



AtomX SSDmini

Nextorage Corporation

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Ver.1.0

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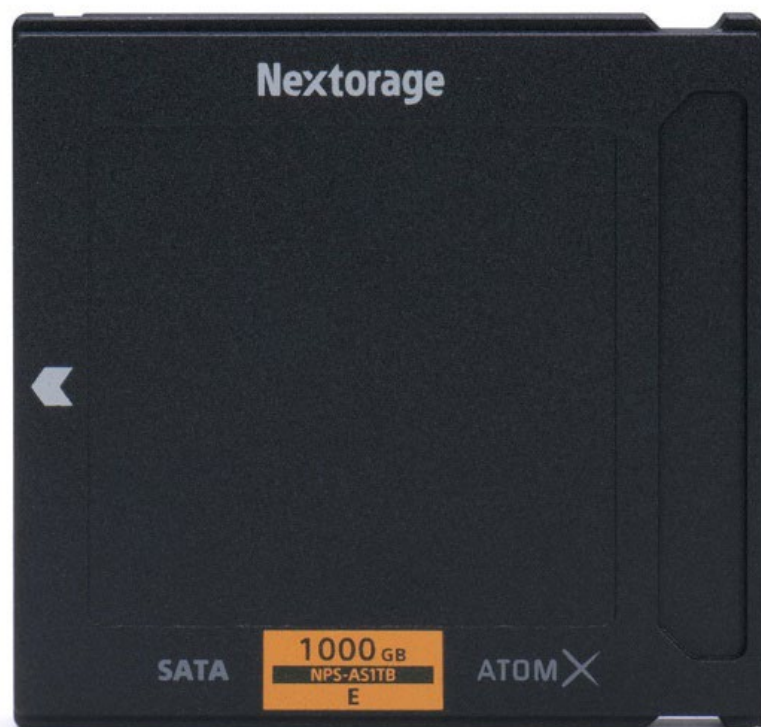
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INTRODUCTION

NPS-AS500 and NPS-AS1TB, produced by Nextorage Corporation, are the only SSDs that do not cause Drop Frame, which have been verified by ATOMOS. With Nextorage's NPS-AS series, it is now possible to record with high resolution as well as a number of high-quality frames without worries.

Certified ATOMOS recorders are as follows:

- Ninja V+
- Ninja V
- SHOGUN 7
- SUMO 19
- NEON



PRODUCT

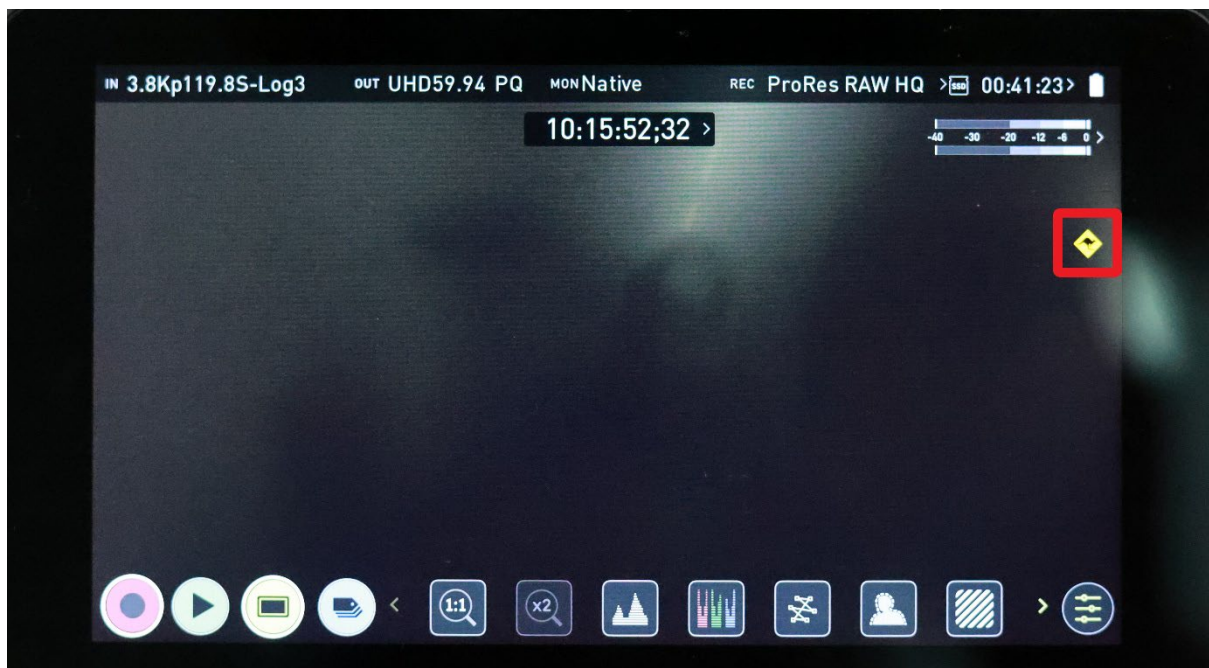
Product name	NPS-AS500	NPS-AS1TB
Storage Capacity	500GB	1000GB
Performance		
Interface	SATA III (6Gb/s)	
Maximum Read Speed	560MB/s	560MB/s
Sustained Read Speed	550MB/s	550MB/s
Maximum Write Speed	530MB/s	530MB/s
Sustained Write Speed	500MB/s	500MB/s
Reliability / Data Integrity		
Endurance (Total Bytes Written)	1500TBW	3000TBW
Load/Unload Cycles	3000 times	3000 times
Mean Time Between Failures (MTBF)	2,000,000 Hours	2,000,000 Hours
Environmental Specification		
Certifications	CE, FCC, UKCA, RCM, VCCI, WEEE, China RoHS	
Operating Temperature	32 to 104 °F / 0 to 40 °C	
Storage Temperature	-40 to 185 °F / -40 to 85 °C	
Operating Humidity	0 to 90%	
Operating Shock	1500G / 0.5ms	
Operating Vibration	20G	
Physical Specification		
Dimensions	3.15 x 2.97 x 0.37" / 80 x 75.5 x 9.3 mm	
Weight	3.1 oz / 88 g	

KEY FINDINGS

Cause of Drop Frame with ATOMOS recorder



Skippy logo indicated with ATOMOS recorder due to Drop Frame



The Skippy logo surrounded in a red square on the right upper corner on the screen shown above indicates there were interruptions during recording. Losing recorded data is fatal to users.

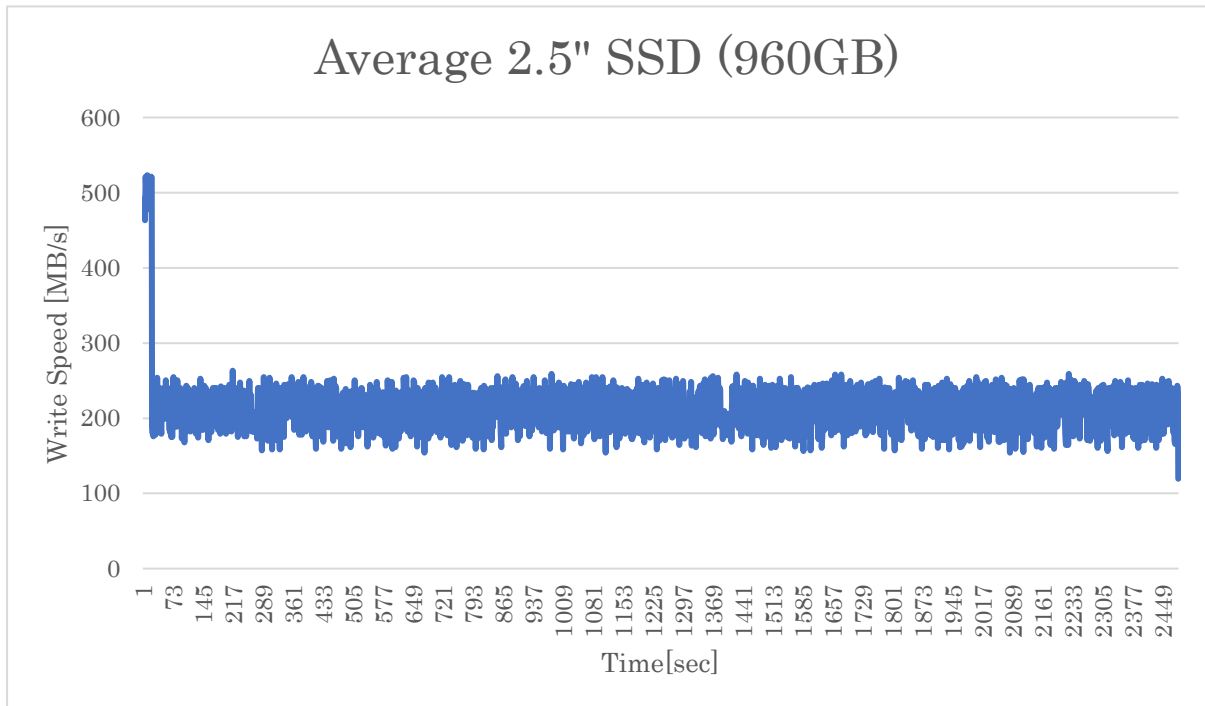
The Skippy occurs when the speed of transferring recorded data from an ATOMOS recorder is faster than the writing speed of the SSD's capabilities; storage in the recorder keeps building up data, which eventually causes recorded data to be deleted when the memory reaches full.

The Skippy logo occasionally appears while using an ATOMOS recorder with average 2.5" SSDs. This is because the writing speed of those average 2.5" SSDs are inconsistent, especially when large data such as videos are written. The graph stated below shows the average writing speed per second when it's written in SSD up to the full capacity. Maximum speed is

AtomX SSDmini Stable Recording Performance



supposedly 500MB/s, however, it immediately decreases to 200MB/s.



The table shown below indicates the condition of the Skippy logo while recording with a Ninja V+. Drop frame happens with Signal/Codec “8Kp29.97 ProRes RAW HQ” and “3.8Kp119.8 ProRes RAW HQ”, which matched the time until recording speed decreased around 200MB/s.

Signal/Codec	Average 2.5" SSD (960GB)
8Kp29.97 ProRes RAW HQ	Not Supported The Skippy logo comes up within one minute from the start of recording
3.8Kp119.8 ProRes RAW HQ	Not Supported The Skippy logo comes up within one minute from the start of recording
UHDp29.97 ProRes HQ	Supported

Supported : Successful recording up to full capacity without the Skippy logo indication

Not Supported : Drop Frame occurs with the Skippy logo indication

Quality of recorded video images contribute to the cause of Drop Frame. Data with high resolution as well as number of high-quality frames recorded with high-quality codec results in large data. When recorded data is large, ATOMOS device quickly reaches "full memory" and demands SSD for faster and stable writing speed. According to the recording results with average 2.5" SSDs, Drop Frame happens, and the Skippy logo appears with 8Kp29.97 ProRes RAW HQ and 3.8Kp119.8 ProRes RAW HQ. The maximum capability without the Skippy logo indication is with UHDp29.97 ProRes HQ.

Reasons why average 2.5" SSDs cause decrease in recording speed when using ATOMOS recorders

The reasons why average 2.5" SSDs cause a decrease in recording speed is because data transfer occurs within those SSDs at the same time the data from ATOMOS recorders is written.

Data transfer within SSD is called Garbage Collection. (Please refer to https://en.wikipedia.org/wiki/Write_amplification#Garbage_collection). Garbage Collection is used for various objectives such as recovering recording performance of SSDs.

In general, SSDs are used as main storage for PCs. Windows, Mac OS and Linux, for instance, periodically write in SSDs during file creation and saving drafts. Especially, saving drafts in files causes a decrease in recording performance, therefore, garbage collection comes in place to avoid disruptions.

ATOMOS recorders on the other hand, continuously record large-sized data in SSDs. Garbage collection kicks in during recording and causes SSDs to decrease recording speed: as average

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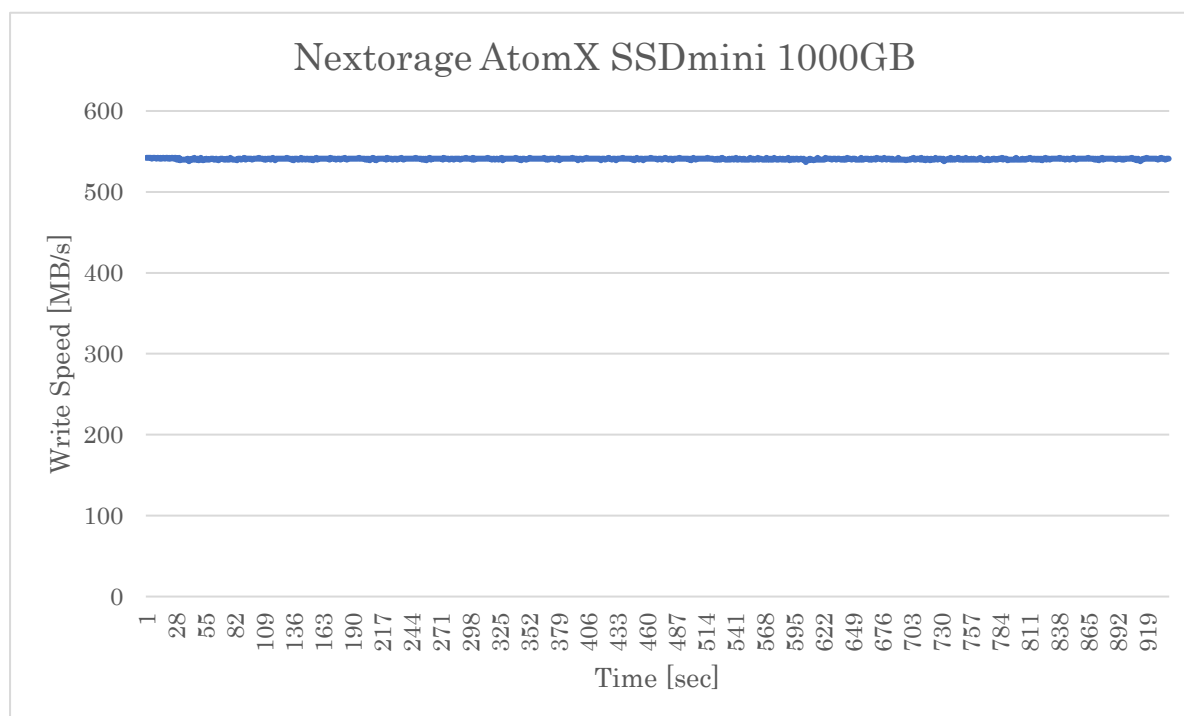


SSDs are unable to predict to continuously write data.

Nextorage AtomX SSDmini

With Nextorage's AtomX SSDmini, those particular 2.5" SSDs are designed to analyze recording patterns from ATOMOS recorders and minimize garbage collection function from being activated. As a result, it is possible to stabilize high-speed recording performance.

The table below shows the average writing speed per second up to full capacity by using Nextorage's AtomX SSDmini. As you can see, the speed is stable exceeding 500MB/s. at all times.



The table shown below indicates the condition of the Skippy logo while recording with an AtomX SSDmini and a Ninja V+. AtomX SSDmini makes it possible to record with high-resolution and a number of high-quality frames up to full capacity without the Skippy logo appearing on the screen.

Signal/Codec	Nextorage AtomX SSDmini 1000GB
8Kp29.97 ProRes RAW HQ	Supported
3.8Kp119.8 ProRes RAW HQ	Supported
UHDp29.97 ProRes HQ	Supported

Supported : Successful recording up to full capacity without Skippy logo indication

AtomX SSDmini
Stable Recording Performance

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CONCLUSION

The AtomX SSDmini by Nextorage brings high quality and stability of one of the fastest writing speeds to ATOMOS recorders.

Key Takeaways

- Sustained Write Speed