Product Setup Sheet

2/19/2024

HDWGxxxXZSTx
Toshiba N300 PRO NAS Internal Hard Drive (Retail Packaging)

Description

Trusted Reliability. Built for Business NAS.

The Toshiba N300 Pro NAS Internal Hard Drive is ready to help you scale your business with up to 24 drive bay[4] support.

Offering a higher workload of up to 300 TB/yr[6] and an expanded capacity of up to 22TB[1] (compared to the N300), you can rely on the N300 Pro to help you take your business to the next level. Delivering the 7200 RPM speed you need to access your data quickly and 24/7 operation[10] to help keep your data readily accessible, these drives are optimized to help keep your business growing.

The N300 Pro is designed to work in wide temperature ranges and has built-in RV sensors to mitigate rotational vibration in a multi-RAID environment, so you can be confident that this drive will perform wherever and whenever you need it most. Plus, this drive is engineered with CMR technology to deliver consistent performance and broad compatibility.

When speed, reliability and performance are critical to your business, the N300 Pro hard drive delivers.

Applications[13]:

- Network Attached Storage (NAS) for high-intensity workloads
- NAS systems for medium or large-sized businesses
- RAID-optimized NAS systems with up to 24 bays

For over 50 years, Toshiba has been developing and manufacturing hard drives. Like all Toshiba products, the N300 Pro 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 offers time-tested quality that is backed by a Toshiba five-year limited warranty[8] providing you with peace of mind.

For more information on Toshiba’s entire line of consumer storage solutions, visit:
http://storage.toshiba.com/consumer-hdd

Product Features[12]

- **Built for Mid to Large-sized Business**
  - Supports multi-RAID systems with up to 24 bays[4].
  - Designed for 24/7 operation[10] with workload rate of up to 300 TB/year[6].
  - CMR technology delivers consistent performance and broad compatibility.
- **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**
  - 7200 RPM speed and 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[5] 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 limits recovery time to help optimize error correction in RAID environments.
- **High Durability and Heat Prevention**
  - The drive automatically adjusts the seek speed when it reaches a critical temperature to help reduce heat buildup during high temperature operation.
- **Peace of Mind**
  - High reliability with MTTF[7] up to 1.2 million hours
  - Toshiba 5-Year limited warranty[8]

Product Specifications	Product Image
General Specifications[12] (see detailed specs in the table below) • Capacity[1]: 4TB/6TB/8TB/10TB/12TB/14TB/16TB/18TB/20TB/22TB • Interface: Serial ATA 3.0 (SATA) • Interface speed: Up to 6 Gb/s • Form Factor[2]: 3.5 inch • Recording Technology: CMR • Rotational Speed: 7200 RPM • Cache size: Up to 512 MB • MTTF[7]: up to 1,200,000 hours • Workload Rate[6]: up to 300 TB/year • Drive Bays Supported[4]: up to 24 Content • Toshiba N300 PRO 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 22TB model)  Product image may represent a design model

Specification Details[12]

	N300 Pro									
Capacity[1]	22TB	20TB	18TB	16TB	14TB	12TB	10TB	8TB	6TB	4TB
Model Number (Retail Packaging)	HDWG62CXZSTB	HDWG62AXZSTB	HDWG51JXZSTB	HDWG51GXZSTB	HDWG51EXZSTB	HDWG51CXZSTB	HDWG71AXZSTB	HDWG780XZSTB	HDWG760XZSTB	HDWG740XZSTD
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	SATA 6.0 Gbit/s
Form Factor[2]	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	3.5-inch
Advanced Format (AF)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RoHS Compatible[3]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector Size	512e	512e	512e	512e	512e	512e	512e	512e	512e	512e
Features										
Drive Bays Supported[4]	Up to 24	Up to 24	Up to 24	Up to 24	Up to 24	Up to 24	Up to 24	Up to 24	Up to 24	Up to 24
Rotational Vibration (RV) Sensors	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Native Command Queuing (NCQ)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shock Sensor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Toshiba Cache Technology	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ramp Loading Technology	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recording Technology[11]	CMR	CMR	CMR	CMR	CMR	CMR	CMR	CMR	CMR	CMR
Performance										
Rotation Speed [RPM]	7200	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7200	7200
Max Data Transfer Speed[5] [MB/s Typ.](Sustained)	281	281	281	281	281	281	281	281	281	281
Cache Size [MB]	512	512	512	512	512	512	512	512	512	512
Reliability										
24x7 Operation[10]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Maximum Workload Rate [TB/Year][6]	300	300	300	300	300	300	300	300	300	300
MTTF [Hours][7]	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
Unrecoverable Error Rate	1 per 10^{15}	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	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000
Limited Warranty [Years][8]	5	5	5	5	5	5	5	5	5	5
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 %	5 VDC +10 / -7 % 12 VDC ±10 %
Power Consumption (Operating) [W]	8.02	8.02	7.48	7.48	7.38	6.85	9.07	8.19	7.43	6.75
Power Consumption (Active Idle) [W]	4.35	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)	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	-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)	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)	29.4 (3.0 G) (5 to 500 Hz)
Shock (Operating) [m/s²]	490 (50 G) (2 ms duration)	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]	1,960 (200 G) (2 ms duration)	1,960 (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)	2,450 (250 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)	2,450 (250 G) (2 ms duration)
Acoustics Idle Mode [dB]	20	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	26.1
Length [mm Max.]	147.0	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	101.85
Weight [g Max.]	720	720	720	720	705	690	755	730	710	690
Bottom Holes Type[9]	TYPE1	TYPE1	TYPE1	TYPE1	TYPE1	TYPE1	TYPE1	TYPE1	TYPE1	TYPE1

TOSHIBA

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 PRO 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/22TB: 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
Product category:	Internal Storage, NAS Storage, High Reliability Drive, NAS hard drives, Network Attached Storage, Business NAS, RAID Storage, Drives for Multi-Bay Server, Professional NAS, NAS for Large Business, 24-Bay NAS	**Packaging Material:**	Retail Box, 300P CCWB+E Flute (White)
Warranty[8]:	Five (5) Year Limited Warranty	**Master carton quantity:**	4 pcs per carton
Estimated Availability Date	New Models: 4TB/6TB/8TB/10TB (HDWG7 series): Q2 2024 22TB (HDWG62C): Q1 2024 (new capacity) Current Models: 12TB/14TB/16TB/18TB/20TB: Now	**Master carton dimensions:**	10.4" x 5.9" x 8.3" {265 mm x 150 mm x 210 mm}
Embargo Date:	14 days after availability date	**Master carton weight:**	8.82 lb {4 kg} max
Country of origin:	Made in Philippines	**Units per pallet:**	480 pcs
Package Contents:	Toshiba N300 PRO NAS Internal Hard Drive	**Layers per pallet:**	5 layers
Applications[13]:	• Network Attached Storage for high-intensity workloads • NAS systems for medium or large-sized businesses • RAID-optimized NAS systems with up to 24 bays	**Units per Layer**	96 pcs
Environmental:	RoHS Compliant[3]	**Minimum Order Qty:**	4 pcs
Replacement	HDWG740XZSTD to replace HDWG440XZSTB HDWG760XZSTB to replace HDWG460XZSTB HDWG780XZSTB to replace HDWG480XZSTB HDWG71AXZSTB to replace HDWG51AXZSTB		

Part Number	Capacity[1]	RPM	Cache (MB)	UPC	Master Carton UPC
HDWG740XZSTD	4TB	7200	512	723844001988	10723844001985
HDWG760XZSTB	6TB	7200	512	723844001971	10723844001978
HDWG780XZSTB	8TB	7200	512	723844001964	10723844001961
HDWG71AXZSTB	10TB	7200	512	723844001957	10723844001954
HDWG51CXZSTB	12TB	7200	512	723844001049	10723844001046
HDWG51EXZSTB	14TB	7200	512	723844001032	10723844001039
HDWG51GXZSTB	16TB	7200	512	723844001025	10723844001022
HDWG51JXZSTB	18TB	7200	512	723844001018	10723844001015
HDWG62AXZSTB	20TB	7200	512	723844001803	10723844001800
HDWG62CXZSTB	22TB	7200	512	723844001841	10723844001848

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 storage capacity may vary.
2. 2.5-inch and 3.5-inch mean the form factor of HDDs. They do not indicate drive's physical size.
3. Toshiba Electronic Devices & Storage Corporation 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.
4. As for "Drive Bays Supported", please contact your Solutions Provider because the compatibility with the host device will vary based on the system.
5. 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. Transfer speed varies by capacity.
6. 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. Workload is defined as the amount of data written, read or verified by commands from host system.
7. 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. MTTF (Mean Time to Failure) of the HDDs during its life time is 1.0 million hours and AFR(Annualized Failure Rate) is 0.88% or 1.2 million hours and AFR (Annualized) Failure Rate) is 0.73% . This assumes power-on hours are 24 x 7 in normal usage (8760 h/year power on hours, up to 180TB/year or up to 300TB/year total data transfers, and average HDA surface temperature:40°C or less). Use at case HDA surface temperature above 40°C may degrade product reliability and reduce warranty period.
8. Standard limited warranty applies. The warranty brochure can be viewed online at http://storage.toshiba.com/consumer-hdd/warranty-info.
9. 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
10. Drive life may vary depending on usage and workload. See also MTTF and Annual Workload Rating for more detail.
11. CMR is Conventional Magnetic Recording technology.
12. Product prices, specifications, configurations, colors, components, features, and availability are subject to change without notice.
13. Compatibility may vary depending on user's hardware configuration and operating system.