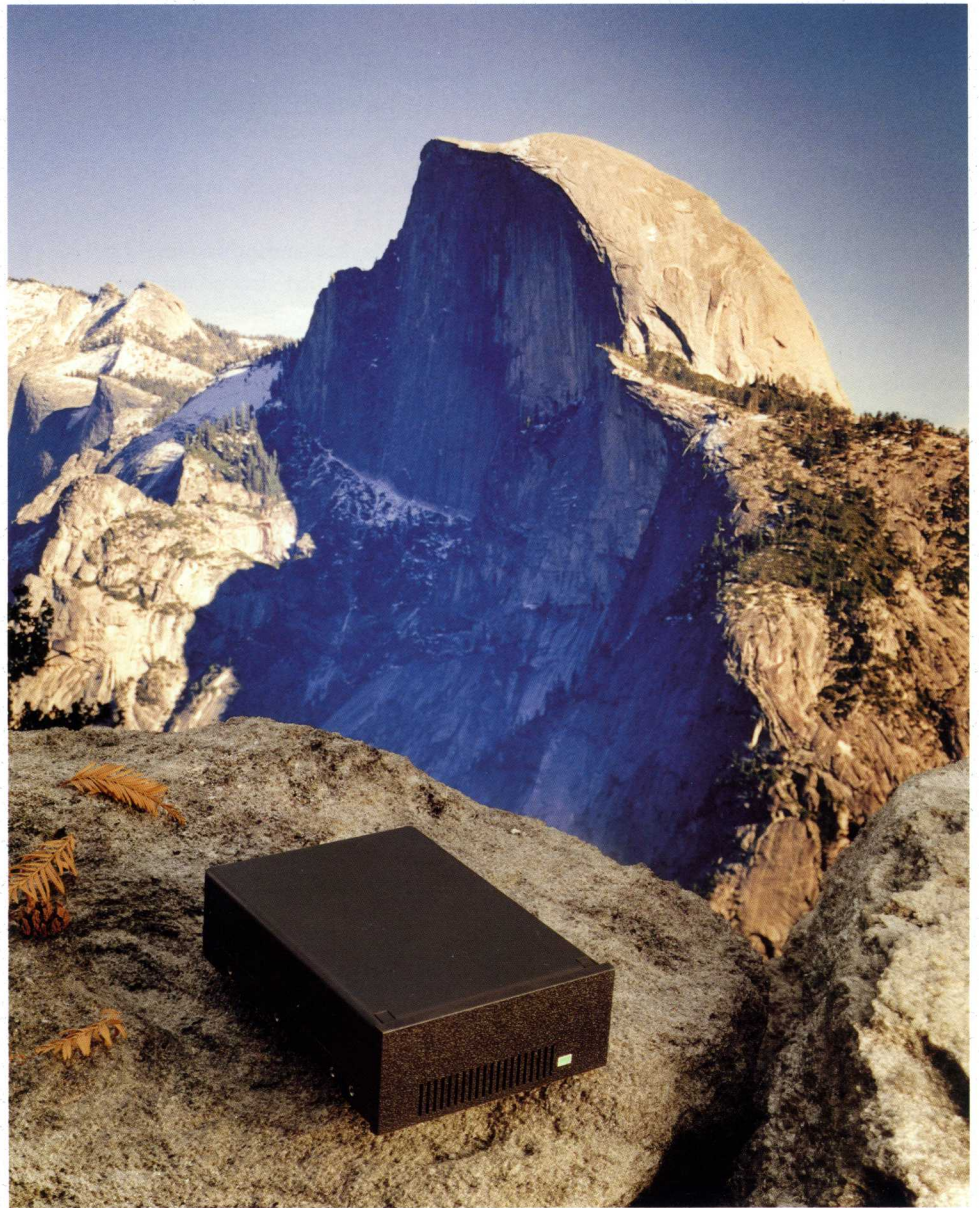# LXT-535™ AT® AND SCSI FAMILY

535- and 437-Megabyte
3.5-inch Disk Drives
with Embedded SCSI
or AT® Controllers

The LXT-535 and -437 provide the highest capacity and highest performance of any 3.5-inch drive in the industry. In addition, common firmware and hardware platforms within the LXT family are compatible with each other to simplify the evaluation and integration of new drives into a system. 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 to reduce the time required to bring new systems to market.

Maxtor®

LXT-535™ AT® AND SCSI FAMILIES

535- and 437-Megabyte 3.5-inch Disk Drives with Embedded SCSI or AT® Controller

KEY FEATURES

- 12 read, 13 write msec average seek time
- Supports zone = cylinder defect management
- SCSI command overhead of ≤ 600 µsec
- AT overhead of ≤ 300 µsec
- 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
  – Read-ahead cache
- 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   LXT-535/437

Capacity, typical format
Per drive (Mbytes)	535/437
Per sector (bytes)	512
Spare capacity (Mbytes)	8.7/7.1

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 ± .5%

Average latency (msec) 8.33

FUNCTIONAL

Data zones	8
Bit density (Kbpi)	33 - 44
Track density (tpi)	1,600
Disks	6/5
Data heads	11/9
Servo heads	1
Physical tracks	17,072/13,968
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/hr.

Relative humidity limits
(Non-condensing)
Operating	5 to 80%
Non-operating	5 to 80%
Maximum gradient/hr	20%
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 30 dBA

Power requirements
+12 VDC ± 5%, 0.2A (typical)
2.0A (instantaneous)
+5 VDC ± 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 Parameters	Read Sector
	Read Sector Buffer
Diagnostic	Recal Drive
Format Track	Seek
Format Unit	Verify Sector
Request Configuration Parameters	Write Sector
	Write Sector Buffer