

9/90

FEB 7 1991

LXT-340™ AT® AND SCSI FAMILY



340-Megabyte
3.5-inch Disk Drives
with Embedded SCSI
or AT® Controller
and 13 msec Seek Time

The LXT-340's industry-leading transfer rate, fast seek time and very low command overhead provide the best time-to-data performance of any available 3.5-inch drive. The innovative mechanical design features a sealed HDA and an eight-point shock mounting system. High reliability is provided by a thermally and mechanically-isolated head-disk environment. Maxtor's compatibility-tested embedded AT and SCSI interfaces simplify integration and reduce the time required to bring new systems to market.

Maxtor®

LXT-340™ AT® AND SCSI FAMILY

340-Megabyte 3.5-inch Disk Drives with Embedded SCSI or AT® Controller and 13 msec Seek Time

KEY FEATURES

- 13 msec average seek time
- Supports zone = cylinder defect management
- SCSI command overhead of $\leq 600 \mu\text{sec}$
- AT overhead of $\leq 300 \mu\text{sec}$
- Synchronous SCSI transfer rates to 6 Mbytes/sec, buffer to disk
- Disk transfer rate to 20.5 Mbits/sec, buffer to disk
- Advanced buffer implementation
 - LRU algorithm
 - Read-ahead cache
 - Supports through parity
- SCSI II compliance
- Proven AT compatibility
- SCSI implementation allows 15-byte offset

Reliability

- Power-down braking with positive head parking
- Surface mounted components with high degree of integration for high reliability
- Brushless in-hub spindle motor
- Sealed HDA
- 8-point shock mounting system.
- 56-bit ECC for high data reliability
- No sway space required
- Self-test diagnostics
- Mechanically and thermally isolated head-disk environment

Advanced Design

- Exceptionally quiet operation
- Synchronized spindle capability for disk array applications

- Balanced low-mass rotary voice-coil actuator
- Self calibration and built-in diagnostics
- Mounts in any orientation
- Allows variable sector sizes
- Firmware downloadable via SCSI interface
- AT defect list maintained after low-level format
- 16-bit/24-Mhz processor
- Hard sectored zoned density recording
- 8-zone recording format
- 1, 7 RLL data encoding for improved window margins

SPECIFICATIONS

PERFORMANCE

Capacity, typical format		
Per drive (Mbytes)	340	
Per sector (bytes)	512	
Spare capacity (Mbytes)	7	
SCSI-bus transfer rate (Mbytes/sec)		
Asynchronous	Up to 5.0	
Synchronous	Up to 6.0	
AT-bus transfer rate (Mbytes/sec)		6.0
Disk transfer rate (Mbits/sec) ...		13.27-20.46
Seek* time (msec), typical		
Read	12	
Write	13	
Track-to-track	3	
Maximum	30	
Command overhead (μsec)**		
SCSI	600	
AT	300	
Rotational speed (rpm)		3,600 \pm .5%
Average latency (msec)		8.33

FUNCTIONAL

Data zones	8
Bit density (Kbpi)	32 - 44
Track density (tpi)	1,613
Disks	4
Data heads	7
Servo heads	1
Physical tracks	10,920
Sectors/track	47 - 72
Physical cylinders	1,560

PHYSICAL

Dimensions

Height	1.625 in. (41.3 mm)
Width	4.000 in. (101.6 mm)
Depth	5.750 in. (146 mm)
Weight	2.2 lb. (1 kg)

Temperature limits

Operating	5° to 50°C
Non-operating	-40° to 65°C
Temperature gradient/hr	20°C

Relative humidity limits

(Non-condensing)	
Operating	5 to 80%
Non-operating	5 to 90%
Maximum gradient/hr	10%
Maximum wet bulb	27.6°C

Shock (G's)

Non-operating	50
Operating (no errors)	3
Operating (recoverable errors)	10

Power dissipation (typical)

11 watts

Audible noise @ 1 foot

25 dBA

Power requirements

- +12 VDC \pm 5%, .75A (typical)
- 2.0A (instantaneous)
- +5 VDC \pm 5%, .75A (typical)

- * Includes settling
- ** Includes arbitration, message transfer, command transfer, command interpretation, status interpretation, and the posting of status.

RELIABILITY

MTBF	150,000 hours
PM	Not required
MTTR	20 minutes
Component design life	5 years
Recoverable error rate	≤ 10 in 10^{11}
Unrecoverable error rate	≤ 10 in 10^{15}
Seek error rate	≤ 10 in 10^7

SCSI-BUS COMMAND SET

Format Unit	Reserve
Inquiry	Rezero Unit
Mode Select	Seek
Mode Sense	Seek (Extended)
Read	Send Diagnostics
Read Capacity	Start/Stop Unit
Read Data Buffer	Test Unit Ready
Read Defect Data	Verify
Read (Extended)	Write
Read Long	Write and Verify
Reassign Block	Write Data Buffer
Release	Write (Extended)
Request Sense	Write Long

AT-BUS COMMAND SET

Assign Drive	Read Sector
Parameters	Read Sector Buffer
Diagnostic	Recal Drive
Format Track	Seek
Format Unit	Verify Sector
Request Configuration	Write Sector
Parameters	Write Sector Buffer

Maxtor®

Maxtor Corporation
211 River Oaks Parkway
San Jose, CA 95134
(408) 432-1700
TELEX 171074
FAX (408) 434-6469

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Printed in U.S.A. 9/90
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