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Why to Trust Your Footage to Convergent Design Odyssey SSDs...

In developing the Odyssey Family of Monitor/Recorders, Convergent Design determined that our own SSDs would be needed to maintain the performance and reliability required in a professional level device. Here are some of the reasons clients can entrust their recordings to Odyssey SSDs.



FAST WRITE (RECORDING) SPEED

High write speeds are necessary for large files. It allows for RAW data, low or no compression, deep bit depths, higher resolution and higher frame rates. If the write speed is not fast enough, frames can be dropped, data lost, and files compromised. Odyssey SSDs are capable of continuous writes speeds of 475 MB/Sec.

Convergent Design Odyssey SSDs have the highest write speeds in professional media.

FAST READ (PLAYBACK/OFFLOAD) SPEED

Often the read speed of a memory device is ignored, but it is a critical factor in planning a production day. Slow read speeds mean longer offload times from the memory into a computer. Additional hours of offload time at the end of a production day can be an annoyance at minimum and a potentially considerable cost overrun on even a modest production. Utilizing high data rate connectivity such as USB3, Thunderbolt or Thunderbolt 2, Odyssey SSDs can be read at up to 520 MB/Sec

Convergent Design Odyssey SSDs have the highest read speeds in professional media.

CONSISTENT WRITE SPEED PERFORMANCE ACROSS THE DRIVE

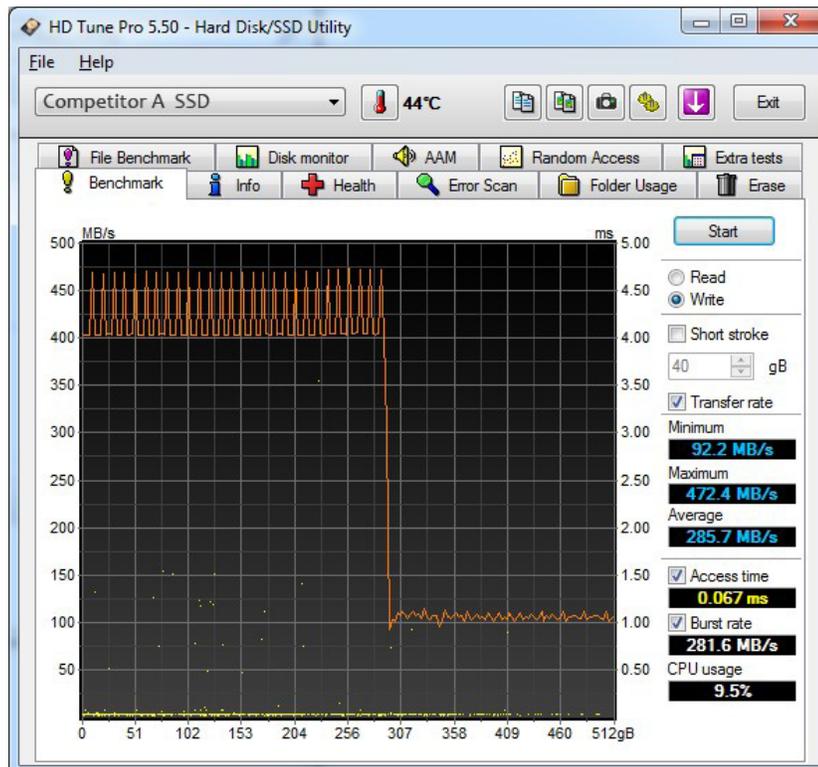
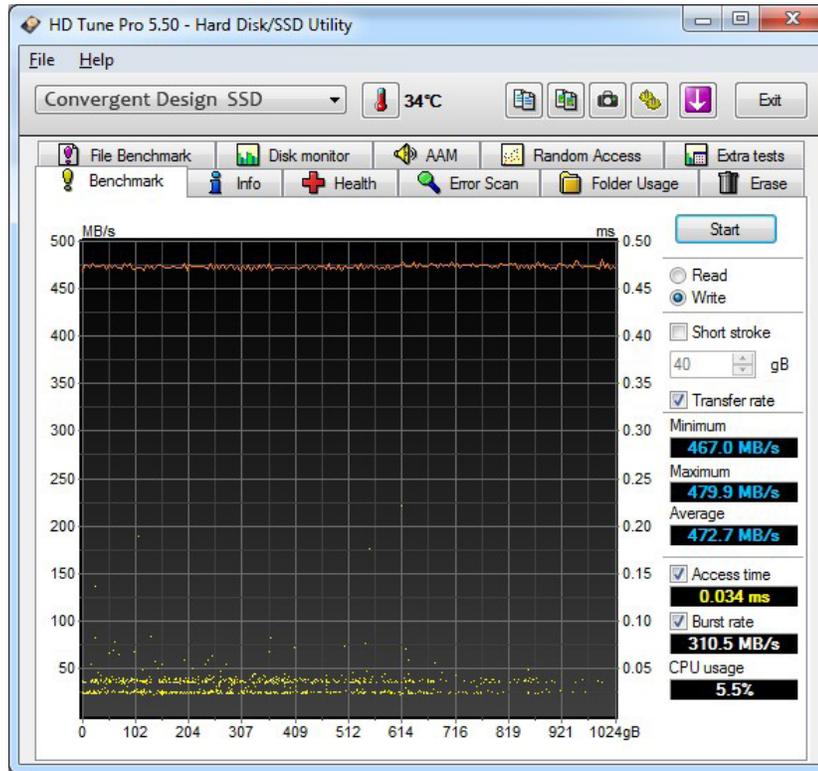
Depending on the architecture of a media device, it may allocate areas of memory in fragments throughout its internal capacity. As the media begins to fill it has to search longer to find open cells of memory. This can lead to a slowing of write speed, sometimes so dramatic that the media skips frames and otherwise fails to capture information. In the graphic below, the Convergent Design Odyssey SSD maintains 475 MB/Sec write speed throughout its capacity, while another brand of SSD fluctuated between 400-460 MB/Sec until reaching a little over halfway through its capacity, at which point the write speed drops precipitously to about 100 MB/Sec. Several highly-rated SSDs and other recording media have similar performance drops. In real world use, this drop would likely cause a complete and catastrophic recording failure.

Convergent Design Odyssey SSDs maintain write speed throughout the full capacity of the drive.



CONVERGENT DESIGN SSD MEDIA

WRITE PERFORMANCE ACROSS SSDS





CONSISTENT WRITE SPEED PERFORMANCE THROUGHOUT DRIVE LIFESPAN

NO SLOWING DOWN OVER TIME DUE TO HEAVY USAGE OR OTHER FACTORS

As SSDs and other forms of media are subjected to many cycles of use, sectors of memory and other facets break down. While the media's control circuitry allows these issues to be worked around, they affect overall performance. This is generally seen in the write speed.

Convergent Design Odyssey SSDs maintain write speed throughout their lifespan.

LONG DRIVE LIFE

Odyssey SSDs are rated from the manufacturer at 3,000 record/format cycles in their lifespan, but this is a highly conservative measure. Typical performance is 6,000 record/format cycles. This is equivalent to filling and reformatting an SSD twice a day for more than eight years. The cost per gig of memory for each of those 6000 recordings is less than .0003 cents. At its eventual end-of-life the Odyssey SSD becomes read-only, so that the material recorded can still be copied from the memory. Estimated life expectancy for every Odyssey SSD can be read in the SSD menu when an Odyssey SSD is mounted in an Odyssey monitor/recorder.

Convergent Design Odyssey SSDs will reliably function through many years of use.

POWER-LOSS PROTECTION

A power loss to the Odyssey SSD could occur by the Odyssey monitor/recorder's battery draining or the Odyssey SSD physically being removed while recording. If the power to the Odyssey monitor/recorder fails during recording, the Odyssey SSD detects it. A small power reserve stored within the SSD is used to safely complete all pending writes to the SSD. When the power is restored the Odyssey SSD automatically closes the file and rebuilds its directory to properly recover the file.

Most media does not have such power-loss protection systems. If the power should fail during record on a system without power-loss protection, the file being recorded would almost definitely be corrupted and unrecoverable. Even worse, there is a distinct possibility that the ENTIRE memory of the SSD or other media could be corrupted and ALL RECORDED FILES be lost and unrecoverable.

The Odyssey SSD power-loss protection secures all the recordings on the drive.

ROBUSTNESS AND RELIABILITY

Convergent Design tests and certifies all of our Odyssey SSDs when they come to us from our OEM supplier. As part of Convergent Design's initial qualifying process, the SSDs were stress-tested well beyond standard specifications. SSDs were physically disengaged while recording and playing files. SSDs were supplied inappropriate voltage levels. Odyssey SSDs continued to perform when all others would not.

While all of the SSDs may reach the listed specs, we test each using Odyssey test bench systems to make sure that they properly perform.

With thousands of units in the field, Odyssey SSDs have a near-perfect reliability record.



GUARANTEED COMPATIBILITY AND CONSISTENCY

All drives are tested for compatibility; firmware and components used inside the drive do not change from batch to batch.

Odyssey SSDs are built to our specifications by our OEM supplier, but Convergent Design still tests every unit to assure full compatibility with all of our products. Media can be used for many purposes, and the specific needs of an advanced video recorder means that the SSDs will be filled and emptied repeatedly, sometimes quickly and numerous times in a single day. This is quite different than in other data storage uses. To maintain consistency and compatibility control, all Odyssey SSDs use the same components so that performance does not vary. By designing our Odyssey monitor/recorders to work with the specific architecture that we utilize on the Odyssey SSDs, the performance of both the recorders and the SSDs is optimized.

Odyssey SSDs perform consistently without issue and do so throughout their lifespan.

LOW POWER DRAW

Different SSD designs can require different amounts of power. Odyssey SSDs are optimized to draw consistently low power in standby as well as write and read modes. Odyssey SSDs typically draw one to three watts less than other brands. This means longer battery life, less heat output and generally higher reliability in operation.

ONE SSD FOR ALL RECORDING MODES

The Odyssey monitor/recorders can record in HD, 2K, UHD and 4K, in Apple ProRes, in uncompressed DPX stacks, in various flavors of RAW, in 10-bit, in 12-bit, and in High Frame rates. All three Odyssey SSDs work with all Odyssey recording modes. There is never a question of compatibility or different grades of media for varying record formats. Clients will never have to worry about carrying different grades of media in multiple quantities, and will always be ready to accept any new record capabilities added to an Odyssey monitor/recorder.

LOCKED SSD ARCHITECTURE

Convergent Design Odyssey SSDs all come from a single manufacturer. The internal components do not change and the internal programming is consistent between SSDs.

Consumer media is not all designed the same. Different manufacturers employ various components within their products, and some designs are aimed at different types of performance (Odyssey SSDs utilize proprietary firmware optimized for professional video applications). Whenever there are firmware updates of an Odyssey monitor/recorder, Convergent Design spends hundreds of hours testing for full compatibility within our systems. Such testing could be incomplete if multiple SSD types were used, opening the possibility for errors.

Additionally, manufacturers can change core components within consumer SSDs without changing model designation. This can lead to compatibility issues even for models one thought were qualified. Convergent Design has locked the Bill of Materials with our sub-manufacturer. All Odyssey SSDs are identical, and our sub-manufacturer builds all of its own components, making consistency of the product absolute. A single corrupted or skipped frame could mean the loss of a shot more valuable than the cost of an entire Odyssey SSD.

Because of the uniform quality of design and manufacture, no Odyssey SSD has ever dropped a frame of video when used in an Odyssey monitor/recorder run with production firmware.



CONVERGENT DESIGN SSD MEDIA

AFFORDABLE IN BOTH COST PER GB AND COST PER MINUTE.

Odyssey SSDs compare very well when placed against other manufacturers' "house brand" media. The Odyssey SSDs are available in 256GB, 512GB and 1TB sizes, and for the comparison below the 512GB size was used. Most other media is not available in these sizes so the largest capacity device was used as needed. In the Cost per Gig category, Odyssey SSDs offered the greatest value. But these different recording media are generally used for different recording formats that require differing amounts of memory space. In the (One Time) Cost per Minute category the Odyssey SSDs again offered the best value.

PROFESSIONAL MEDIA COMPARISON

Manufacturer	Convergent Design	Lexar	Lexar	Atomos	Sony	Panasonic	Sony	AJA
Media Format	2.5" SSD	Compact Flash	CFAST 2.0	CFAST 1.0	SxS	P2	XQD G-Series	Media Pak
Write Speed (MB/sec)	475	155	450	80	190	150	350	N/A
Read Speed (MB/sec)	520	160	510	200	200	150	400	N/A
Max Capacity (GB)	1024	512	256	128	128	128	128	512
Typical Capacity (GB)	512	128	128	128	128	64	128	512
Typical Cost	\$795	\$249	\$880	\$239	\$1,369	\$619	\$799	\$1,295
Cost / GB	\$1.55	\$1.94	\$6.88	\$1.86	\$10.69	\$9.67	\$6.24	\$2.52
HD 422 Format	ProRes	ProRes	ProRes	ProRes	XAVC	AVC-I 100	XAVC	ProRes
Format Memory Use	1.98G/min	1.98G/min	1.98G/min	1.98G/min	1.07G/min	1.00G/min	1.07G/min	1.98G/min
Cost per minute use (One Time)	\$3.07	\$3.84	\$13.62	\$3.68	\$11.44	\$9.67	\$6.68	\$4.99

ODYSSEY SSDS PRICE COMPARED TO CONSUMER SSDS

Odyssey SSDs have a US list price of \$1.55/GB (256GB & 512GB) and \$1.36/GB (1TB). This is more than the cost of most high-performance consumer-grade SSDs, which are typically priced between \$0.52-\$1.20/GB. While these savings may appear considerable, note that a typical Monitor/Recorder kit does not require a large number of SSDs. For a kit containing two 512GB SSDs, the savings would generally be less than \$700. When factoring in the numerous reliability and performance features of the Odyssey SSDs, the additional cost may be a small consideration.

3-YEAR WARRANTY

With its excellent performance, efficient design, rugged construction and steadfast dependability, the Odyssey SSD is the most reliable media in the industry. Convergent Design backs up this reliability with the longest warranty of its kind, a three-year replacement-level warranty for the 256GB, 512GB and 1TB Odyssey SSDs. Should an Odyssey SSD fail to perform, it will be replaced with a brand new unit by Convergent Design. Clients can trust their material to Convergent Design Odyssey SSDs.

For more information visit us online at Convergent-Design.com.