



Detailed Specifications for the WD Caviar WD800BB

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Recommended Setup Parameters

Cylinders*	16383
Heads	16
Sectors/Track	63
Landing Zone	16383
WPC	16383

* All EIDE drives greater than 8.4 GB use 16383 cylinders, 16 heads, and 63 SPT due to interface restrictions.

Physical Specifications

Formatted Capacity*	80,026 MB
Interface	40-pin EIDE
Actuator Type	Rotary Voice Coil
Number of Platters	3
Data Surfaces	6
Number of Heads	6
Bytes Per Sector	512
User Sectors Per Drive	156,301,488
Servo Type	Embedded
Recording Method	Rate 16/17 PRML
ECC	Reed Solomon
Head Park**	Automatic

* Western Digital defines a megabyte (MB) as 1,000,000 bytes and a gigabyte (GB) as 1,000,000,000 bytes

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

Performance Specifications

Average Seek (Read)	8.9 ms average
Average Seek (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)
Transfer Rate (Buffer to Host)	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)
Transfer Rate (Buffer to Disk)	420 Mbits/s maximum
Interleave	1:1
Buffer Size	2 MB
Error Rate (Non-Recoverable)	<1 in 10 ¹⁴ bits read
Spindle Start Time - From Power-on to Drive Ready ¹	5.5 s typical, 9s maximum
Spindle Start Time - From Power-on to Rotational Speed ²	6.0 s average
Contact Start/Stop Cycles (CSS)	50,000 minimum

¹ Defined as the time from power-on to the setting of the Drive Ready and Seek Complete including calibration.

² Defined as the time from power-on to when the full spindle rotational speed is reached.

Physical Dimensions

Height	English: 1.028 inch MAX
	Metric: 26.1 mm MAX
Length	English: 5.787 inches MAX
	Metric: 147.0 mm MAX
Width	English: 4.00 inches (±0.01 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*
	12 VDC	5 VDC	
Spinup	1.8 A max	525 mA	17.0 W
Read/Write/Idle	350 mA	800 mA	8.0 W
Seek	625 mA	675 mA	11.0 W

Power Management Commands

Operating Mode	RMS Current*		Power, Typical*
	12 VDC	5 VDC	
Idle (E1H)	330 mA	675 mA	7.25 W
Standby (E0H)	19 mA	200 mA	1.2 W
Sleep (E6H)	19 mA	50 mA	0.5 W

Input Voltage Requirements

+5.0V ($\pm 5\%$) and 12.0V ($\pm 10\%$)

Ripple

	+12 VDC	+5 VDC
	Maximum Frequency	200 mV (double amplitude) 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 Gauge	18 AWG (or heavier)

* 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: Operating
65G, 2 ms (read); 20G, 2ms (write)

Half sine wave, measured without shock isolation and without non-recoverable errors.
Non-operating
200G, 2 ms

Vibration
Operating
Linear 5-500 Hz, 0.25G (0 to peak)
Random 10-300 Hz, 0.004 g²/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

	0.4 gm-mm maximum with the drive in an unconstrained condition.
Rotational Shock	Amplitude 20K rad/sec ²
	Duration 2 ms
Operating Temperature and Humidity	Temperature 5° C to 55° C (41°F to 131°F)
	Humidity 5-85% 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 33°C (maximum wet bulb)
	Thermal Gradient 30°C/hour (maximum)
	Humidity Gradient 20%/hour (maximum)
Altitude	Operating -1,000 feet to 10,000 feet (-300M to 3,050M)
	Non-Operating -1,000 feet to 40,000 feet (-300M to 12,200M)
Acoustics	Idle Mode* 35 dBA (standard)
	Seek Mode 0** 38 dBA (standard)
	Seek Mode 3** 35 dBA (standard)
Reliability	AFR <0.8%
	Component Design Life 5 years

* No audible pure tones.

** Random seek at a rate of 26 seeks per second. Mode 0 and Mode 3 supports the Automatic Accoustic Management feature.