

**TOSHIBA**

# Level Up Your Drive Performance.

Toshiba X300 Performance Internal Hard Drive



Push your gaming and creative limits with the speed, reliability, and capacity of the Toshiba X300 Performance Internal Hard Drive. Optimized to handle high-end graphics and videos, the X300 is powered by a fast 7200 RPM drive with large cache size to minimize buffering time. Toshiba cache technology is designed to help eliminate lag for an ultra-responsive gaming experience. Plus, the X300 offers massive capacity to grow with your gaming and HD content. The X300 Performance Hard Drive works hard so you can play harder.

Image does not represent actual product.

# TOSHIBA

## Toshiba X300 Performance Internal Hard Drive

### Application

Powerful desktop workstations / All-in-one PCs  
Gaming computers / Home media computers



Product image may represent a design model.



### Powerful

Designed for gaming  
& high end desktop PCs



### Responsive

Toshiba's cache technology  
delivers real-time drive performance



### Massive Capacity

Store your growing gaming  
libraries & HD content



### High Performance

7,200 RPM with large  
cache size



### Reliable

Ramp loading technology &  
built-in shock sensors to  
help protect your content



# Toshiba X300 Performance Internal Hard Drive

Capacity <sup>1</sup>	<u>20TB</u>	<u>18TB</u>	<u>16TB</u>
<b>Model Number</b> (Retail Packaging)	HDWR62AXZSTA	HDWR51JXZSTA	HDWR51GXZSTA
<b>Model Number</b> (Bulk)	HDWR62AUZSVA	HDWR51JUZSVA	HDWR51GUZSVA

## Basic Specifications

Interface	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s
<b>Form Factor</b> <sup>2</sup>	3.5-inch	3.5-inch	3.5-inch
<b>Advanced Format</b> (AF)	Yes	Yes	Yes
<b>RoHS Compatible</b> <sup>3</sup>	Yes	Yes	Yes
<b>Sector Size</b>	512e	512e	512e

## Features

<b>Native Command Queuing</b> (NCQ)	Yes	Yes	Yes
<b>Shock Sensors</b>	Yes	Yes	Yes
<b>Toshiba Cache Technology</b>	Yes	Yes	Yes
<b>Ramp Loading Technology</b>	Yes	Yes	Yes
<b>Recording Technology</b>	CMR	CMR	CMR

## Performances

<b>Rotational Speed</b> [RPM]	7,200	7,200	7,200
<b>Cache Size</b> [MB]	512	512	512

## Reliability

<b>Maximum Workload Rate</b> [TB/Year] <sup>4,8</sup>	55	55	55
<b>MTTF</b> [Hours] <sup>5</sup>	600,000	600,000	600,000
<b>Unrecoverable Error Rate</b>	1 per 10 <sup>15</sup>	1 per 10 <sup>14</sup>	1 per 10 <sup>14</sup>
<b>Load/Unload Cycles</b>	300,000	300,000	300,000
<b>Limited Warranty</b> [Years] <sup>6</sup>	2	2	2

## Power Management

<b>Supply Voltage</b>	5 VDC +10 % / -7 % 12 VDC ± 10 %	5 VDC +10 % / -7 % 12 VDC ± 10 %	5 VDC +10 % / -7 % 12 VDC ± 10 %
<b>Power Consumption</b> (Operating) [W]	8.02	7.48	7.48
<b>Power Consumption</b> (Active Idle) [W]	4.41	4.14	4.14

## Environmental

<b>Temperature</b> (Operating) [°C]	5 to 60 (surface)	5 to 60 (surface)	5 to 60 (surface)
<b>Temperature</b> (Non-Operating) [°C]	-40 to 70	-40 to 70	-40 to 70
<b>Vibration</b> (Operating) [m/s <sup>2</sup> ]	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)
<b>Vibration</b> (Non-Operating) [m/s <sup>2</sup> ]	29.4 {3.0 G} (5 to 500 Hz)	29.4 {3.0 G} (5 to 500 Hz)	29.4 {3.0 G} (5 to 500 Hz)
<b>Shock</b> (Operating) [m/s <sup>2</sup> ]	490 {50 G} (2 ms duration)	686 {70 G} (2 ms duration)	686 {70 G} (2 ms duration)
<b>Shock</b> (Non-Operating) [m/s <sup>2</sup> ]	1,960 {200 G} (2 ms duration)	2,450 {250 G} (2 ms duration)	2,450 {250 G} (2 ms duration)
<b>Acoustics Idle Mode</b> [dB]	20	20	20

## Physical

<b>Height</b> [mm Max.]	26.1	26.1	26.1
<b>Length</b> [mm Max.]	147.0	147.0	147.0
<b>Width</b> [mm Max.]	101.85	101.85	101.85
<b>Weight</b> [g Max.]	720	720	720
<b>Bottom Holes Type</b> <sup>7</sup>	TYPE1	TYPE1	TYPE1



# Toshiba X300 Performance Internal Hard Drive

Capacity <sup>1</sup>	14TB	12TB	10TB
<b>Model Number</b> (Retail Packaging)	HDWR51EXZSTA	HDWR51CXZSTA	HDWR71AXZSTA
<b>Model Number</b> (Bulk)	HDWR51EUZSVA	HDWR51CUZSVA	HDWR71AUZSVA

## Basic Specifications

Interface	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s
<b>Form Factor</b> <sup>2</sup>	3.5-inch	3.5-inch	3.5-inch
<b>Advanced Format</b> (AF)	Yes	Yes	Yes
<b>RoHS Compatible</b> <sup>3</sup>	Yes	Yes	Yes
<b>Sector Size</b>	512e	512e	512e

## Features

<b>Native Command Queuing</b> (NCQ)	Yes	Yes	Yes
<b>Shock Sensors</b>	Yes	Yes	Yes
<b>Toshiba Cache Technology</b>	Yes	Yes	Yes
<b>Ramp Loading Technology</b>	Yes	Yes	Yes
<b>Recording Technology</b>	CMR	CMR	CMR

## Performances

<b>Rotational Speed</b> [RPM]	7,200	7,200	7,200
<b>Cache Size</b> [MB]	512	512	512

## Reliability

<b>Maximum Workload Rate</b> [TB/Year] <sup>4,8</sup>	55	55	55
<b>MTTF</b> [Hours] <sup>5</sup>	600,000	600,000	600,000
<b>Unrecoverable Error Rate</b>	1 per 10 <sup>14</sup>	1 per 10 <sup>14</sup>	1 per 10 <sup>15</sup>
<b>Load/Unload Cycles</b>	300,000	300,000	600,000
<b>Limited Warranty</b> [Years] <sup>6</sup>	2	2	2

## Power Management

<b>Supply Voltage</b>	5 VDC +10 % / -7 % 12 VDC ± 10 %	5 VDC +10 % / -7 % 12 VDC ± 10 %	5 VDC +10 % / -7 % 12 VDC ± 10 %
<b>Power Consumption</b> (Operating) [W]	7.38	6.85	9.07
<b>Power Consumption</b> (Active Idle) [W]	3.77	3.30	5.74

## Environmental

<b>Temperature</b> (Operating) [°C]	5 to 60 (surface)	5 to 60 (surface)	5 to 60 (surface)
<b>Temperature</b> (Non-Operating) [°C]	-40 to 70	-40 to 70	-40 to 70
<b>Vibration</b> (Operating) [m/s <sup>2</sup> ]	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)
<b>Vibration</b> (Non-Operating) [m/s <sup>2</sup> ]	29.4 {3.0 G} (5 to 500 Hz)	29.4 {3.0 G} (5 to 500 Hz)	29.4 {3.0 G} (5 to 500 Hz)
<b>Shock</b> (Operating) [m/s <sup>2</sup> ]	686 {70 G} (2 ms duration)	686 {70 G} (2 ms duration)	686 {70 G} (2 ms duration)
<b>Shock</b> (Non-Operating) [m/s <sup>2</sup> ]	2,450 {250 G} (2 ms duration)	2,450 {250 G} (2 ms duration)	2,450 {250 G} (2 ms duration)
<b>Acoustics Idle Mode</b> [dB]	20	20	34

## Physical

<b>Height</b> [mm Max.]	26.1	26.1	26.1
<b>Length</b> [mm Max.]	147.0	147.0	147.0
<b>Width</b> [mm Max.]	101.85	101.85	101.85
<b>Weight</b> [g Max.]	705	690	755
<b>Bottom Holes Type</b> <sup>7</sup>	TYPE1	TYPE1	TYPE1

## Toshiba X300 Performance Internal Hard Drive

Capacity <sup>1</sup>	8TB	6TB	4TB
<b>Model Number</b> (Retail Packaging)	HDWR780XZSTA	HDWR760XZSTA	HDWR740XZSTA
<b>Model Number</b> (Bulk)	HDWR780UZSVA	HDWR760UZSVA	HDWR740UZSVA
<b>Basic Specifications</b>			
<b>Interface</b>	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s
<b>Form Factor<sup>2</sup></b>	3.5-inch	3.5-inch	3.5-inch
<b>Advanced Format</b> (AF)	Yes	Yes	Yes
<b>RoHS Compatible<sup>3</sup></b>	Yes	Yes	Yes
<b>Sector Size</b>	512e	512e	512e
<b>Features</b>			
<b>Native Command Queuing</b> (NCQ)	Yes	Yes	Yes
<b>Shock Sensors</b>	Yes	Yes	Yes
<b>Toshiba Cache Technology</b>	Yes	Yes	Yes
<b>Ramp Loading Technology</b>	Yes	Yes	Yes
<b>Recording Technology</b>	CMR	CMR	CMR
<b>Performances</b>			
<b>Rotational Speed</b> [RPM]	7,200	7,200	7,200
<b>Cache Size</b> [MB]	512	512	512
<b>Reliability</b>			
<b>Maximum Workload Rate</b> [TB/Year] <sup>4,8</sup>	55	55	55
<b>MTTF</b> [Hours] <sup>5</sup>	600,000	600,000	600,000
<b>Unrecoverable Error Rate</b>	1 per 10 <sup>15</sup>	1 per 10 <sup>15</sup>	1 per 10 <sup>15</sup>
<b>Load/Unload Cycles</b>	600,000	600,000	600,000
<b>Limited Warranty</b> [Years] <sup>6</sup>	2	2	2
<b>Power Management</b>			
<b>Supply Voltage</b>	5 VDC +10 % / -7 % 12 VDC ± 10 %	5 VDC +10 % / -7 % 12 VDC ± 10 %	5 VDC +10 % / -7 % 12 VDC ± 10 %
<b>Power Consumption</b> (Operating) [W]	8.19	7.43	6.75
<b>Power Consumption</b> (Active Idle) [W]	4.92	4.14	3.49
<b>Environmental</b>			
<b>Temperature</b> (Operating) [°C]	5 to 60 (surface)	5 to 60 (surface)	5 to 60 (surface)
<b>Temperature</b> (Non-Operating) [°C]	-40 to 70	-40 to 70	-40 to 70
<b>Vibration</b> (Operating) [m/s <sup>2</sup> ]	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)
<b>Vibration</b> (Non-Operating) [m/s <sup>2</sup> ]	29.4 {3.0 G} (5 to 500 Hz)	29.4 {3.0 G} (5 to 500 Hz)	29.4 {3.0 G} (5 to 500 Hz)
<b>Shock</b> (Operating) [m/s <sup>2</sup> ]	686 {70 G} (2 ms duration)	686 {70 G} (2 ms duration)	686 {70 G} (2 ms duration)
<b>Shock</b> (Non-Operating) [m/s <sup>2</sup> ]	2,450 {250 G} (2 ms duration)	2,450 {250 G} (2 ms duration)	2,450 {250 G} (2 ms duration)
<b>Acoustics Idle Mode</b> [dB]	34	34	34
<b>Physical</b>			
<b>Height</b> [mm Max.]	26.1	26.1	26.1
<b>Length</b> [mm Max.]	147.0	147.0	147.0
<b>Width</b> [mm Max.]	101.85	101.85	101.85
<b>Weight</b> [g Max.]	730	710	690
<b>Bottom Holes Type<sup>7</sup></b>	TYPE1	TYPE1	TYPE1

# TOSHIBA

## Toshiba Consumer Internal Hard Drives.

A drive for every storage application.



Image does not represent actual product.

To see our full line of consumer HDD storage products, visit: [storage.toshiba.com/consumer-hdd](https://storage.toshiba.com/consumer-hdd)

<sup>1</sup> One Gigabyte (1GB) means  $10^9 = 1,000,000,000$  bytes and One Terabyte (1TB) means  $10^{12} = 1,000,000,000,000$  bytes using powers of 10. A computer operating system, however, reports storage capacity using powers of 2 for the definition of  $1GB = 2^{30} = 1,073,741,824$  bytes and  $1TB = 2^{40} = 1,099,511,627,776$  bytes, and therefore shows less storage capacity. Available storage capacity (including examples of various media files) will vary based on file size, formatting, settings, software and operating system and other factors.

<sup>2</sup> 2.5-inch and 3.5-inch mean the form factor of HDDs. They do not indicate drive's physical size.

<sup>3</sup> Toshiba Storage & Electronic Devices Solutions Company defines "RoHS-Compatible" products as products that either (i) contain no more than a maximum concentration value of 0.1% by weight in Homogeneous Materials for lead, mercury, hexavalent chromium, polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs) and of 0.01% by weight in Homogeneous Materials for cadmium; or (ii) fall within any of the application exemptions set forth in the Annex to the RoHS Directive (Directive 2011/65/EC of the European Parliament and of the Council of 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment). "Homogeneous Material" means a material of uniform composition that cannot be mechanically disjointed (meaning separated, in principle, by mechanical actions such as unscrewing, cutting, crushing, grinding and/or abrasive processes) into different materials. Examples of "Homogeneous Materials" would be individual types of plastics, ceramics, glass, metals, alloys, paper, board, resins and coatings.

<sup>4</sup> Annual Workload Rating: HDDs keep track of various drive usage such as power on hours, lifetime writes and lifetime reads from the host computer. With this data we calculate an Annualized Workload Rate, under 40 deg. C ambient environments,  $\text{Annualized Workload Rate} = (\text{Lifetime Writes} + \text{Lifetime Reads}) * (8760 / \text{Lifetime Power On Hours})$  in case Power On time is 8760h or longer. Otherwise (i.e. Power On time is shorter than 8760h),  $\text{Annualized Workload Rate} = (\text{Lifetime Writes} + \text{Lifetime Reads})$  Each drive is designed to perform up to the Annualized Workload Rate stated, after which the drive may be expected to decline. The Annualized Workload Rate in no way alters the warranty policy for such drive. Workload is defined as the amount of data written, read or verified by commands from host system.

<sup>5</sup> MTTF (Mean Time to Failure) is not a guarantee or estimate of product life; it is a statistical value related to mean failure rates for a large number of products which may not accurately reflect actual operation. Actual operating life of the product may be different from the MTTF.

<sup>6</sup> Standard limited warranty applies. The warranty brochure can be viewed online at <http://storage.toshiba.com/consumer-hdd/warranty-info>.

<sup>7</sup> Location of bottom mounting hole is different from product. For more information, please see the following page. <https://toshiba.semicon-storage.com/us/design-support/faq/storage-holes.html>

<sup>8</sup> Drive life may vary depending on usage and workload. See also MTTF and Annual Workload Rating for more detail.

Product prices, specifications, configurations, colors, components, features, and availability are subject to change without notice. Compatibility may vary depending on user's hardware configuration and operating system.

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