

*High-capacity storage and superior performance  
for today's most advanced applications*



# IBM Deskstar Family of Ultra-ATA Disk Drives

*2nd Quarter 1998*

---

## Highlights

---

### **High capacity**

Deskstar drives have capacities ranging up to 16.8 GB and spindle speeds up to 7200 RPM. These high-density ATA drives enable users to pack more data into less space, allowing access to information more quickly than ever before.

### **Superior performance**

Average seek times of 9.5 milliseconds combined with maximum sustained data rates of up to 13 MB/sec and an enhanced data buffer size of 512 KB, provide the rapid data transfers required by today's most demanding applications.

### **Leading drive technology**

IBM disk drives typically achieve higher areal densities than most other manufacturers. The Deskstar 16GP and 14GXP families offer the first implementation of Giant Magnetoresistive (GMR) technology, providing an areal density of 3.38 GB per disk. This means Deskstar drives have higher capacity per platter, faster performance, and superior reliability.

### **Improved productivity**

Advanced desktop applications, such as audio and video editing, animation, and computer-aided design and manufacturing (CAD/CAM), share a common need for reliable, high-performance data storage. Fast Deskstar drives yield faster applications and improved user productivity.

### **Data protection**

S.M.A.R.T. (Self-Monitoring Analysis and Reporting Technology) protocol support alerts the system of an impending drive failure and helps ensure data availability.

### **Wide compatibility**

IBM's award-winning Deskstar family of high-performance hard disk drives are designed for desktop PCs and personal workstations. These 3.5-inch low-profile drives are compatible with almost all computer systems and host adapters that use the ATA/IDE interface.

### **Enabling software**

Some older PCs have a BIOS that requires software to overcome 2.1 and 8.5 GB disk addressing limitations. IBM provides easy-to-install software on its Web site to use the full capacity of Deskstar disk drives.

### **Warranty**

All Deskstar hard drives have a three year warranty.



Deskstar GP Family—5400 RPM 3.5-inch low profile Ultra-ATA drives with capacities up to 16.8 GB



Deskstar GXP Family—7200 RPM Ultra-ATA drives with capacities up to 14 GB

## IBM Deskstar Family Specifications, 2nd Quarter 1998

	New 3Q 98		New 3Q 98	
<b>Description (capacity-disks)</b> <b>Product Family Name</b>	<b>Deskstar GP 4-2</b> Deskstar 4GP	<b>Deskstar 4-2</b> Deskstar 8	<b>Deskstar GP 6-2</b> Deskstar 6GP	<b>Deskstar 6-3</b> Deskstar 8
<b>Capacity and Interface</b>				
Capacity (512 Bytes)	4.3	4.3	6.4	6.4
Interface	Ultra-ATA	Ultra-ATA	Ultra-ATA	Ultra-ATA
<b>Performance</b>				
Data Buffer (KB)	512	512	512	512
Rotational Speed (RPM)	5400	5400	5400	5400
Latency (Average ms)	5.56	5.6	5.56	5.6
Media Transfer Rate (Mbits/sec)	163.7 maximum	76.2 inner/127.4 outer	163.7 maximum	76.2 inner/127.4 outer
Interface Transfer Rate (MB/sec)	up to 33.3	up to 33.3	up to 33.3	up to 33.3
Sustained Data Transfer Rate	12 to 6	10.2 to 5.8	12 to 6	10.2 to 5.8
Maximum to Minimum (MB/sec)				
Seek Time (Typical)				
Average (ms)	9.5	9.5	9.5	9.5
Track to Track (ms)	2.2	2.2	2.2	2.2
Full Track (ms)	15.5	15.5	15.5	15.5
<b>Configuration</b>				
Sector Size (Bytes)	512	512	512	512
Recording Zones	8	8	8	8
User Cylinders	13085	10125	13085	10117
Data Heads	3 GMR	4 MRX	4 GMR	6 MRX
Disks	2	2	2	3
Areal Density (Max. GB/sq inch)	2.687	1.74	2.687	1.74
Recording Density (Max. KBPI)	196.1	162.6	196.1	162.6
Track Density (TPI)	13,700	10,700	13,700	10,700
<b>Reliability</b>				
Warranty (Years)	3	3	3	3
Error Rates (non-recoverable bits read)	≤ 1 per 1.0 E 13	≤ 1 per 1.0 E 13	≤ 1 per 1.0 E 13	≤ 1 per 1.0 E 13
Contact Start Stop Cycles	40,000	40,000	40,000	40,000
<b>Power</b>				
Requirements	+5 VDC (±5%), +12 VDC (±10%-8%)	+5 VDC (±5%), +12 VDC (±10%-8%)	+5 VDC (±5%), +12 VDC (±10%-8%)	+5 VDC (±5%), +12 VDC (±10%-8%)
Dissipation (Typical)				
Start-up (Max. Peak)	15 W	.80A(5V), 2.13A(12V)	15 W	.80A(5V), 2.13A(12V)
Idle (Avg.) Watts	3.4	3.8	3.4	4.2
<b>Environmental (Operating/Nonoperating)</b>				
Ambient Temperature	5° to 55° C/-40° to 65° C	5° to 55° C/-40° to 65° C	5° to 55° C/-40° to 65° C	5° to 55° C/-40° to 65° C
Relative Humidity (non-condensing)	8% to 90%/5% to 95%	8% to 90%/5% to 95%	8% to 90%/5% to 95%	8% to 90%/5% to 95%
Maximum Wet Bulb (non-condensing)	29.4° C/ 35° C	29.4° C/35° C	29.4° C/35° C	29.4° C/35° C
Shock (half sine wave)	10G/11 ms/75G/11 ms	10G/11 ms/75G/11 ms	10G/11 ms/75G/11 ms	10G/11 ms/75G/11 ms
Vibration (random(RMS))	.67G (5 to 500 Hz)/ 1.04G (2 to 200 Hz)	.67G (5 to 500 Hz)/ 1.04G (2 to 200 Hz)	.67G (5 to 500 Hz)/ 1.04G (2 to 200 Hz)	.67G (5 to 500 Hz)/ 1.04G (2 to 200 Hz)
<b>Physical Size</b>				
Height	25.4 mm/1 in	25.4 mm/1 in	25.4 mm/1 in	25.4 mm/1 in
Width	101.6 mm/4 in	101.6 mm/4 in	101.6 mm/4 in	101.6 mm/4 in
Depth	146 mm/5.75 in	146 mm/5.75 in	146 mm/5.75 in	146 mm/5.75 in
Weight (Max)	515 g/22.22 oz	540 g/20.46 oz	515 g/22.22 oz	560 g/20.46 oz
<b>Available Software</b>				
	Ontrack	Ontrack	Ontrack	Ontrack
<b>Ordering Information</b>				
Model	DTTA 350430	DHEA 34331	DTTA 350640	DHEA 36481
Part Number	00K4125	00K0357	00K4115	00K0355

	New 3Q 98	New 3Q 98	New 3Q 98
<b>Deskstar 8-4</b> Deskstar 8	<b>Deskstar GP 8-3</b> Deskstar 8GP	<b>Deskstar GP 10-3</b> Deskstar 10GP	<b>Deskstar GXP 10-4</b> Deskstar 10GXP
8.4 Ultra-ATA	8.4 Ultra-ATA	10.1 Ultra-ATA	10.1 Ultra-ATA
512 5400 5.6 76.2 inner/127.4 outer up to 33.3 10.2 to 5.8	512 5400 5.56 163.7 maximum up to 33.3 12 to 6	512 5400 5.56 163.7 maximum up to 33.3 12 to 6	512 7200 4.17 175.6 up to 33.3 13 to 8
9.5 2.2 15.5	9.5 2.2 15.5	9.5 2.2 15.5	9.5 2.2 15.5
512 8 9784 8 MRX 4 1.74 162.6 10,700	512 8 13085 5 GMR 3 2,687 196.1 13,700	512 8 13085 6 GMR 3 2,687 196.1 13,700	512 8 13085 7 GMR 4 2,44 178.1 13,700
3 ≤ 1 per 1.0 E 13 40,000	3 ≤ 1 per 1.0 E 13 40,000	3 ≤ 1 per 1.0 E 13 40,000	3 ≤ 1 per 1.0 E 13 40,000
+5VDC (±5%), +12VDC (±10%-8%)  .80A(5V), 2.13A(12V) 4.7	+5VDC (±5%), +12VDC (±10%-8%)  15 W 3.4	+5VDC (±5%), +12VDC (±10%-8%)  15 W 3.4	+5VDC (±5%), +12VDC (±10%-8%)  25.2 W 6.9
5° to 55° C/-40° to 65° C 8% to 90%/5% to 95% 29.4° C/35° C 10G/11 ms/75G/11 ms .67G (5 to 500 Hz)/ 1.04G (2 to 200 Hz)	5° to 55° C/-40° to 65° C 8% to 90%/5% to 95% 29.4° C/35° C 10G/11 ms/75G/11 ms .67G (5 to 500 Hz)/ 1.04G (2 to 200 Hz)	5° to 55° C/-40° to 65° C 8% to 90%/5% to 95% 29.4° C/35° C 10G/11 ms/75G/11 ms .67G (5 to 500 Hz)/ 1.04G (2 to 200 Hz)	5° to 55° C/-40° to 65° C 8% to 90%/5% to 95% 29.4° C/35° C 10G/11 ms/75G/11 ms .67G (5 to 500 Hz)/ 1.04G (2 to 200 Hz)
25.4 mm/1 in 101.6 mm/4 in 146 mm/5.75 in 580 g/20.46 oz	25.4 mm/1 in 101.6 mm/4 in 146 mm/5.75 in 530 g/22.22 oz	25.4 mm/1 in 101.6 mm/4 in 146 mm/5.75 in 530 g/22.22 oz	25.4 mm/1 in 101.6 mm/4 in 146 mm/5.75 in 630 g/22.22 oz
Ontrack	Ontrack	Ontrack	Ontrack
DHEA 38451 00K0394	DTTA 350840 00K4101	DTTA 351010 00K4091	DTTA 371010 03L5261

## IBM Deskstar Family Specifications, 2nd Quarter 1998

	New 3Q 98	New 3Q 98
<b>Description (capacity-disks)</b>	<b>Deskstar GXP 14-5</b>	<b>Deskstar GP 16-5</b>
<b>Product Family Name</b>	Deskstar 14GXP	Deskstar 16GP
<b>Capacity and Interface</b>		
Capacity (512 Bytes)	14.4	16.8
Interface	Ultra-ATA	Ultra-ATA
<b>Performance</b>		
Data Buffer (KB)	512	512
Rotational Speed (RPM)	7200	5400
Latency (Average ms)	4.17	5.56
Media Transfer Rate (Mbits/sec)	175.6 maximum	163.7 maximum
Interface Transfer Rate (MB/sec)	up to 33.3	up to 33.3
Sustained Data Transfer Rate	13 to 8	12 to 6
Maximum to Minimum (MB/sec)		
Seek Time (Typical)		
Average (ms)	9.5	9.5
Track to Track (ms)	2.2	2.2
Full Track (ms)	15.5	15.5
<b>Configuration</b>		
Sector Size (Bytes)	512	512
Recording Zones	8	8
User Cylinders	13085	13085
Data Heads	10 GMR	10 GMR
Disks	5	5
Areal Density (Max. GB/sq inch)	2.44	2.687
Recording Density (Max. KBPI)	178.1	196.1
Track Density (TPI)	13,700	13,700
<b>Reliability</b>		
Warranty (Years)	3	3
Error Rates (non-recoverable bits read)	≤ 1 per 1.0 E 13	≤ 1 per 1.0 E 13
Contact Start Stop Cycles	40,000	40,000
<b>Power</b>		
Requirements	+5 VDC (±5%), +12 VDC (±10%-8%)	+5 VDC (±5%), +12 VDC (±10%-8%)
Dissipation (Typical)		
Start-up (Max. Peak)	25.2 W	25.2 W
Idle (Avg.) Watts	6.9	4.9
<b>Environmental (Operating/Nonoperating)</b>		
Ambient Temperature	5° to 55° C/-40° to 65° C	5° to 55° C/-40° to 65° C
Relative Humidity	8% to 90%/5% to 95%	8% to 90%/5% to 95%
Maximum Wet Bulb	29.4° C/35° C	29.4° C/35° C
Shock (half sine wave)	10G/11 ms/75G/11 ms	10G/11 ms/75G/11 ms
Vibration (random(RMS))	.67G (5 to 500 Hz)/ 1.04G (2 to 200 Hz)	.67G (5 to 500 Hz)/ 1.04G (2 to 200 Hz)
<b>Physical Size</b>		
Height	25.4 mm/1 in	25.4 mm/1 in
Width	101.6 mm/4 in	101.6 mm/4 in
Depth	146 mm/5.75 in	46 mm/5.75 in
Weight (Max)	630 g/22.22 oz	630 g/22.22 oz
<b>Available Software</b>		
	Ontrack	Ontrack
<b>Ordering Information</b>		
Model	DTTA 371440	DTTA 351680
Part Numbers	00K4071	00K4073

Product description data represents design objectives and is provided for comparative purposes; actual results may vary depending on a variety of factors. Product claims are true as of the date of the first printing. This product data does not constitute a warranty. IBM's warranty is standard when products are purchased directly through authorized IBM distributors/dealers. End-user warranties provided by computer or system manufacturers may vary. Questions regarding IBM warranty terms or the methodology used to derive this data should be referred to an IBM representative. Data subject to change without notice. For information, visit [www.ibm.com/storage/harddisk](http://www.ibm.com/storage/harddisk)



© International Business Machines Corporation 1998

IBM Storage Systems Division  
5600 Cottle Road  
San Jose, California 95193  
[www.ibm.com/storage](http://www.ibm.com/storage)

Printed in the United States  
3-98

All rights reserved

IBM is a registered trademark and Deskstar is a trademark of International Business Machines Corporation. Other names are trademarks or registered trademarks of their respective owners.

References in this publication to IBM products, programs, or services do not imply that IBM intends to make them available in all countries in which IBM operates.



Designed for



Microsoft®  
Windows NT®  
Windows 95

