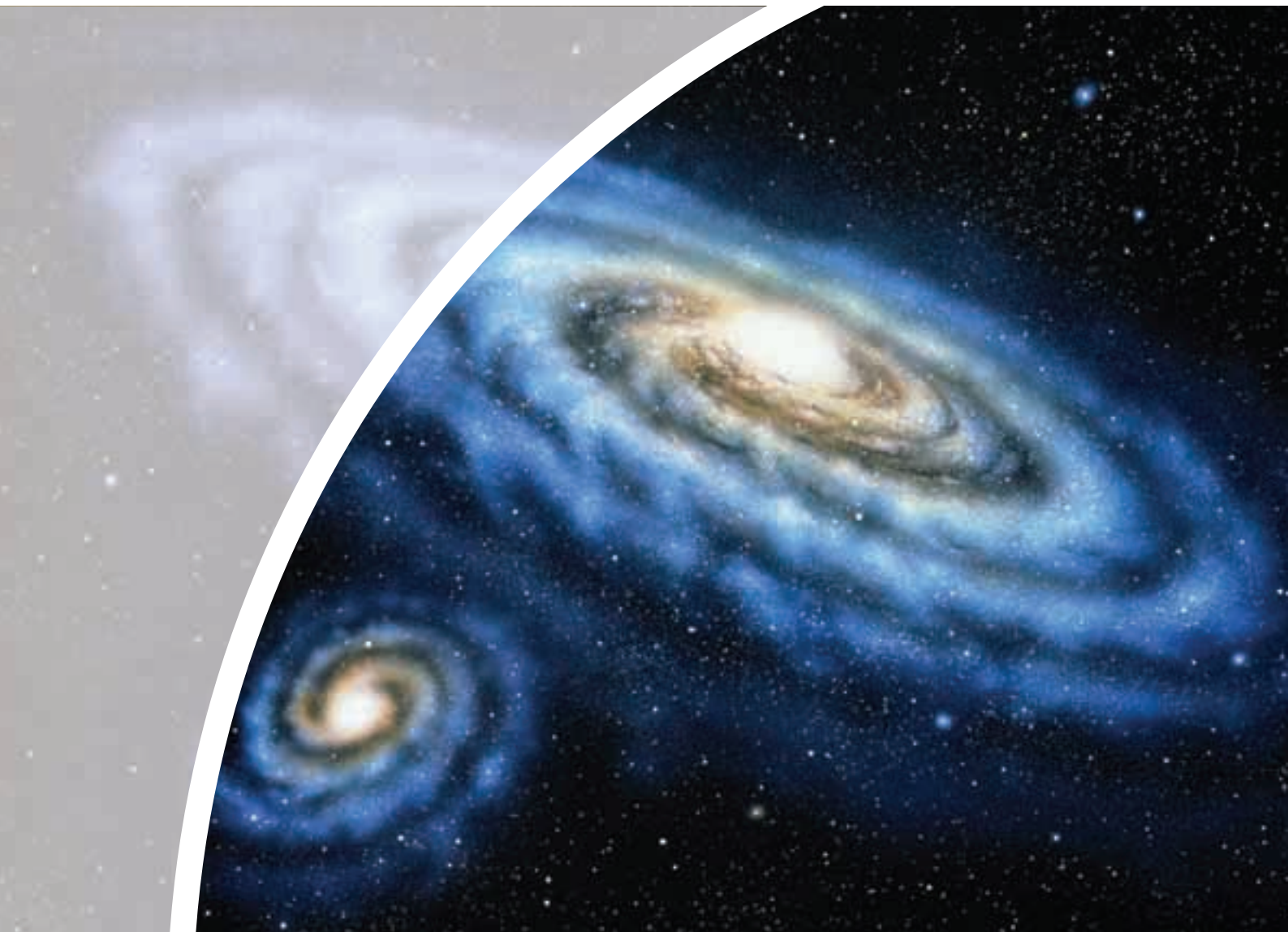One-inch disc drive for mobile devices

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

Key Features And Benefits

- Industry-leading capacity enabled by perpendicular recording technology
  - 60GB provides a breakthrough in capacity and value for handheld audio and video devices.
- G-Force Protection for the toughest 1.8-inch drive on the market
  - Optional drop-sensing technology increases drive robustness to 1500 Gs.
- Best-in-class power management features deliver longer battery life for handheld devices.
  - 3600-RPM motor provides the right balance of performance and power savings.
  - Power management algorithms provide optimal use of battery life.

Best Fit Applications

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

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

Seagate

Savvio 10K.2 / Cheetah 10K.7

Savvio 10K.2

146GB	ST9146802SS	3Gb/s SAS	16MB
	ST9146802FC	4Gb/s FC	16MB
73GB	ST973402SS	3Gb/s SAS	16MB
	ST973402FC	4Gb/s FC	16MB

Note: Some models of Savvio 10K.2 may not be available in the channels.

Please contact Seagate or your respective distributors for information.

Savvio 10K.1

73GB	ST973401LC	U320 SCSI SCA
	ST973401SS	3 Gb/s SAS
36GB	ST936701LC	U320 SCSI SCA
	ST936701SS	3 Gb/s SAS

Boost performance density while cooling systems down

Seagate
5-Year
Warranty

Cheetah 10K.7

300GB	ST3300007LC	U320 SCSI SCA
	ST3300007LW	U320 SCSI Wide
	ST3300007FC	2 Gb/s FC
146GB	ST3146707LC	U320 SCSI SCA
	ST3146707LW	U320 SCSI Wide
	ST3146707FC	2 Gb/s FC
73GB	ST373207LC	U320 SCSI SCA
	ST373207LW	U320 SCSI Wide
	ST373207FC	2 Gb/s FC

Lowest Cost of Ownership 10K Disc Drive

Seagate
5-Year
Warranty

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

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

- 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

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

Cheetah 15K.5

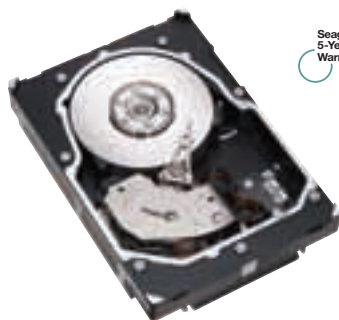| Cheetah 15K.5		
300GB	ST3300655LC	U320 SCSI SCA
	ST3300655LW	U320 SCSI Wide
	ST3300655SS	3Gb/s SAS
	ST3300655FC	4Gb/s FC
146GB	ST3146855LC	U320 SCSI SCA
	ST3146855LW	U320 SCSI Wide
	ST3146855SS	3Gb/s SAS
	ST3146855FC	4Gb/s FC
73GB	ST373455LC	U320 SCSI SCA
	ST373455LW	U320 SCSI Wide
	ST373455SS	3Gb/s SAS
	ST373455FC	4Gb/s FC

Note: Some models of Cheetah 15K.5 may not be available in the Channels yet.

Please contact Seagate or your respective distributors for information.

Cheetah 15K.4		
146GB	ST3146854LC	U320 SCSI SCA
	ST3146854LW	U320 SCSI Wide
	ST3146854SS	3 Gb/s SAS
	ST3146854FC	2 Gb/s FC
	ST3146954FC	4 Gb/s FC
73GB	ST373454LC	U320 SCSI SCA
	ST373454LW	U320 SCSI Wide
	ST373454SS	3 Gb/s SAS
	ST373454FC	2 Gb/s FC
	ST373554FC	4 Gb/s FC
36GB	ST336754LC	U320 SCSI SCA
	ST336754LW	U320 SCSI Wide
	ST336754SS	3 Gb/s SAS
	ST336754FC	2 Gb/s FC
	ST336854FC	4 Gb/s FC

The Best Price/ Performance, Lowest Cost of Ownership Disc Drive

Seagate 5-Year Warranty

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 Mbytes/sec sustained transfer rate
- 0.62% AFR Reliability Rating @ Full 24x7 Operation
- SAS, Ultra320 SCSI, 2 Gb/s and 4Gb/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

Key Features And Benefits

- Perpendicular recording is fundamentally superior, delivering 300GB capacity with 30 percent faster sequential performance and the highest reliability rating of any 3.5-inch drive in the industry
- Enables higher performance with fewer drives, reducing supporting infrastructure, maintenance and space needs while boosting system reliability
- 30 percent more IOPS and over 20 percent faster response times than 3.5-inch 10K drives
- First drive to break 100-Mbyte sustained transfer rate barrier
- Reduces RAID rebuild times while minimizing reliability risk exposure; nonrecoverable error rate has been improved by a factor of 10
- Nonrecoverable error rate has been improved by a factor of 10

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.

Barracuda ES

Barracuda ES SATA

750GB	ST3750640NS	SATA 3Gb/s 16MB
500GB	ST3500630NS	SATA 3Gb/s 16MB
400GB	ST3400620NS	SATA 3Gb/s 16MB
250GB	ST3250620NS	SATA 3Gb/s 16MB
	ST3250820NS	SATA 3Gb/s 8MB

NL35.2 Series SATA

250GB	ST3250824NS	SATA 3Gb/s 8MB
	ST3250624NS	SATA 3Gb/s 16MB
400GB	ST3400833NS	SATA 3Gb/s 8MB
	ST3400633NS	SATA 3Gb/s 16MB
500GB	ST3500841NS	SATA 3Gb/s 8MB
	ST3500641NS	SATA 3Gb/s 16MB

NL35 Series FC

500GB	ST3500071FC	FC 2Gb/s 8MB
	ST3400071FC	FC 2Gb/s 8MB
400GB	ST3400071FC	FC 2Gb/s 8MB

Note: NL35 FC drives are "Special Orders Only" products which may require minimum order quantity.

Please contact Seagate or your respective distributors for information.

Highest-reliability 7200-RPM drive - 24x7 enterprise reliability from a Trusted Source

Seagate 5-Year Warranty

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/sec^2
- 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/sec^2
- 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

Disc Product Listing

Enterprise Compute

Savvio 10K.2 / Savvio 10K.1

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Sustained X'fer Rate MB/s	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
36, 73, 146	10000	SAS/300 FC/400	8, 16	300 400	Up to 85	< 2.6	60	5

Cheetah 10K.7

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Sustained X'fer Rate MB/s	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
73, 146, 300	10000	Ultra320 FC/200	8	320 200	Up to 80	< 3.3	60	5

Cheetah 15K.5 / Cheetah 15K.4

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Sustained X'fer Rate MB/s	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
73, 146, 300	15000	Ultra320 SAS/300 FC/400	8	320 300 400	Up to 125	< 3.6	60	5

Barracuda ES

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Max Ext X'fer Rate MB/s	Sustained X'fer Rate MB/s	Acoustics, Idle (bels)	Shock, Operating (Gs)	Warranty (Yrs)
250, 400, 500, 750	7200	SATA/300 FC/200	8, 16	300 200	Up to 78	< 2.7	63	5

Branded Solutions

1.0-in USB2.0 Pocket Drive

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Sustained X'fer Rate MB/s	Digital Music (hours)	Digital photo (units)	Digital Video (hours)	Warranty (Yrs)
6.0, 8.0	3600	USB2.0	2	7	133	2560	8	1

1.0-in CompactFlash Photo Hard Drive

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Sustained X'fer Rate MB/s	Power-On to Ready (sec)	Acoustics, Idle (bels)	Shock, NonOperating	Warranty (Yrs)
4.0, 8.0	3600	CF+ Type II	2	7	1.2	2.0	1500 Gs	1

2.5-in USB2.0 Portable Hard Drive

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Digital Music (hours)	Digital photo (units)	Digital Video (hours)	Shock, NonOperating	Warranty (Yrs)
40, 60, 80, 100, 120, 160	5400	USB2.0	2, 8	Up to 2665	Up to 51,200	Up to 160	500 Gs	1

2.5-in USB2.0 Portable Hard Drive

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Digital Music (hours)	Digital photo (units)	Digital Video (hours)	Shock, NonOperating	Warranty (Yrs)
100	7200	USB2.0	2, 8	Up to 2665	Up to 51,200	Up to 160	500 Gs	1

3.5-in USB2.0 External Hard Drive

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Digital Music (hours)	Digital photo (units)	Digital Video (hours)	Shock, NonOperating	Warranty (Yrs)
80, 120, 160 250, 320	7200	USB2.0	2, 8	Up to 5330	Up to 102,400	Up to 320	350 Gs	1

3.5-in eSATA External Hard Drive

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Digital Music (hours)	Digital photo (units)	Digital Video (hours)	Shock, NonOperating	Warranty (Yrs)
300, 500	7200	eSATA/300	16	Up to 8330	Up to 160,000	Up to 500	350 Gs	1

3.5-in Pushbutton USB2.0 External Hard Drive

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Digital Music (hours)	Digital photo (units)	Digital Video (hours)	Shock, NonOperating	Warranty (Yrs)
200, 300, 400, 500, 650	7200	USB2.0	16	Up to 10,835	Up to 208,000	Up to 650	350 Gs	1

3.5-in Pushbutton Combo External Hard Drive

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	Digital Music (hours)	10Mpixel photo (units)	DVD Movies (hours)	Shock, NonOperating	Warranty (Yrs)
200, 300, 400, 500, 750	7200	USB2.0, FireWire 400	8, 16	Up to 240,000	Up to 15,000	Up to 25	350 Gs	1

Mirra Sync and Share Personal Server

Capacity (GB)	Spin Speed (RPM)	Interface	Cache (MB)	-	-	-	Shock, NonOperating	Warranty (Yrs)
300, 500	7200	Ethernet	8	-	-	-	350 Gs	1

Seagate

Driving your On-Demand World.
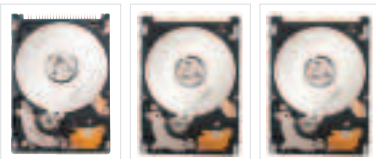## Seagate unveils 10 new revolutionary storage products to get you ahead.

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.

Seagate storage empowers you to create, store, share and also protect the digital content that goes into your home, office, hand and car!

Expect only the best from Seagate. Find out more about Seagate's newly launched storage products at http://www.seagate-asia.com/asean
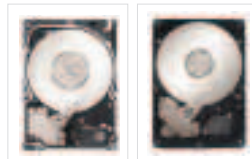
PERSONAL STORAGE

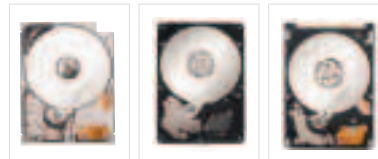Momentus 7200.2   Momentus 5400 FDE.2   Momentus 5400 PSD

ENTERPRISE STORAGE

Savvio 10K.2   Barracuda ES

CONSUMER ELECTRONICS

ST18 series   DB35 series   LD25 series

BRANDED SOLUTIONS

Mirra Sync & Share Personal Server   Pocket Drive 8.0GB