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Specifications for the 200 GB EIDE drive (model WD2000BB, WD2000LB)

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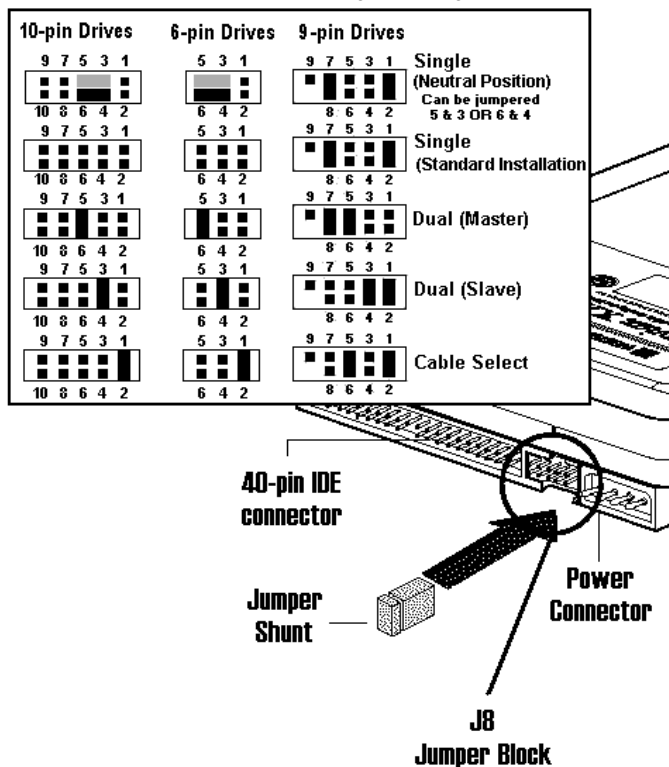
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Specifications for the WD Caviar® WD2000BB and WD2000LB

Recommended Setup Parameters

Cylinders ¹	16383
Heads	16
Sectors/Track	63
Landing Zone	16383
WPC	16383
Jumper Setting Information	Ten Pin Drive



¹ All EIDE drives 8.4 GB and larger use 16383 cylinders, 16 heads and 63 SPT due to interface restrictions.

Physical Specifications

Formatted Capacity	200,049 MB
Interface	40-pin EIDE
Actuator Type	Rotary Voice Coil
Number of Disks	3
Data Surfaces	6
Number of Heads	6
Bytes Per Sector	512
User Sectors Per Drive	390,721,968
Servo Type	Embedded
Recording Method EPR4	Rate 16/17 PRML

ECC
 Head Park ²
 PRML – Partial Response Maximum Likelihood
 EIDE – Enhanced Integrated Drive Electronics

Reed Solomon
 Automatic

² Turning the system power off causes the WD Caviar® to perform an automatic head park operation.

Performance Specifications

Average Seek ¹

– Read	8.9 ms average
– Write	10.9 ms average
Track-to-Track Seek	2.0 ms average
Full Stroke Seek	21 ms average
Index Pulse Period	8.3 ms (nominal)
Average Latency	4.2 ms (nominal)
Rotational Speed	7200 RPM (nominal)
Data Transfer Rate (maximum)	100 MB/s (Mode 5 Ultra ATA) 66.6 MB/s (Mode 4 Ultra ATA) 33.3 MB/s (Mode 2 Ultra ATA) 16.6 MB/s (Mode 4 PIO) 16.6 MB/s (Mode 2 multi-word DMA)
Interleave	1:1
Buffer Size	2 MB
Error Rate – Unrecoverable	<1 in 10 ¹⁴ bits read
Spindle Start Time	
– From Power-on to Drive Ready ²	9.0 s average
– From Power-on to Rotational Speed ³	7.0 s average
Spindle Stop Time	8.0 s average
Contact Start/Stop Cycles (CSS)	50,000 minimum

¹ When measuring seek times, the average latency must be subtracted from read, write, or explicit seek commands.

² Defined as the time from power-on to the setting of the Drive Ready and Seek Complete including calibration.

³ Defined as the time from power-on to when the full spindle rotational speed is reached.

Physical Dimensions

Height	English:	1.028 inches max
	Metric:	26.1 mm max
Length	English:	5.787 inches max
	Metric:	147.0 mm max
Width	English:	4.00 inches ±0.010 inch
	Metric:	101.6 mm ±0.25 mm
Weight	English:	1.32 pounds ±0.13 pounds
	Metric:	0.60 kg ±0.06 kg

Electrical Specifications

Current Requirements and Power Dissipation

Operating Mode	RMS Current		Power, Typical ¹
	12 VDC	5 VDC	
Spinup	1.3 A (max)	650 mA	19.0 W
Read/Write/Idle	350 mA	700 mA	7.75 W
Seek	675 mA	725 mA	12.0 W

Power Management Commands

Operating Mode	RMS Current ¹		Power, Typical ¹
	12 VDC	5 VDC	
Idle (E1H)	370 mA	625 mA	7.5 W
Standby (E0H)	15 mA	170 mA	1.0 W
Sleep (E6H)	15 mA	60 mA	0.5 W

Input Voltage Requirements

+5.0V (±5%) and 12.0V (±10%)

Ripple

	+12 VDC	+5 VDC
Maximum	200 mV (double amplitude)	100 mV (double amplitude)
Frequency	0–30 MHz	0–30 MHz

Power Connectors and Cables

Power Connector	4-pin AMP (P/N 84069-1 or equivalent)
Mating Connector	Body (AMP 1-480424-0 or equivalent) Pins (AMP 60619-4 or equivalent)
Power Cable Wire Guage	18 AWG (or heavier)

¹ All values are typical (25°C, 5.0V, and 12V input) except where specified as maximum.

Note: Current measurements cut off frequency at 1 kHz.

Environmental Specifications

Shock ¹

Operating	20 G, 2 ms (read, write)
Non-operating	200 G, 2 ms

Vibration

Operating	Linear: 20–300 Hz, 0.75 G (0 to peak) Random: 10–300 Hz, 0.004 g ² /Hz
Non-operating	5–20 Hz, 0.195 inches (double amplitude) 20–500 Hz, 4.0 G (0 to peak)

Sweep Rate	0.5 octave/minute minimum
Drive Generated Vibration	
Operating	0.2 gm-mm typical with the drive in an unconstrained condition
Rotational Shock Non-Operating	
Amplitude	20 K rad/sec ²
Duration	2 ms
Operating Temperature and Humidity	
Temperature ²	5°C to 55°C (41°F to 131°F)
Humidity	5-95% RH non-condensing 33°C (maximum wet bulb)
Thermal Gradient	20°C/hour (maximum)
Humidity Gradient	20%/hour (maximum)
Non-Operating Temperature and Humidity	
Temperature	-40°C to 65°C (-40°F to 149°F)
Humidity	5-95% RH non-condensing 35°C (maximum wet bulb)
Thermal Gradient	30°C/hour (maximum)
Humidity Gradient	20%/hour (maximum)
Altitude	
Operating	-1000 feet to 10,000 feet (-305M to 3,050M)
Non-Operating	-1000 feet to 40,000 feet (-305M to 12,200M)
Acoustics	
Idle Mode ³	35 dBA average
Seek Mode 0 ^{4, 5}	37 dBA average
Seek Mode 3 ^{4, 5}	36 dBA average
Reliability Specifications	
AFR	<0.8%
Component Design Life	5 years
Warranty Period	Warranty Length

¹ Half sine wave, measured without shock isolation and without non-recoverable errors.

² The system environment must allow sufficient air flow.

³ No audible pure tones.


⁴ Random seek at a rate of 26 seeks per second.

⁵ Mode 0 and Mode 3 support the Automatic Acoustic Management feature.

¹As used for storage capacity, one megabyte (MB) = one million bytes, one gigabyte (GB) = one billion bytes, and one terabyte (TB) = one trillion bytes. Total accessible capacity varies depending on operating environment.

²As used for transfer rate or interface, megabyte per second (MB/s) = one million bytes per second, and gigabit per second (Gb/s)= one billion bits per second.

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