Product Setup Sheet

2/19/2024

HDWGxxxXZSTx
Toshiba N300 NAS Internal Hard Drive (Retail Packaging)

Description
Capacity to Grow. Reliability to Stay Ahead. Toshiba's N300 3.5-inch NAS internal hard drive is designed to meet the reliability, performance, endurance, and scalability requirements of 24/7 network attached storage application for personal, home office and small business use. The N300 delivers up to 20TB[1] of storage capacity and provides up to 1,200,000 hour MTTF[8] and designed for 24/7 power-on operation[11]. This drive features rotational vibration (RV) sensors which automatically detect and compensate for transient vibrations to deliver consistent performance in multi-bay storage enclosures. With support for up to 8 drive bays[6] in a multi-RAID NAS design, the N300 is highly scalable to the users' NAS configurations as their data storage needs evolve. The N300 NAS HDD line of high-reliability drives have a high workload rating of up to 180TB/year[5] and are optimized for use in NAS environments where large amounts of data need to be efficiently stored and accessed daily. Use for[2]: • 1- to 8-bay NAS • Desktop RAID and servers • Multimedia server storage Whether you're hosting a cloud, sharing files between workgroups or powering a high-traffic 24/7 network, Toshiba's N300 NAS hard drive is designed for and delivers the high reliability and performance that home and SOHO NAS users demand. For over 50 years Toshiba has been developing and manufacturing hard drives. Like all Toshiba products, the N300 3.5" NAS internal hard drive is designed from the ground up with your needs in mind, then tested again and again for reliability. That's why it comes with a solid three-year standard limited warranty[7] that gives you peace of mind. For more information on Toshiba's entire line of consumer storage solutions visit http://storage.toshiba.com/consumer-hdd

Product Features[3]

- **Built for demanding NAS environments**
  - Supports multi-RAID systems with up to 8 bays[6].
  - Designed for 24/7 operation[11] with workloads up to 180TB/year[5].
- **Rotational Vibration Compensation Technology**
  - Integrated RV sensors help ensure high reliability against shock and vibrations by detecting and minimizing rotational vibration effects in multi-bay NAS system.
- **Toshiba Cache Technology**
  - On-board cache algorithm and buffer management optimize cache allocation between read and write cycles for improved real-time drive performance.
- **High Performance during intensive operations**
  - Up to 512MB data buffer ensures high performance and fast read speed during data intensive operation.
  - Fast data transfer speed up to 281 MB/s[4] provides quick access to essential content.
- **Data Protection Technologies**
  - Ramp loading technology reduces wear to the recording head and media for improved drive reliability.
  - Error Recovery Control technology minimizes critical downtime for multi-RAID environment by optimizing data error recovery time.
- **High Durability and Heat Prevention**
  - Adjust seek speed automatically to reduce heat buildup during high temperature operation.
- **Peace of Mind**
  - High reliability with MTTF[8] up to 1.2 million hours
  - Toshiba 3-Year standard limited warranty[7]

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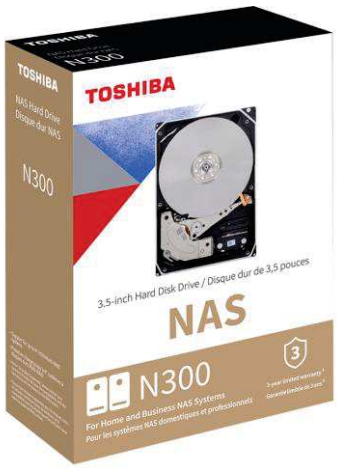
Product Specifications[3]	Product Image

General Specifications[3] (see detailed specs in the table below)
• Capacity[1]: 4TB/6TB/8TB/10TB/12TB/14TB/16TB/18TB/20TB
• Interface: Serial ATA 3.0 (SATA)
• Interface speed: Up to 6 Gb/s
• Form Factor[10]: 3.5 inch
• Recording Technology: CMR
• Rotational Speed: 7200 RPM
• Cache size: Up to 512MB
• MTTF[8]:
  ○ 4TB/6TB/8TB/10TB: 1,000,000 hours
  ○ 12TB14TB/16TB/18TB/20TB: 1,200,000 hours
• Workloads[5]: up to 180TB/year
• Drive Bays Supported[6]: up to 8
 	
Content
• Toshiba N300 NAS Internal Hard Drive
 	
 
 	
Retail package image example
 	
 
 	
Image does not represent actual product.
	
	
	Actual product image example (shown in the 10TB model)
	
	 
	
	Actual product image example (shown in the 20TB model)
	
	 
	Product image may represent a design model.

Specification Details[3]

	N300								
Capacity[1]	20TB	18TB	16TB	14TB	12TB	10TB	8TB	6TB	4TB
Model Number (Retail Packaging)	HDWG62AXZSTA	HDWG51JXZSTA	HDWG51GXZSTA	HDWG51EXZSTA	HDWG51CXZSTA	HDWG71AXZSTA	HDWG780XZSTA	HDWG760XZSTA	HDWG740XZSTC
Basic Specifications									
Interface	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s
Form Factor[10]	3.5-inch	3.5-inch	3.5-inch	3.5-inch	3.5-inch	3.5-inch	3.5-inch	3.5-inch	3.5-inch
Advanced Format (AF)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RoHS Compatible[9]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector Size	512e	512e	512e	512e	512e	512e	512e	512e	512e
Features									
Drive Bays Supported[6]	Up To 8	Up To 8	Up To 8	Up to 8	Up To 8	Up To 8	Up To 8	Up To 8	Up To 8
Rotational Vibration (RV) Sensors	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Native Command Queuing (NCQ)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shock Sensors	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Toshiba Cache Technology	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recording Technology[13]	CMR	CMR	CMR	CMR	CMR	CMR	CMR	CMR	CMR
Performance									
Rotation Speed [RPM]	7,200	7,200	7,200	7,200	7200	7200	7,200	7,200	7,200
Max Data Transfer Speed[4] [MB/s Typ.](Sustained)	281	281	281	281	281	281	281	281	281
Cache Size [MB]	512	512	512	512	512	512	512	512	512
Reliability									
24x7 Operation[11]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Maximum Workload Rate [TB/Year][5]	180	180	180	180	180	180	180	180	180
MTTF [Hours][8]	1,200,000	1,200,000	1,200,000	1,200,000	1 200 000	1,000,000	1,000,000	1,000,000	1,000,000
Unrecoverable Error Rate	1 per 10^{15}	1 per 10^{14}	1 per 10^{14}	1 per 10^{14}	1 per 10^{14}	1 per 10^{15}	1 per 10^{15}	1 per 10^{15}	1 per 10^{15}
Load/Unload Cycles	300,000	300,000	300,000	300,000	300 000	600,000	600,000	600,000	600,000
Limited Warranty [Years][7]	3	3	3	3	3	3	3	3	3
Power Management									
Supply Voltage	5 VDC +10 % / -7 % 12 VDC ±10 %	5 VDC +10 % / -7 % 12 VDC ±10 %	5 VDC +10 % / -7 % 12 VDC ±10 %	5 VDC +10 % / -7 % 12 VDC ±10 %	5 VDC +10 % / -7 % 12 VDC ±10 %	5 VDC +10 % / -7 % 12 VDC ±10 %	5 VDC +10 % / -7 % 12 VDC ±10 %	5 VDC +10 % / -7 % 12 VDC ±10 %	5 VDC +10 % / -7 % 12 VDC ±10 %
Power Consumption (Operating) [W]	8.02	7.48	7.48	7.38	6.85	9.07	8.19	7.43	6.75
Power Consumption (Active Idle) [W]	4.41	4.14	4.14	3.77	3.30	5.74	4.92	4.14	3.49
Environmental									
Temperature (Operating) [°C]	5 to 60 (surface)	5 to 60 (surface)	5 to 60 (surface)	5 to 60 (surface)	5 to 60 (surface)	5 to 60 (surface)	5 to 60 (surface)	5 to 60 (surface)	5 to 60 (surface)
Temperature (Non-Operating) [°C]	-40 to 70	-40 to 70	-40 to 70	-40 to 70	-40 to 70	-40 to 70	-40 to 70	-40 to 70	-40 to 70
Vibration (Operating) [m/s²]	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)	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)	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)
Vibration (Non-Operating) [m/s²]	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)	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)	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)
Shock (Operating) [m/s²]	490 { 50 G } (2 ms duration)	686 { 70 G } (2 ms duration)	686 { 70 G } (2 ms duration)	686 { 70 G } (2 ms duration)	686 { 70 G } (2 ms duration)	686 { 70 G } (2 ms duration)	686 { 70 G } (2 ms duration)	686 { 70 G } (2 ms duration)	686 { 70 G } (2 ms duration)
Shock (Non-Operating) [m/s²]	1960 { 200 G } (2 ms duration)	2,450 { 250 G } (2 ms duration)	2,450 { 250 G } (2 ms duration)	2,450 { 250 G } (2 ms duration)	2450 { 250 G } (2 ms duration)	2,450 { 250 G } (2 ms duration)	2450 { 250 G } (2 ms duration)	2450 { 250 G } (2 ms duration)	2450 { 250 G } (2 ms duration)
Acoustics Idle Mode [dB]	20	20	20	20	20	34	34	34	34
Physical									
Height [mm Max.]	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1
Length [mm Max.]	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0	147.0
Width [mm Max.]	101.85	101.85	101.85	101.85	101.85	101.85	101.85	101.85	101.85
Weight [g Max.]	720	720	720	705	690	755	730	710	690
Bottom Holes Type[12]	TYPE1	TYPE1	TYPE1	TYPE1	TYPE1	TYPE1	TYPE1	TYPE1	TYPE1

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Part Set-up Information			
Part Number:	See below	**Product Dimensions:**	4" (W) X 1.03" (H) X 5.79" (L) {101.85 mm (W) X 26.1 mm (H) X 147 mm (L)}
Product name:	Toshiba N300 NAS Internal Hard Drive (Retail packaging)	**Product weight:**	4TB/12TB: 1.52 lb {690 g} max 6TB: 1.56 lb {710 g} max 8TB: 1.61 lb {730 g} max 10TB: 1.66 lb {755 g} max 14TB: 1.55 lb {705 g} max 16TB/18TB/20TB: 1.59 lb {720 g} max
UPC code:	See below	**Package dimensions:**	7.4" (H) x 5.3" (W) x 2.4" (D) {189.0 mm (H) x 136.0 mm (W) x 60.0 mm (D)}
Master carton UPC:	See below	**Package weight:**	2.02 lb {915 g} max
		Packaging Material:	Retail Box, 300P CCWB+E Flute (White)
Product category:	Internal Storage, NAS Storage, High Reliability Drive, NAS hard drives, Network Attached Storage	**Master carton quantity:**	4 pcs per carton
Warranty[7]:	Three (3) Year Limited Warranty	**Master carton dimensions:**	10.4" x 5.9" x 8.3" {265 mm x 150 mm x 210 mm}
Estimated Availability Date	NEW MODELS: 4TB/6TB/8TB/10TB (HDWG7 series): Q1 2024 12TB (HDWG51C): Q1 2024 16TB (HDWG51G): Q2 2024 20TB (HDWG62A): Q2 2024 (new capacity) CURRENT MODELS: 14TB (HDWG51E): Now 18TB (HDWG51J): Now	**Master carton weight:**	8.82 lb {4 kg} max
Embargo Date:	14 days after availability date	**Units per pallet:**	480 pcs
Country of origin:	Made in Philippines	**Layers per pallet:**	5 layers
Package Contents:	Toshiba N300 NAS Internal Hard Drive	**Units per Layer**	96 pcs
Applications[2]:	• 1- to 8-bay NAS • Desktop RAID and servers • Multimedia server storage	**Minimum Order Qty:**	4 pcs
Replacement:	4TB: HDWG740XZSTC to replace HDWG440XZSTA 6TB: HDWG760XZSTA to replace HDWG460XZSTA 8TB: HDWG780XZSTA to replace HDWG480XZSTA 10TB: HDWG71AXZSTA to replace HDWG11AXZSTA 12TB: HDWG51CXZSTA to replace HDWG21CXZSTA 16TB: HDWG51GXZSTA to replace HDWG31GXZSTA		
Environmental:	RoHS Compliant[9]		

Part Number	Capacity[1]	RPM	Cache (MB)	UPC	Master Carton UPC
HDWG740XZST**C**	4TB	7200	512	723844001902	10723844001909
HDWG760XZSTA	6TB	7200	512	723844001896	10723844001893
HDWG780XZSTA	8TB	7200	512	723844001889	10723844001886
HDWG71AXZSTA	10TB	7200	512	723844001872	10723844001879
HDWG51CXZSTA	12TB	7200	512	723844001247	10723844001244
HDWG51EXZSTA	14TB	7200	512	723844001230	10723844001237
HDWG51GXZSTA	16TB	7200	512	723844001223	10723844001220
HDWG51JXZSTA	18TB	7200	512	723844001216	10723844001213
HDWG62AXZSTA	20TB	7200	512	723844001797	10723844001794

[1] 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. Actual formatted capacity may vary.
[2] Compatibility may vary depending on user's hardware configuration and operating system.
[3] Product specifications, configurations, colors, components and features are subject to change without notice.
[4] The maximum sustained data rate and interface speed may be restricted to the response speed of host system and by transmission characteristics. Read and write speed may vary depending on the host device, read and write conditions, and file size
[5] 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, Annualized Workload Rate = (Lifetime Writes + Lifetime Reads) * (8760 / Lifetime Power On Hours) in case Power On time is 8760h or longer. Otherwise (i.e. Power On time is shorter than 8760h), Annualized Workload Rate = (Lifetime Writes + 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
[6] As for "Drive Bays Supported", please contact your Solutions Provider because the compatibility with the host device will vary based on the system
[7] Limited Warranty (Americas), full terms and conditions available at http://storage.toshiba.com/consumer-hdd/support/warranty-info
[8] 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.
[9] 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.
[10] 2.5-inch" and "3.5-inch" mean the form factor of HDDs. They do not indicate drive's physical size.
[11] Drive life may vary depending on usage and workload. See also MTTF and Annual Workload Rating for more detail.
[12]Location of bottom mounting hole is different from product. For more information, please visit:
https://toshiba.semicon-storage.com/us/storage/support/faq/storage-holes.html
[13] CMR means Conventional Magnetic Recording Technology

Information in this document, including product prices and specifications, content of services and contact information, is current and believed to be accurate on the date of the announcement but is subject to change without prior notice.