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

IBM Travelstar 32GH, 30GT, and 20GN 2.5-inch hard disk drives

Highlights

The IBM Travelstar* 32GH offers several industry firsts: a capacity of 32 GB, a media transfer rate of up to 228.2 Mbits/sec, and the first 4-disk 12.5 mm mobile hard disk drive.

The new IBM Travelstar 30GT and 20GN hard drives provide areal densities of 17.1 Gbits/sq. in. and 10 GB of capacity per disk.

The IBM Travelstar 20GN has the industry's highest shock rating of 800 G/1 ms, as well as the fast Ultra-DMA interface transfer rate of 66 MB/sec.

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

Leading-edge technology
IBM continues its tradition of mobile storage leadership with the IBM Travelstar 32GH, 30GT, and 20GN hard drives. The industry's first 4-disk 12.5 mm mobile drive, the IBM Travelstar 32GH is also the world's first 32 GB notebook hard disk drive.

The innovative hard drive design combines IBM giant magnetoresistive (GMR) head technology, Partial Response Maximum Likelihood (PRML) digital channel, a head load/unload feature, and Enhanced Adaptive Battery Life Extender* (ABLE) 3.0—all created by using 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.

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.

Performance and reliability
The IBM Travelstar 32GH, 30GT, and 20GN hard drives use proven IBM technology, such as IBM Drive Fitness Test* (DFT), Self-Monitoring Analysis and Reporting Technology (S.M.A.R.T.), as well as a thermistor, an adaptive control device that helps maintain high performance and fast seek times at high environmental temperatures.

Advanced mobile systems
With these new drives, IBM has redefined state-of-the-art storage for mobile computing. The high speeds and capacities of IBM Travelstar drives help provide higher quality digital audio and video, superior digital content creation capabilities, and significantly faster processing for data-intensive multimedia and Internet applications.

By using one of the new Travelstar drives in a laptop system, you can unchain your multimedia lab from the desktop—enabling high-end multimedia creativity as mobile as your imagination.

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 Travelstar 32GH 12.5 mm 5400 RPM, 32 GB ATA-4 hard drive[1]

IBM Travelstar 32GH 12.5 mm 5400 RPM, 32 GB ATA-4 hard drive

IBM Travelstar 30GT 12.5 mm 4200 RPM, 30 GB ATA-4 hard drive

IBM Travelstar 20GN 9.5 mm 4200 RPM, 20 GB ATA-4 hard drive

IBM Travelstar hard disk drive characteristics

Feature	Benefit
World's fastest mobile hard drive	IBM Travelstar 32GH provides outstanding performance and seek times at near-desktop equivalence without sacrificing high capacity
First 32 GB mobile hard drive	IBM Travelstar 32GH has the capacity to enable mobile users to work with a new range of emerging storage-intensive applications
Highest shock rating (800 G/1 ms) for a 2.5-inch mobile hard drive	IBM Travelstar 20GN provides exceptional ruggedness to help withstand shock while increasing drive reliability and extending drive lifetime
High areal density of 17.1 Gbits/sq. in. and 10 GB of capacity per disk	IBM Travelstar 30GT and 20GN 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 32GH, 30GT, and 20GN all feature high data transfer rates to help ensure the ultimate performance possible
IBM drive fitness technologies reliability	IBM DFT and S.M.A.R.T. capabilities help enhance

IBM family of Travelstar 32GH, 30GT, and 20GN hard disk drives at a glance			
Product name	***Travelstar 32GH***	***Travelstar 30GT***	***Travelstar 20GN***
Model	DJSA-232000	DJSA-230000	DJSA-220000/210000/205000
Configuration			
Interface	ATA-4	ATA-4	ATA-4
Capacity (GB)	32	30	20/10/5
Sector size (bytes)	512	512	512
Recording zones	16	16	16
User cylinders	21,664	22,784	22,784
Data heads	8	6	4/2/1
Disks	4	3	2/1/1
Max. areal density (Gbits/sq. in.)	14.0	17.1	17.1
Max. recording density (KBPI)	389.0	451.1	451.1
Track density (TPI)	36,000	38,000	38,000
Drive Fitness Test	Enabled	Enabled	Enabled
Performance			
Data buffer (KB)	2048[2]	2048[2]	2048[2]/512[3]/512[3]
Rotational speed (RPM)	5411	4200	4200
Latency (average ms)	5.5	7.1	7.1
Media transfer rate (Mbits/sec)	120.8 to 228.2	108.8 to 202.9	108.8 to 202.9
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 (average)	2.6	2.3	2.3
Read (average)	2.5	2.1	2.0
Write (average)	2.7	2.2	2.1
Performance idle (average)	2.0	1.85	1.85
Active idle (average)	1.3	0.95	0.85
Low power idle (average)	0.85	0.65	0.65
Standby (average)	0.25	0.25	0.25
Sleep	0.1	0.1	0.1
Power consumption efficiency (watts/MB)	0.00003	0.00002	0.00003/0.00007/0.00013
Physical size			
Height (mm)	12.5	12.5	9.5
Width (mm, nominal)	70.0	70.0	70.0
Depth (mm, nominal)	100.0	100.0	100.0
Weight (g)	155.0	135.0	99.0

Environmental characteristics	***Operating (32GH)***	***Operating (30GT, 20GN)***	***Nonoperating (all drives)***
Ambient temperature	5 to 55° C	5 to 55° C	-40 to 65° C
Relative humidity (noncondensing)	8% to 90%	8% to 90%	5% to 95%
Maximum wet bulb (noncondensing)	294° C	29.4° C	40.0° C
Shock (half sine wave)	150 G/2 ms	Travelstar 30GT: 175 G/2 ms Travelstar 20GN: 175 G/2 ms	Travelstar 32GH: 700 G/1 ms Travelstar 30GT: 700 G/1 ms Travelstar 20GN: 800 G/1 ms
Vibration			
Random (RMS)	0.67 G (5-500 Hz)	0.67 G (5-500 Hz)	3.01 G (5-500 Hz)
Swept sine	1 G 0-peak (5-300 Hz)	1 G 0-peak (5-500 Hz)	5 G 0-peak (5-500 Hz)
Warranty	Three years	Three years	Three years

[2] Upper 173 KB out of 2048 KB used for firmware; [3] Upper 125 KB out of 512 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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4-00

[1] Clear cover drive models shown for illustration purposes only.

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