

# WD VelociRaptor® VR200M

## Enterprise Hard Drives



WD VelociRaptor drives offer maximum speed, low power consumption, and cool operation perfect for blade servers, performance enthusiast systems, workstations, and low-end servers. Available in a 2.5-inch form factor for use in enterprise applications or designed into a 3.5-inch mounting frame for installation in high-performance 3.5-inch enabled systems and chassis.

### Product Benefits

- **Killer Speed** – Built on the performance bloodlines of WD Raptor®, these 10,000 RPM drives, with a SATA 6 Gb/s interface and 32 MB cache, deliver mind-bending performance. Not only are they up to 15% percent faster than the previous generation WD VelociRaptor drives, but they also beat out all other competitors in the field.
- **Rock-solid Reliability** – Designed and manufactured to mission-critical enterprise-class standards to provide enterprise reliability in high duty cycle environments. With 1.4 million hours MTBF, these drives have the highest available reliability rating on a high capacity SATA drive.
- **Double the Capacity** – State-of-the-art technology packs twice the capacity per drive compared to the previous generation of WD VelociRaptor, resulting in up to 600 GB of high-performance storage space in this enterprise-class 2.5-inch drive. (Not compatible with notebook computers)
- **Small form factor** – This ultra fast 2.5-inch hard drive is engineered to fit into blade servers and other enterprise storage configurations. (Not designed for use in laptop or notebook computers)
- **Ultra-cool operation** – Consumes less idle power and uses similar active power as the previous generation WD VelociRaptor, while offering double the capacity and higher performance.
- **IcePack™ mounting frame** - The 2.5-inch WD VelociRaptor is enclosed in a backplane-ready 3.5-inch enterprise-class mounting frame with a built-in heat sink that keeps this powerful little drive extra cool when installed in high-performance desktop chassis. (WDxxxxHLHX models only)
- **NoTouch™ ramp load technology** – The recording head never touches the disk media ensuring significantly less wear to the recording head and media as well as better drive protection in transit.
- **Pre-emptive Wear Leveling (PWL)** – Designed to ensure reliability for applications that perform a high number of incoming commands.
- **Rotary Acceleration Feed Forward (RAFF™)** – Optimizes operation and performance when the drives are used in vibration-prone, multi-drive chassis.
- **Environmentally Conscious** – In addition to being RoHS compliant, this generation of WD VelociRaptor also provides a “Halogen Free” design.

### Applications

Servers, network attached storage, scientific computing, video surveillance, enterprise backup, document and image management, digital video.

#### Capacities

150, 300, 450, and  
600 GB

#### GB per Platter

200 GB

#### Model Numbers

WD6000BLHX  
WD6000HLHX  
WD4500BLHX  
WD4500HLHX  
WD3000BLHX  
WD3000HLHX  
WD1500BLHX  
WD1500HLHX



# WD VelociRaptor VR200M

## Enterprise Hard Drives

### Physical Specifications<sup>1</sup>

	150 GB	300 GB	450 GB	600 GB
Model numbers	WD1500BLHX WD1500HLHX	WD3000BLHX WD3000HLHX	WD4500BLHX WD4500HLHX	WD6000BLHX WD6000HLHX
Formatted capacity	150,039 MB	300,069 MB	450,098 MB	600,127 MB
User sectors per drive	293,046,768	586,072,368	879,097,968	1,172,123,568
Interface	SATA 6 Gb/s	SATA 6 Gb/s	SATA 6 Gb/s	SATA 6 Gb/s
Form factor	2.5-inch (WD1500BLHX) 3.5-inch (WD1500HLHX)	2.5-inch (WD3000BLHX) 3.5-inch (WD3000HLHX)	2.5-inch (WD4500BLHX) 3.5-inch (WD4500HLHX)	2.5-inch (WD6000BLHX) 3.5-inch (WD6000HLHX)
Actuator latch/auto park	Yes	Yes	Yes	Yes
SATA latching connector	Yes	Yes	Yes	Yes
RoHS compliant <sup>2</sup>	Yes	Yes	Yes	Yes

### Performance Specifications<sup>1</sup>

Data Transfer Rate	
Buffer to host	6 Gb/s
Host to/from drive	145 MB/s sustained
Average seek	3.6 ms (read), 4.2 ms (write)
Track-to-track seek	0.4 ms maximum
Rotational speed	10,000 RPM
Latency	3 ms average
Read cache	Adaptive
Write cache	Yes
Buffer	32 MB
Drive ready time	8 sec. average
Load/unload cycles <sup>3</sup>	600,000 minimum
LBA support	Yes
Error rate (non-recoverable)	< 1 in 10 <sup>15</sup> bits read

### Physical Dimensions

#### WDxxxxBLHX Drives

Height	0.59 in. (15.0 mm) max
Length	3.94 in. (100.0 mm) max
Width	2.75 in. (69.85 mm) ± .01 in.
Weight	0.48 lb. (219 gm) ± 10%

#### WDxxxxHLHX Drives

Height	1.028 in. (26.1 mm) max
Length	5.787 in. (147.0 mm) max
Width	4.0 in. (101.6 mm) ± .01 in.
Weight	1.08 lb. (489 gm) ± 10%

### Power Requirements (average)

Mode	12V (±10%)	5V (±5%)	Power
Read/Write Sequential	220 mA	825 mA	6.8W
Read/Write Random	320 mA	470 mA	6.2W
Idle	210 mA	360 mA	4.3W
Standby	5 mA	130 mA	0.7W
Sleep	5 mA	120 mA	0.7W

### Environmental Specifications<sup>4</sup>

Shock	
Operating (2 ms)	30G (read/write), 65G (read)
Non-operating (2 ms)	300G
Half sine wave measured in 2 ms duration, measured without isolation.	

#### Vibration

Operating	
- Random	0.008 g <sup>2</sup> /Hz (10 to 300 Hz)
- Linear	20-300 Hz, 0.75G (0 to peak)
Non-operating	
- Random	0.05 g <sup>2</sup> /Hz (10 to 300 Hz)
- Linear	20-500 Hz, 4.0G (0 to peak)

#### Operating Temperature & Humidity

Temperature	5° C to 55° C
Humidity	5-95% RH non-condensing
Thermal Gradient	20° C/hour max

#### Non-Operating Temperature & Humidity

Temperature	-40° C to 70° C
Humidity	5-95% RH non-condensing
Thermal Gradient	30° C/hour

#### Acoustics (average)

Idle mode <sup>5</sup>	30 dBA
Performance seek mode <sup>5</sup>	37 dBA

#### Reliability

MTBF <sup>6</sup>	1,400,000 hours
Limited warranty <sup>7</sup>	5 years

#### For service and literature:

support.wdc.com	
www.westerndigital.com	
800.ASK.4WDC	North America
800.832.4778	Spanish
+800.6008.6008	Asia Pacific
00800.27549338	Europe
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2879-771341-A00 Mar 2010



<sup>1</sup> As 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. As used for buffer or cache, one megabyte (MB) = 1,048,576 bytes. As 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. Effective maximum SATA 6 Gb/s transfer rate calculated according to the Serial ATA specification published by the SATA-IO organization as of the date of this specification sheet. Visit [www.sata-io.org](http://www.sata-io.org) for details.

<sup>2</sup> WD hard drive products manufactured and sold worldwide after June 1, 2006, meet or exceed Restriction of Hazardous Substances (RoHS) compliance requirements as mandated by the European Union for electrical and electronic products. The RoHS Directive 2002/95/EC of the European Parliament, which is effective in the EU beginning July 1, 2006, aims to protect human health and the environment by restricting the use of certain hazardous substances in new equipment, and consists of restrictions on lead, mercury, cadmium, and other substances.

<sup>3</sup> Controlled unload at ambient condition.

<sup>4</sup> No non-recoverable errors during operating tests or after non-operating tests.

<sup>5</sup> Sound power level.

<sup>6</sup> 100% workload at 50°C on base casting.

<sup>7</sup> The term of the limited warranty may vary by region. Visit [support.wdc.com/warranty](http://support.wdc.com/warranty) for details.