Leading-edge technology and innovative design for high-performance, high-capacity mobile hard drives

IBM Travelstar 25GS, 18GT, and 12GN 2.5-inch hard disk drives

Highlights

The IBM Travelstar* 25GS offers several industry firsts: a record-setting capacity of 25 GB, a media transfer rate of up to 181.2 Mbits/sec, and a disk rotational speed of 5400 RPM.

The new IBM Travelstar 18GT and 12GN hard drives provide areal densities of 10.1 Gbits/sq. in. and 6 GB of capacity per disk.

The IBM Travelstar 12GN has the industry's highest shock rating of 800 G/1 ms.

Fast Ultra-DMA interface transfer rates reach as high as 66 MB/sec.

An advanced electromechanical design provides exceptional storage capacities and superior shock ratings to improve reliability and ruggedness.

Leading-edge technology

Featuring a wide array of leading-edge technologies, the IBM Travelstar 25GS, 18GT, and 12GN mobile hard drives continue the tradition of IBM leadership in the mobile storage arena. These IBM Travelstar drives employ advanced design and engineering innovations to significantly increase shock resistance while simultaneously reducing heat and noise levels. As a result, the new IBM Travelstar drives are ideally suited for demanding, high-capacity Internet, digital audio, video streaming, and real-time multimedia applications—whether users are in the office or on the road.

The innovative hard drive design combines IBM giant magnetoresistive (GMR) head technology, Partial Response Maximum Likelihood (PRML) digital channel, a head load/unload feature, a more rigid base casting than previous models, Enhanced Adaptive Battery Life Extender* (ABLE) 3.0, and state-of-the-art manufacturing techniques. This design provides the exceptional storage capacity, performance, power management, quality, and reliability required by today's notebook systems.

Performance and reliability

IBM Travelstar drives include IBM drive fitness technologies, a set of diagnostic tools including IBM Drive Fitness Test* (DFT) and Self-Monitoring Analysis and Reporting Technology (S.M.A.R.T.). In addition, the new IBM Travelstar 25GS, 18GT, and 12GN drives employ a thermistor, an adaptive control device that helps maintain high performance and fast seek times at high environmental temperatures.

IBM Travelstar 25GS 17-mm 5400 RPM, 25 GB ATA-4 hard drive[1]

IBM Travelstar 25GS 17-mm 5400 RPM, 25 GB ATA-4 hard drive[1]

IBM Travelstar 18GT 12.5-mm 4200 RPM, 18 GB ATA-4 hard drive[1]

IBM Travelstar 12GN 9.5-mm 4200 RPM, 12 GB ATA-4 hard drive[1]

IBM Travelstar hard disk drive characteristics

Feature	Benefit
First 5400 RPM mobile hard drive	IBM Travelstar 25GS provides outstanding performance and seek times at near-desktop equivalence without sacrificing high capacity
First 25 GB mobile hard drive	IBM Travelstar 25GS has the capacity to enable mobile users to work with a new range of emerging storage-intensive applications
First 800 G/1 ms shock rating for a 2.5-inch mobile hard drive	IBM Travelstar 12GN provides exceptional ruggedness to help withstand shock while increasing drive reliability and extending drive lifetime
High areal density of 10.1 Gbits/sq. in. and 6 GB of capacity per disk	IBM Travelstar 18GT and 12GN maximize areal density to enable more data storage per disk in standard, compact packages
Fast Ultra-DMA 66 2.5-inch mobile hard drives	IBM Travelstar 25GS, 18GT, and 12GN all feature high data transfer rates to help ensure the ultimate performance possible
IBM drive fitness technologies	IBM DFT and S.M.A.R.T. capabilities help enhance reliability

IBM quality, support, and service

The new IBM Travelstar mobile hard drives share common field-proven components to provide manufacturers with superior-quality hard drives backed by a three-year warranty and IBM technical support and services.

IBM family of Travelstar 25GS, 18GT, and 12GN hard disk drives at a glance

Product name	Travelstar 25GS	Travelstar 18GT	Travelstar 12GN
Model	DARA-225000	DARA-218000/215000	DARA-212000/209000/206000
Configuration			
Interface	ATA-4	ATA-4	ATA-4
Capacity (GB)	25.3	18.1/15.1	12.0/9.0/6.0
Sector size (bytes)	512	512	512
Recording zones	12	12	12
User cylinders	16,064	17,088	17,088
Data heads	10	6/5	4/3/2
Disks	5	3/3	2/2/1
Max. areal density (Gbits/sq. in.)	8.8	10.1	10.1
Max. recording density (KBPI)	327.4	356.0	356.0
Track density (KTPI)	26.8	28.5	28.5
Drive Fitness Test	Supported	Supported	Supported
Performance			
Data buffer (KB)	512[2]	512[2]	512[2]
Rotational speed (RPM)	5411	4200	4200
Latency (average ms)	5.5	7.1	7.1
Media transfer rate (Mbits/sec)	105.1-181.2	85.5-161.6	85.5-161.6
Interface transfer rate (MB/sec)	66.6 Ultra-DMA mode 4 16.6 PIO mode 4	66.6 Ultra-DMA mode 4 16.6 PIO mode 4	66.6 Ultra-DMA mode 4 16.6 PIO mode 4
Seek time (ms)			
Average (typical)	12.0	12.0	12.0
Single track (typical)	2.5	2.5	2.5
Full stroke (typical)	23.0	23.0	23.0
Reliability			
Error rate (nonrecoverable)	<1 per 1.0E13 bits transferred	<1 per 1.0E13 bits transferred	<1 per 1.0E13 bits transferred
Load/unload cycles	300,000	300,000	300,000
Power			
Voltage requirement (VDC)	+5 (± 5 %)	+5 (± 5 %)	+5 (± 5 %)
Dissipation (W)			
Startup (max. peak)	5.0	4.7	4.7
Seek (typical)	2.6	2.3	2.3
Read (typical)	2.5	2.1	2.0
Write (typical)	2.7	2.2	2.1
Performance idle (typical)	2.0	1.85	1.85
Active idle (typical)	1.3	0.95	0.85
Low power idle (typical)	0.85	0.65	0.65
Standby (typical)	0.25	0.25	0.25
Sleep (typical)	0.1	0.1	0.1
Power consumption efficiency (watts/MB)	0.00003	0.00004/0.00004	0.00005/0.00007/0.00001
Physical size			
Height (mm)	17.0	12.5	9.5
Width (mm, nominal)	69.9	69.9	69.9
Depth (mm, nominal)	100.2	100.2	100.2
Weight (g)	185.0	135.0	99.0

Environmental characteristics	Operating	Nonoperating
Ambient temperature	5 to 55° C	-40 to 65° C
Relative humidity (noncondensing)	8% to 90%	5% to 95%
Maximum wet bulb (noncondensing)	29.4° C	40.0° C
Shock (half sine wave)	Travelstar 25GS: 150 G/2 ms Travelstar 18GT: 175 G/2 ms Travelstar 12GN: 175 G/2 ms	Travelstar 25GS: 500 G/2 ms Travelstar 18GT: 700 G/1 ms Travelstar 12GN: 800 G/1 ms
Vibration		
Random (RMS)	0.67 G (5-500 Hz)	3.01 G (2.5-500 Hz)
Swept sine	1 G 0-peak (5-500 Hz)	5 G 0-peak (10-500 Hz)

Warranty	Three years	Three years	Three years

[2] Up to 94 KB used for firmware

For more information

Internet and e-mail:

- www.ibm.com/harddrive
- drive@us.ibm.com

IBM TECHFAX document server:

- 408-256-5418 (requires touch-tone phone)
- International callers must call from a fax machine

IBM hard drive product information:

- 1 888-IBM-5214 (United States)
- 507-253-4110 (outside of the United States)

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8-99
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G225-6837-00