

*Outstanding performance and reliability  
for demanding server environments*



## IBM Ultrastar 36Z15 hard disk drive

### Highlights

**Rotational speeds of 15,000 RPM and average seek time as low as 3.4ms to help boost performance.**

**Capacities of 36 or 18GB provide configuration flexibility.**

**Utilizes technologies such as Drive Fitness Test, load/unload, and glass substrate disks to enhance reliability and robustness and to prolong the lifespan of the drive.**

**Allows for greater speed and higher performance with online transaction processing (OLTP), online analytical processing (OLAP), and other decision support applications such as Oracle<sup>®</sup>, DB2, and Microsoft SQL Server<sup>®</sup> databases.**

**Ideal for integration with Customer Relationship Management and B2B solutions.**

### Advanced technology

Introducing IBM's industry-leading Ultrastar 15,000 RPM disk drive family—the new Ultrastar 36Z15. Leveraging the award-winning technologies that have generated proven quality and high-performance, IBM continues to push forward with powerful processors and read/write channels, feed-forward servo controls that improve seek and settle times, and suspension dynamics that enable better servo bandwidth, improved mechanical stability, and faster speeds for the new Ultrastar 15,000 RPM family.

The Ultrastar 36Z15 hard disk drive combines fast seek times, large multi-segmented buffers, a sophisticated command queuing system, hardware automation, and industry-leading data rates to achieve outstanding I/O performance. In addition, the Ultrastar 36Z15 employs a fifth-generation giant magnetoresistive (GMR) head technology for an areal density of up to 10.7 Gbits/sq. in.

### Reliability leadership

IBM's research and development teams are responsible for developing 40 years of award-winning storage technologies that satisfy increasingly complex user requirements. The new Ultrastar 36Z15 builds on this tradition.

To help ensure data protection, IBM Ultrastar drives include IBM-exclusive reporting tools, such as Predictive Failure Analysis\* which signals potential drive problems; Drive-TIP\* which monitors

drives and avoids malfunctions; and Drive Fitness Test which enables self-testing and analysis.

Reliability is further enhanced with load/unload technology and glass substrate disks which provide a robust solution at high rotational speeds.

### Support for advanced applications and interfaces

The Ultrastar 36Z15 provides high data throughput for data-intensive applications and offers a choice of Ultra320 SCSI and Ultra160 SCSI (backward-compatible) interfaces.

IBM offers a five-year warranty on its Ultrastar hard disk drives.



## IBM Ultrastar 36Z15 at a glance

Configuration	Ultra160 SCSI	Ultra320 SCSI
Formatted capacity (512 bytes)	36.7 / 18.4 GB	
Sector size (in bytes)	512 to 528 (variable, 2-byte increments)	
Recording zones	11/8	
Data heads	12 / 8	
Disks	6 / 4	
Areal density (maximum)	10,700 Mbits/sq. in.	
Recording density (maximum)	397000 BPI	
Track density	27,000 TPI	

### Performance

Data buffer	4096 KB	
Rotational speed	15,000 RPM	
Latency (average)	2.00 ms	
Media transfer rate	453 to 647 Mbits/sec	
Interface transfer rate	160 MB/sec	320 MB/sec
Sustained data rate	36.6–52.8 MB/sec	
Seek time		
Average	4.2 / 3.4 ms	
Track to track	0.65 ms	
Full track	8.9 / 6.7 ms	

### Reliability

Error rate (nonrecoverable)	10 in 10E 16 bits read
Start/stop cycles	50,000 cycles

### Power

Requirement	+5VDC (+-5%), +12VDC (+-5%)
Dissipation (typical)	
Startup (maximum peak)	1.0A (5V), 2.5A (12V)
Idle	13.5 / 11.0 W
Power consumption efficiency index	0.0004 W/MB, 0.0006 W/MB

### Dimensions

Height	25.7 (+-0.4) mm
Width	101.6 (+-0.4) mm
Depth	146 (+-0.6) mm
Weight (maximum)	0.75 kg

### Acoustics

Idle	4.0 / 3.8 Bel
Operating	4.8 / 4.7 Bel

### Environmental characteristics

	Operating	Nonoperating
Ambient temperature	5° to 55° C	-40° to 70° C
Relative humidity (noncondensing)	8% to 90%	5% to 95%
Maximum wet bulb (noncondensing)	29.4° C	35.0° C
Shock (half sine wave)	15 G (11 ms) / 60 G (2 ms)	80 G (11 ms) / 250 G (2 ms)
Random vibration (RMS)	1.5 Grms	2.23 Grms

### Models

	Ultra160 SCSI	Ultra320 SCSI
	IC35L018UWPR15, IC35L018UCPR15	IC35L018XWPR15, IC35L018XCPR15
	IC35L036UWPR15, IC35L036UCPR15	IC35L036XWPR15, IC35L036XCPR15

## For more information

Internet and e-mail:

- [www.ibm.com/harddrive](http://www.ibm.com/harddrive) and [drive@us.ibm.com](mailto: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 disk drive product information:

- 1 888 IBM-5214 (United States)
- 507-286-5825 (outside of the United States)

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