

TOSHIBA

Keep Business Moving

Toshiba N300 Pro NAS Internal Hard Drive



Image does not represent actual product.

The Toshiba N300 Pro NAS Internal Hard Drive is ready to help you scale your business with up to 24 drive bay support⁴.

Offering a higher workload of up to 300 TB/yr⁶ and an expanded capacity of up to 20TB¹ (compared to the N300), the N300 Pro is a reliable drive 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 operation¹⁰ 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. This drive is engineered with CMR technology to deliver a consistent performance and broad compatibility¹³. Plus, it offers time-tested quality that is backed by a Toshiba's five-year limited warranty⁸ providing you with peace of mind.

When speed, reliability and performance are critical to your business, the N300 Pro hard drive delivers. Keeping your data safe and accessible, so you can keep your business moving.

TOSHIBA

Toshiba N300 Pro NAS Internal Hard Drive

Application¹³

Network Attached Storage for high-intensity workloads
NAS systems for medium or large-sized businesses
RAID-optimized NAS systems with up to 24 bays⁴



Product image may represent a design model.



Operate Around the Clock

Designed for 24/7 NAS systems¹⁰.



Grow Your Business

Scalable up to 24 drive bays⁴ for medium or large-sized business. CMR technology for broad compatibility¹³.



Powerful Performance

7200 RPM speed with up to 512MB cache size. Powered by Toshiba cache technology.



Optimized for RAID Environment

Built-in RV sensors to mitigate rotational vibration. Error Recovery Control technology limits recovery time to help optimize error correction.



Enhanced Reliability

Workload rate up to 300 TB/yr^{6,10}. MTTF Up to 1.2 million hours⁷.



Capacity for More

Store and access your critical data and important documents with up to 20TB¹ storage capacity.



Peace of Mind

Toshiba Five-year limited warranty⁸.



| Capacity ¹ | <u>20TB</u> | <u>18TB</u> | <u>16TB</u> |
|--|--------------|--------------|--------------|
| Model Number (Retail Packaging) | HDWG62AXZSTB | HDWG51JXZSTB | HDWG51GXZSTB |
| Model Number (Bulk) | HDWG62AUZSVB | HDWG51JUZSVB | HDWG51GUZSVB |

Basic Specifications

| | | | |
|------------------------------------|-----------------|-----------------|-----------------|
| Interface | SATA 6.0 Gbit/s | SATA 6.0 Gbit/s | SATA 6.0 Gbit/s |
| Form Factor² | 3.5-inch | 3.5-inch | 3.5-inch |
| Advanced Format (AF) | Yes | Yes | Yes |
| RoHS Compatible³ | Yes | Yes | Yes |
| Sector Size | 512e | 512e | 512e |

Features

| | | | |
|--|-----------------|-----------------|-----------------|
| Drive Bays Supported⁴ | Up to 24 | Up to 24 | Up to 24 |
| Rotational Vibration (RV) Sensors | Yes | Yes | Yes |
| Shock Sensor | Yes | Yes | Yes |
| Drive Stabilization Technology | Yes (Dual Tied) | Yes (Dual Tied) | Yes (Dual Tied) |
| Toshiba Cache Technology | Yes | Yes | Yes |
| Ramp Loading Technology | Yes | Yes | Yes |
| Recording Technology¹¹ | CMR | CMR | CMR |

Performance

| | | | |
|---|-------|-------|-------|
| Rotational Speed [RPM] | 7,200 | 7,200 | 7,200 |
| Max Data Transfer Speed⁵ [MB/s Typ.] (Sustained) | 281 | 281 | 281 |
| Cache Size [MB] | 512 | 512 | 512 |

Reliability

| | | | |
|--|------------------------|------------------------|------------------------|
| 24x7 Operation¹⁰ | Yes | Yes | Yes |
| Workload Rate [TB/Year] ⁶ | 300 | 300 | 300 |
| MTTF [Hours] ⁷ | 1,200,000 | 1,200,000 | 1,200,000 |
| Unrecoverable Error Rate | 1 per 10 ¹⁵ | 1 per 10 ¹⁴ | 1 per 10 ¹⁴ |
| Load/Unload Cycles | 600,000 | 600,000 | 600,000 |
| Limited Warranty [Years] ⁸ | 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 % |
| Power Consumption (Operating) [W] | 7.30 | 7.48 | 7.48 |
| Power Consumption (Active Idle) [W] | 4.41 | 4.14 | 4.14 |

Environmental

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

Physical

| | | | |
|--------------------------------------|--------|--------|--------|
| Height [mm Max.] | 26.1 | 26.1 | 26.1 |
| Length [mm Max.] | 147.0 | 147.0 | 147.0 |
| Width [mm Max.] | 101.85 | 101.85 | 101.85 |
| Weight [g Max.] | 720 | 720 | 720 |
| Bottom Holes Type⁹ | TYPE1 | TYPE1 | TYPE1 |



| Capacity ¹ | <u>14TB</u> | <u>12TB</u> | <u>10TB</u> |
|--|--------------|--------------|--------------|
| Model Number (Retail Packaging) | HDWG51EXZSTB | HDWG51CXZSTB | HDWG51AXZSTB |
| Model Number (Bulk) | HDWG51EUZSVB | HDWG51CUZSVB | HDWG51AUZSVB |

Basic Specifications

| | | | |
|------------------------------------|-----------------|-----------------|-----------------|
| Interface | SATA 6.0 Gbit/s | SATA 6.0 Gbit/s | SATA 6.0 Gbit/s |
| Form Factor² | 3.5-inch | 3.5-inch | 3.5-inch |
| Advanced Format (AF) | Yes | Yes | Yes |
| RoHS Compatible³ | Yes | Yes | Yes |
| Sector Size | 512e | 512e | 512e |

Features

| | | | |
|--|-----------------|-----------------|-----------------|
| Drive Bays Supported⁴ | Up to 24 | Up to 24 | Up to 24 |
| Rotational Vibration (RV) Sensors | Yes | Yes | Yes |
| Shock Sensor | Yes | Yes | Yes |
| Drive Stabilization Technology | Yes (Dual Tied) | Yes (Dual Tied) | Yes (Dual Tied) |
| Toshiba Cache Technology | Yes | Yes | Yes |
| Ramp Loading Technology | Yes | Yes | Yes |
| Recording Technology¹¹ | CMR | CMR | CMR |

Performance

| | | | |
|---|-------|-------|-------|
| Rotational Speed [RPM] | 7,200 | 7,200 | 7,200 |
| Max Data Transfer Speed⁵ [MB/s Typ.] (Sustained) | 281 | 281 | 281 |
| Cache Size [MB] | 512 | 512 | 512 |

Reliability

| | | | |
|--|------------------------|------------------------|------------------------|
| 24x7 Operation¹⁰ | Yes | Yes | Yes |
| Workload Rate [TB/Year] ⁶ | 300 | 300 | 300 |
| MTTF [Hours] ⁷ | 1,200,000 | 1,200,000 | 1,200,000 |
| Unrecoverable Error Rate | 1 per 10 ¹⁴ | 1 per 10 ¹⁴ | 1 per 10 ¹⁴ |
| Load/Unload Cycles | 600,000 | 600,000 | 600,000 |
| Limited Warranty [Years] ⁸ | 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 % |
| Power Consumption (Operating) [W] | 7.38 | 6.85 | 6.85 |
| Power Consumption (Active Idle) [W] | 3.77 | 3.30 | 3.30 |

Environmental

| | | | |
|--|--|--|--|
| Temperature (Operating) [°C] | 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 |
| Vibration (Operating) [m/s ²] | 7.35 {0.75 G} (5 to 300Hz) 2.45 {0.25 G} (300 to 500Hz) | 7.35 {0.75 G} (5 to 300Hz) 2.45 {0.25 G} (300 to 500Hz) | 7.35 {0.75 G} (5 to 300Hz) 2.45 {0.25 G} (300 to 500Hz) |
| Vibration (Non-Operating) [m/s ²] | 29.4 {3.0 G} (5 to 500Hz) | 29.4 {3.0 G} (5 to 500Hz) | 29.4 {3.0 G} (5 to 500Hz) |
| Shock (Operating) [m/s ²] | 686 {70 G} (2 ms duration) | 686 {70 G} (2 ms duration) | 686 {70 G} (2 ms duration) |
| Shock (Non-Operating) [m/s ²] | 2,450 {250 G} (2 ms duration) | 2,450 {250 G} (2 ms duration) | 2,450 {250 G} (2 ms duration) |
| Acoustics (Sound Power) Idle Mode [dB] | 20 | 20 | 20 |

Physical

| | | | |
|--------------------------------------|--------|--------|--------|
| Height [mm Max.] | 26.1 | 26.1 | 26.1 |
| Length [mm Max.] | 147.0 | 147.0 | 147.0 |
| Width [mm Max.] | 101.85 | 101.85 | 101.85 |
| Weight [g Max.] | 705 | 690 | 690 |
| Bottom Holes Type⁹ | TYPE1 | TYPE1 | TYPE1 |



| Capacity ¹ | 8TB | 6TB | 4TB |
|--|--------------|--------------|--------------|
| Model Number (Retail Packaging) | HDWG480XZSTB | HDWG460XZSTB | HDWG440XZSTB |
| Model Number (Bulk) | HDWG480UZSVB | HDWG460UZSVB | HDWG440UZSVB |

Basic Specifications

| | | | |
|------------------------------------|-----------------|-----------------|-----------------|
| Interface | SATA 6.0 Gbit/s | SATA 6.0 Gbit/s | SATA 6.0 Gbit/s |
| Form Factor² | 3.5-inch | 3.5-inch | 3.5-inch |
| Advanced Format (AF) | Yes | Yes | No |
| RoHS Compatible³ | Yes | Yes | Yes |
| Sector Size | 512e | 512e | 512n |

Features

| | | | |
|--|----------|----------|----------|
| Drive Bays Supported⁴ | Up to 24 | Up to 24 | Up to 24 |
| Rotational Vibration (RV) Sensors | Yes | Yes | Yes |
| Shock Sensor | Yes | Yes | Yes |
| Drive Stabilization Technology | - | - | - |
| Toshiba Cache Technology | Yes | Yes | Yes |
| Ramp Loading Technology | Yes | Yes | Yes |
| Recording Technology¹¹ | CMR | CMR | CMR |

Performance

| | | | |
|---|-------|-------|-------|
| Rotational Speed [RPM] | 7,200 | 7,200 | 7,200 |
| Max Data Transfer Speed⁵ [MB/s Typ.] (Sustained) | 260 | 250 | 232 |
| Cache Size [MB] | 256 | 256 | 256 |

Reliability

| | | | |
|--|------------------------|------------------------|------------------------|
| 24x7 Operation¹⁰ | Yes | Yes | Yes |
| Workload Rate [TB/Year] ⁶ | 300 | 300 | 300 |
| MTTF [Hours] ⁷ | 1,200,000 | 1,200,000 | 1,200,000 |
| Unrecoverable Error Rate | 1 per 10 ¹⁵ | 1 per 10 ¹⁵ | 1 per 10 ¹⁵ |
| Load/Unload Cycles | 600,000 | 600,000 | 600,000 |
| Limited Warranty [Years] ⁸ | 5 | 5 | 5 |

Power Management

| | | | |
|--|------------------------------|------------------------------|------------------------------|
| Supply Voltage | 5 VDC ± 5 % 12 VDC ± 10 % | 5 VDC ± 5 % 12 VDC ± 10 % | 5 VDC ± 5 % 12 VDC ± 10 % |
| Power Consumption (Operating) [W] | 8.41 | 7.72 | 6.84 |
| Power Consumption (Active Idle) [W] | 5.61 | 4.93 | 4.04 |

Environmental

| | | | |
|--|--|--|--|
| Temperature (Operating) [°C] | 5 to 65 (surface) | 5 to 65 (surface) | 5 to 65 (surface) |
| Temperature (Non-Operating) [°C] | -40 to 70 | -40 to 70 | -40 to 70 |
| Vibration (Operating) [m/s ²] | 7.35 {0.75 G} (2 to 300Hz) 4.90 {0.50 G} (300 to 350Hz) | 7.35 {0.75 G} (2 to 300Hz) 4.90 {0.50 G} (300 to 350Hz) | 7.35 {0.75 G} (2 to 300Hz) 4.90 {0.50 G} (300 to 350Hz) |
| Vibration (Non-Operating) [m/s ²] | 29.4 {3.0 G} (5 to 500Hz) | 29.4 {3.0 G} (5 to 500Hz) | 29.4 {3.0 G} (5 to 500Hz) |
| Shock (Operating) [m/s ²] | 686 {70 G} (2 ms duration) | 686 {70 G} (2 ms duration) | 686 {70 G} (2 ms duration) |
| Shock (Non-Operating) [m/s ²] | 2,450 {250 G} (2 ms duration) | 2,450 {250 G} (2 ms duration) | 2,450 {250 G} (2 ms duration) |
| Acoustics (Sound Power) Idle Mode [dB] | 31 | 31 | 31 |

Physical

| | | | |
|--------------------------------------|--------|--------|--------|
| Height [mm Max.] | 26.1 | 26.1 | 26.1 |
| Length [mm Max.] | 147.0 | 147.0 | 147.0 |
| Width [mm Max.] | 101.85 | 101.85 | 101.85 |
| Weight [g Max.] | 720 | 700 | 693 |
| Bottom Holes Type⁹ | TYPE2 | TYPE2 | TYPE2 |

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

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 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.

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, $\text{Annualized Workload Rate} = (\text{Lifetime Writes} + \text{Lifetime Reads}) * (8760 / \text{Lifetime Power On Hours})$ 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.

⁷ MTTF (Mean Time to Failure) or MTBF (Mean Time Between 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 or MTBF. MTTF (Mean Time to Failure) or MTBF (Mean Time Between Failure) of the HDDs during its life time is 600,000 hours and AFR(Annualized Failure Rate) is 1.46%, or 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 180 TB/year or up to 300 TB/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.

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