



## PRODUCT INFORMATION

## HARD DRIVES FOR VIDEO SURVEILLANCE



## WD Purple Smart Video Hard Drive™ Pro

### Purpose-built storage for your smart video solution

The WD Purple hard drive™22TB Pro, with OptiNAND technology, delivers high capacity in an enterprise-grade drive for deep learning, AI and video analytics server systems to enable data-driven results.

### Exclusive AllFrame AI technology™ Western Digital

AI AllFrame technology supports up to 32 AI streams for deep learning analysis within a system, while reducing frame drops.

### Multiple cameras, multiple streams

WD Purple drives™Pro are optimized to manage up to 64 single-streaming HD cameras<sup>2</sup>, plus 32 simultaneous AI streams. With this flexibility, you can easily upgrade and adjust your intelligent video solution as your needs change.

### Advanced Workload Capability for Advanced Systems

These reliable drives are designed with a workload rating of up to 550TB per year<sup>3</sup> to address the demands for 24/7 data capture and analysis from advanced AI-powered recorders, video analytics appliances, and deep learning analytics servers.

### Engineered for reliable operation

Engineered with an MTBF of up to 2.5 million hours<sup>4</sup> and backed with a 5-year limited warranty, WD Purple hard drives™Pro also include damage-resistant components and are multi-slot capable for reliable operation in large-scale surveillance systems.

### Proactive storage management with WDDA™

Western Digital Device Analytics™ (WDDA) provides drive health management features to supported video recorders and management systems.

## Highlights

- The WD Purple hard drive™22TB Pro, with OptiNAND™ technology delivers massive capacity in a drive designed for today's smart, advanced, AI-enabled VCRs, devices, and servers.  
constant operation.
- Exclusive AI AllFrame technology™ from Western Digital enhances ATA streaming to help reduce dropped frames and improve overall video playback.
- WD Purple drives™Pro are optimized to support up to 64 single-streaming HD cameras<sup>2</sup>, as well as many of the latest smart cameras that stream multiple streams.
- With a workload rate of up to 550TB per year<sup>3</sup>, these drives are designed to meet the needs of capturing and analyzing large amounts of video data.
- The reliable WD Purple drive™Pro is designed with a mean time between failures (MTBF) up to 2.5 million hours<sup>4</sup> for advanced intelligent video solutions that operate in 24/7 active environments.
- Western Digital Device Analytics™ provides supported systems with a wealth of storage device diagnostic and operational parametric data.

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### Specifications

|  | 22TB <sub>1</sub>        | 18TB <sub>1</sub>        | 14TB <sub>1</sub>        | 12TB <sub>1</sub>        | 10TB <sub>1</sub>        | 8TB <sub>1</sub>         |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Model number                                     | WD221PURP                | WD181PURP                | WD141PURP                | WD121PURP                | WD101PURP                | WD8001PURP               |
| formatted capacity <sub>1</sub>                  | 22TB                     | 18TB                     | 14TB                     | 12TB                     | 10TB                     | 8TB                      |
| form factor                                      | 3.5 inches               | 3.5 inches               | 3.5 inches               | 3.5 inches               | 3.5 inches               | 3.5 inches               |
| Advanced Format (AF)                             | Yeah                     | Yeah                     | Yeah                     | Yeah                     | Yeah                     | Yeah                     |
| recording technology                             | WRC                      | WRC                      | WRC                      | WRC                      | WRC                      | WRC                      |
| RoHS compliances                                 | Yeah                     | Yeah                     | Yeah                     | Yeah                     | Yeah                     | Yeah                     |
| Product characteristics                          |                          |                          |                          |                          |                          |                          |
| Compatible cameras                               | Up to 64 HD <sub>2</sub> | Up to 64 HD <sub>2</sub> | Up to 64 HD <sub>2</sub> | Up to 64 HD <sub>2</sub> | Up to 64 HD <sub>2</sub> | Up to 64 HD <sub>2</sub> |
| AI sequences                                     | 32                       | 32                       | 32                       | 32                       | 32                       | 32                       |
| Firmware Feature Name                            | AI AllFrame              | AI AllFrame              | AI AllFrame              | AI AllFrame              | AI AllFrame              | AI AllFrame              |
| Damage resistant components                      | Yeah                     | Yeah                     | Yeah                     | Yeah                     | Yeah                     | Yeah                     |
| Performance                                      |                          |                          |                          |                          |                          |                          |
| Interface transfer rate (max.)<br>buffer to host | 6Gb/s                    | 6Gb/s                    | 6Gb/s                    | 6Gb/s                    | 6Gb/s                    | 6Gb/s                    |
| Host to/from disk (sustained) <sub>3</sub>       | 265MB/s                  | 272MB/s                  | 255MB/s                  | 245MB/s                  | 265MB/s                  | 245MB/s                  |
| Cache (MB) <sub>1</sub>                          | 512                      | 512                      | 512                      | 256                      | 256                      | 256                      |
| rpm  | 7200                     | 7200                     | 7200                     | 7200                     | 7200                     | 7200                     |
| Reliability/Data Integrity                       |                          |                          |                          |                          |                          |                          |
| Charge/discharge cycles <sub>7</sub>             | 600,000                  | 600,000                  | 600,000                  | 600,000                  | 600,000                  | 600,000                  |
| Annualized Workload Index <sub>3</sub>           | Up to 550TB per year     | Up to 550TB per year     | Up to 550TB per year     | Up to 550TB per year     | Up to 550TB per year     | Up to 550TB per year     |
| Non-recoverable read errors per bits read        | <1 in 10 <sup>15</sup>   | <1 in 10 <sup>15</sup>   | <1 in 10 <sup>15</sup>   | <1 in 10 <sup>15</sup>   | <1 in 10 <sup>15</sup>   | <1 in 10 <sup>15</sup>   |
| MTBF <sub>4</sub>                                | 2,500,000                | 2,500,000                | 2,500,000                | 2,500,000                | 2,000,000                | 2,000,000                |
| Limited warranty (years) <sub>5</sub>            | 5                        | 5                        | 5                        | 5                        | 5                        | 5                        |
| power management                                 |                          |                          |                          |                          |                          |                          |
| Average Power Requirements (W)                   |                          |                          |                          |                          |                          |                          |
| Reading  | 6.9                      | 6.3                      | 6.0                      | 6.6                      | 9                        | 8.6                      |
| writing  | 5.6                      | 5.9                      | 5.7                      | 5.6                      | 8                        | 7.4                      |
| Idle   | 1.2                      | 0.9                      | 0.8                      | 0.6                      | 0.5                      | 0.4                      |
| wait and suspension                              |                          |                          |                          |                          |                          |                          |
| environmental specifications                     |                          |                          |                          |                          |                          |                          |
| Temperature                                      |                          |                          |                          |                          |                          |                          |
| Working  | From 0°C up to 65°C      | From 0°C up to 65°C      | From 0°C up to 65°C      | From 0°C up to 65°C      | From 0°C up to 65°C      | From 0°C up to 65°C      |
| Idle   | From -40°C up to 70°C    | From -40°C up to 70°C    | From -40°C up to 70°C    | From -40°C up to 70°C    | From -40°C up to 70°C    | From -40°C up to 70°C    |
| Shock (Gs)                                       |                          |                          |                          |                          |                          |                          |
| Working  | 40                       | fifty                    | 70                       | 30                       | 70                       | 30                       |
| Working  | 40                       | fifty                    | 70                       | 65                       | 70                       | 65                       |
| Idle   | 200                      | 250                      | 300                      | 250                      | 250                      | 250                      |
| Acoustics (dBA)                                  |                          |                          |                          |                          |                          |                          |
| Idle   | twenty                   | twenty                   | twenty                   | twenty                   | 3. 4                     | 27                       |
| Search (average)                                 | 32                       | 27                       | 36                       | 29                       | 38                       | 29                       |
| physical dimensions                              |                          |                          |                          |                          |                          |                          |
| Height (inches/mm, max)                          | 1.028/26.1               | 1.028/26.1               | 1.028/26.1               | 1.028/26.1               | 1.028/26.1               | 1.028/26.1               |
| Length (inches/mm, max)                          | 5,787/147                | 5,787/147                | 5,787/147                | 5,787/147                | 5,787/147                | 5,787/147                |
| Width (inches/mm, ±0.01 inches)                  | 4/101.6                  | 4/101.6                  | 4/101.6                  | 4/101.6                  | 4/101.6                  | 4/101.6                  |
| Weight (lbs/kg, ±3%)                             | 1.48/0.67                | 1.52/0.69                | 1.52/0.69                | 1.46/0.66                | 1.65/0.75                | 1.58/0.715               |

<sup>1</sup> 1 MB = one million bytes, 1 GB = one billion bytes, and 1 TB = one trillion bytes. 1TB = one trillion bytes. Actual user capacity may be less depending on the operating environment.  
<sup>2</sup> Single stream per camera at 3.2 Mbps (1080p, H.265, 25 fps). Results may vary based on camera resolution, file format, frames per second, software, system settings, video quality, and other factors.  
<sup>3</sup> The workload rate is defined as the amount of user data that is transferred to or from the hard drive. Annualized workload rate (X TB transferred [8760/recorded power-on hours]). Workload rate will vary depending on hardware and software components and configurations

<sup>4</sup> Estimated values. The final MTBF and AFR specifications are based on a sample population and are calculated using statistical measurements and throttling algorithms under normal operating conditions, a workload of 220TB per year, and a disk temperature of 40°C. MTBF and AFR reduction occurs above these parameters, up to 550TB writes per year and 65°C disk temperature. MTBF and AFR rates do not predict individual unit reliability nor do they constitute a guarantee.  
<sup>5</sup> This disc complies with the European Union Directive 2011/65/EU and Delegated Directive (EU) 2015/863 regarding restrictions on the use of certain hazardous substances in electrical and electronic equipment.  
<sup>6</sup> Up to the stipulated speed. 1 MB/s = one million bytes per second. According to internal tests; performance may vary based on host device, usage conditions, drive capacity and other factors.  
<sup>7</sup> Controlled discharge in ambient condition.  
<sup>8</sup> Visit [support.wdc.com/warranty](http://support.wdc.com/warranty) for detailed warranty information by region.

