Western Digital

WD Purple™ Pro

Product Highlights

- Engineered with advanced capabilities needed for high-end smart video solutions
- High performance, reliability and workload capability for advanced AI-enabled recorders, video analytics appliances, deep-learning servers and cloud-based storage, including RAID and JBOD configurations.
- Supports up to 550 TB/yr workload rate[6].
- Designed with tarnish-resistant components for harsh environments, and with additional robustness for multi-bay enclosures

INTERFACE SATA 6 Gb/s	**MODEL NUMBERS**[2] WD181PURP WD141PURP
FORM FACTOR 3.5-inch	WD121PURP WD101PURP
RPM 7200 RPM	WD8001PURP
CAPACITIES[3] 8TB to 18TB	

THE WESTERN DIGITAL ADVANTAGE

Western Digital puts our products through extensive Functional Integrity Testing (F.I.T.) prior to any product launch. This testing ensures our products consistently meet the highest quality and reliability standards of the Western Digital brand.

Western Digital also has a detailed Knowledge Base with more than 1,000 helpful articles as well as software and utilities. Our customer support lines have long operational hours to ensure you get the help you need when you need it. Our toll-free customer support lines are here to help, or you can access our Western Digital Support site for additional details.

Storage for advanced smart video solutions

WD Purple™ Pro drives are designed for new generations of high-end AI-enabled recorders, video analytics appliances, deep-learning servers and cloud solutions that can benefit from high-capacity storage with high performance and additional workload capability. WD Purple Pro drives feature AllFrame™ AI technology, which helps reduce frame loss, improve overall video playback, and not only enables recording of multiple streams per camera but also supports up to 32 AI streams per drive for deep learning analytics within the system. WD Purple Pro drives also feature enterprise-class performance, data integrity and drive reliability, especially in larger-scale systems and enclosures where operational vibration is present.

Empower your smart video solution.

Western Digital is a worldwide leader in the hard drive industry. With WD Purple™ Pro smart video storage, you have a drive engineered for high performance, durability and workload capability for advanced always-on AI-enabled smart video recorders, appliances, and servers. Efficiently and effectively extract value and insights from streamed and stored video, and help deliver a smarter world with advanced WD Purple Pro smart video storage.

Western Digital's exclusive AllFrame™ AI technology

All WD Purple™ Pro drives are equipped with AllFrame AI technology, which not only improves ATA streaming to help reduce frame loss and improve overall video playback, but supports up to 32 AI streams for Deep Learning analytics within the system.

Multiple Cameras, Multiple Streams

Modern recorders now support multiple video streams per camera. WD Purple™ Pro drives are optimized to support up to 64 HD single-stream cameras[12], and can also support the latest smart cameras that transmit multiple streams. With this flexibility, you can upgrade or scale your security or smart video solution in the future.

Advanced workload capability for advanced systems

WD Purple™ Pro drives feature a workload rating up to 550TB/year[6] to support the heavy video data capture and analysis found in advanced AI-enabled recorders, video analytics appliances, deep learning analytics servers and cloud-based storage. The combination of streaming optimizations and enhanced durability and reliability make WD Purple Pro smart video storage ideal for all analytics servers, whether processing video streamed directly from cameras or large-scale captured video data sets.

Designed for reliable operation in advanced high-performance smart video solutions

With an MTBF of up to 2.5 million hours[1] (12TB, 14TB and 18TB[3]), WD Purple™ Pro drives are engineered for advanced smart video solutions that operate 24/7. With tarnish-resistant components and full multi-bay support, WD Purple Pro drives deliver reliable operation in large scale surveillance systems even in harsh environments.

Field-proven high capacity

Now on its 6th generation, field-proven HelioSeal™ technology delivers trusted high-capacity WD Purple™ Pro hard drives (12TB, 14TB and 18TB[3]) for the massive storage needs of AI-driven smart video and deep learning analytics.

Proactive storage management with WDDA

Western Digital® Device Analytics™ (WDDA) provides a wealth of storage device parametric operational and diagnostic data compatible systems; algorithms interpret the data and direct the system to alert system administrators of specific recommended actions to address potential issues. WDDA is intended to empower OEMs, system integrators, and IT professionals to better monitor and proactively manage supported storage devices to maintain optimal operation.

WD Purple™ Pro

Specifications[3]

	18TB	14TB	12TB	10TB	8TB
Model Number[2]	WD181PURP	WD141PURP	WD121PURP	WD101PURP	WD8001PURP
Formatted capacity[3]	18TB	14TB	12TB	10TB	8TB
Form factor	3.5-inch	3.5-inch	3.5-inch	3.5-inch	3.5-inch
Advanced Format (AF)	Yes	Yes	Yes	Yes	Yes
Recording Technology	CMR	CMR	CMR	CMR	CMR
RoHS compliant[4]	Yes	Yes	Yes	Yes	Yes
Product Features					
Cameras supported[12]	Up to 64 HD	Up to 64 HD	Up to 64 HD	Up to 64 HD	Up to 64 HD
AI streams	32	32	32	32	32
Firmware feature name	AllFrame AI	AllFrame AI	AllFrame AI	AllFrame AI	AllFrame AI
Tarnish resistant components	Yes	Yes	Yes	Yes	Yes
Performance					
Interface transfer rate (max)[3]					
Buffer to host	6 Gb/s	6 Gb/s	6 Gb/s	6 Gb/s	6 Gb/s
Host to/from drive (sustained)	272 MB/s	255 MB/s	245 MB/s	265 MB/s	245 MB/s
Cache (MB)[3]	512	512	256	256	256
RPM	7200	7200	7200	7200	7200
Reliability/Data Integrity					
Load/unload cycles[5]	600,000	600,000	600,000	600,000	600,000
Annualized workload rating[6]	Up to 550 TB/yr	Up to 550 TB/yr	Up to 550 TB/yr	Up to 550 TB/yr	Up to 550 TB/yr
Non-recoverable read errors per bits read	<1 in 10^{15}	<1 in 10^{15}	<1 in 10^{15}	<1 in 10^{15}	<1 in 10^{15}
MTBF[1]	2,500,000	2,500,000	2,500,000	2,000,000	2,000,000
Limited warranty (years)[7]	5	5	5	5	5
Power Management[8]					
Average power requirements (W)					
Read/Write	6.3	6.0	6.6	9	8.6
Idle	5.9	5.7	5.6	8	7.4
Standby and Sleep	0.9	0.8	0.6	0.5	0.4
Environmental Specifications[9]					
Temperature (°C, on the base casting)					
Operating[10]	0 to 65	0 to 65	0 to 65	0 to 65	0 to 65
Non-operating	-40 to 70	-40 to 70	-40 to 70	-40 to 70	-40 to 70
Shock (Gs)					
Operating (2 ms, read/write)	50	70	30	70	30
Operating (2 ms, read)	50	70	65	70	65
Non-operating (2 ms)	250	300	250	250	250
Acoustics (dBA)[11]					
Idle	20	20	20	34	27
Seek (average)	27	36	29	38	29
Physical Dimensions					
Height (in./mm, max)	1.028/26.1	1.028/26.1	1.028/26.1	1.028/26.1	1.028/26.1
Length (in./mm, max)	5.787/147	5.787/147	5.787/147	5.787/147	5.787/147
Width (in./mm, ± .01 in.)	4/101.6	4/101.6	4/101.6	4/101.6	4/101.6
Weight (lb/kg, ± 10%)	1.52/0.69	1.52/0.69	1.46/0.66	1.65/0.75	1.58/0.715

[1] Projected values. When final, MTBF and AFR specifications will be based on a sample population and are estimated by statistical measurements and acceleration algorithms under typical operating conditions, workload of 220TB/year and drive temperature of 40°C. Derating of MTBF and AFR will occur above these parameters, up to 550TB writes per year and 65°C drive temperature. MTBF and AFR ratings do not predict an individual drive's reliability and do not constitute a warranty.

[2] Not all products may be available in all regions of the world.

[3] As used for storage capacity, one gigabyte (GB) = one billion bytes and one terabyte (TB) = one trillion bytes. Total accessible capacity varies depending on operating environment. As used for buffer or cache, one megabyte (MB) = 1,048,576 bytes. As used for transfer rate or interface, megabyte per second (MB/s) = one million bytes per second, and gigabit per second (Gb/s) = one billion bits per second. Effective maximum SATA 6 Gb/s transfer rate calculated according to the Serial ATA specification published by the SATA-IO organization as of the date of this specification sheet. Visit www.sata-io.org for details

[4] This drive is in compliance with the European Union Directive 2011/65/EU and Directive (EU) 2015/863 on the restriction of the use of certain hazardous substances in electrical and electronic equipment..

[5] Controlled unload at ambient condition

[6] Workload Rate is defined as the amount of user data transferred to or from the hard drive. Workload Rate is annualized (TB transferred x (8760 / recorded power-on hours)). Workload Rate will vary depending on your hardware and software components and configurations.

[7] See support.wdc.com/warranty for regional specific warranty details.

[8] Power measurements at room-ambient temperature

[9] No non-recoverable errors during operating tests or after non-operating tests

[10] On the base casting.

[11] Sound power level.

[12] Single stream per camera @ 3.2Mbps (1080p, H.265, 25 fps). Results may vary depending on camera resolution, file format, frames per second, software, system settings, video quality, and other factors.

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