

WINNER-3 Project WN32163A

**NEW 2.16 Gbyte
High Performance
3.5" - 1" Height Disk Drive**

FEATURES

- Formatted Capacity 2.16 GByte
- 5,400 RPM spindle speed
- Under 10 msec average seek time
- PRML Read Channel
- PIO Mode 4 Multi Word DMA Mode 2
- Automatic/Host Power Saving Mode
- Rugged : 10 G's of Operating Shock
- 128KB segmented read/write cache buffer
- Fast ATA-2/E-IDE Interface
- Automatic reassignment of defective sector
- Read Ahead Cache
- Write Cache
- Write Auto Reassignment
- Power On Self Diagnosis
- Error Correction on the Fly (Multi-Burst)
- Automatic Update of ATA Task File Registers
- Data Buffer Streaming Support

DRIVE ARCHITECTURE

Formatted Capacities	
Megabytes per Drive	2,160
Megabytes per Surface	540
Physical Organization	
Disks	2
Data Surfaces	4
Read/Write Heads	4
Data Cylinder	6,712

FUNCTIONAL SPECIFICATIONS

Actuator Type	Rotary Voice Coil
Interface	Fast ATA-2/E-IDE
Servo	Embedded Sector Servo
Recording Method	8/9 (0,4,4)
Recording Density (bpi,max.)	106,000
Flux Density (fcpi,max.)	120,600
Track Density (tpi, @skew 0.)	6,890
Areal Density (Mb/In ² , max.)	842
Sector Size (Bytes)	512

PERFORMANCE SPECIFICATIONS

Seek Time (typical)	
Track to Track	<2 ms
Average	<10 ms
Full Stroke	<20 ms
Average Latency	5.6 ms
Spindle Speed	5,400 ± 0.1% rpm
Data Transfer Rate	
To/From Media	49.1/94.8 Mbits/s
To/From Buffer	16.7 Mbytes/s
Buffer Size	128 Kbytes

RELIABILITY SPECIFICATIONS

Seek Error	1 in 10 ⁶ seeks
Recoverable Read Error	1 in 10 ¹⁰ bits
Non-recoverable Read Error	1 in 10 ¹⁴ bits
MTBF (POH)	500,000 hours
MTTR (typical)	5 minutes
Start/Stop Cycles	50,000
Component Design Life	5 years

ENVIRONMENTAL SPECIFICATIONS

Temperature	
Operating	5 ~ 55 °C
Non-operating	-40 ~ 70 °C
Thermal Gradient (max.)	20 °C/hr
Humidity (non-condensing)	
Operating	5 ~ 80 %
Non-operating	5 ~ 90 %
Maximum Wet Bulb (operating)	29 °C
(non-operating)	40 °C
Altitude (relative to sea level)	
Operating	0 to 10,000 feet
Non-operating	0 to 40,000 feet

SHOCK AND VIBRATION

Shock (1/2 sine pulse, 11 ms duration)	
Operating	10 G
Non-operating	75 G
Vibration (swept sine, 1 octave per minute)	
Operating	
5 ~ 21 Hz	0.034" (double amplitude)
22 ~ 400 Hz	1.5 Gp-p
Non-operating	
5 ~ 21 Hz	0.195" (double amplitude)
22 ~ 500 Hz	8 Gp-p

POWER CHARACTERISTICS (TYPICAL)

Voltage	5V±5%	12V±10%
Current(Max.)	0.49 Amps	1.5 Amps
Total Power Dissipation (Watts)		
Power Up		
Current Peak		1.5 A
Duration		2 sec
Read/Write (@cylinder 3,000)		5.3 watts
Seek (1/3Seek, 33% Duty)		6.8 watts
Idle (typical)		3.5 watts
Standby (typical)		1.2 watts
Sleep (typical)		1.1 watts

ACOUSTIC NOISE

Maximum Sound Pressure at 1 meter	
Idle	35 dBA
Random Read/Write	40 dBA

PHYSICAL DIMENSION

Height	1 inch
Width	4 inches
Depth	5.75 inches
Weight	1.2 pounds

Specifications are subject to change without notice



ELECTRONICS