PROGRADE DIGITAL

Storage and Workflow Choice of Professionals

CFexpress, Gold and Cobalt

Designed for what's next

The ProGrade Digital Gold and Cobalt CFexpress memory card families are based on proven, Solid State Drive (SSD), PCIe controller technology that offers both best-in-class value and performance options for imaging devices of the future. Non-Volatile Memory Express (NVMe) host controller interface in the CFexpress standard ensures that host and card performance are optimized for our leading edge CFexpress product lines. All ProGrade Digital CFexpress cards are compliant with the CompactFlash Association, CFexpress 2.0 and 4.0 specifications–including PCIe and NVMe interoperability compliance.

For mainstream imaging applications, our Gold label cards support burst write speeds of up to 3000MB/sec for the 512GB, 1TB, and 2TB capacities and 1600MB/sec for the 240GB capacity – ideal for DSLR and Mirrorless, full frame burst, shooting. In our Gold label cards, the sustained write speed across the entire volume ensures uninterrupted recording for a broad range of compressed video modes. In addition, our 240GB, 512GB, 1TB, and 2TB Gold cards have a sustained write speed of 700MB/s, 850MB/s and 1500MB/s respectively, which allow capture of RAW 4K & 6K video across their entire density. Finally, our Cobalt label card has a sustained write speed of 2100MB/s which allow capture of RAW 6K & 8K video across the entire volume. The Gold line provides sequential read speeds of up to 3400MB/sec for the 512GB, 1TB, and 2TB capacities and 3100MB/sec for the 240GB capacity. The Cobalt line provides a sequential read speed of 3400MB/sec. These speeds ensure that offload time is minimized, and workflow efficiency is greatly improved.

With specific focus on 4K video capture, one hour of raw 4K video requires a card write speed between 380 and 1,000MB/sec dependent on color depth and frame rate. As shown in the table below, ProGrade Digital offers cards that are capable of capturing even cinema-grade raw 4K video at up-to 12 bits of color depth, and up-to 60fps. 8K Raw video at up-to 30fps is also possible on our Cobalt class cards

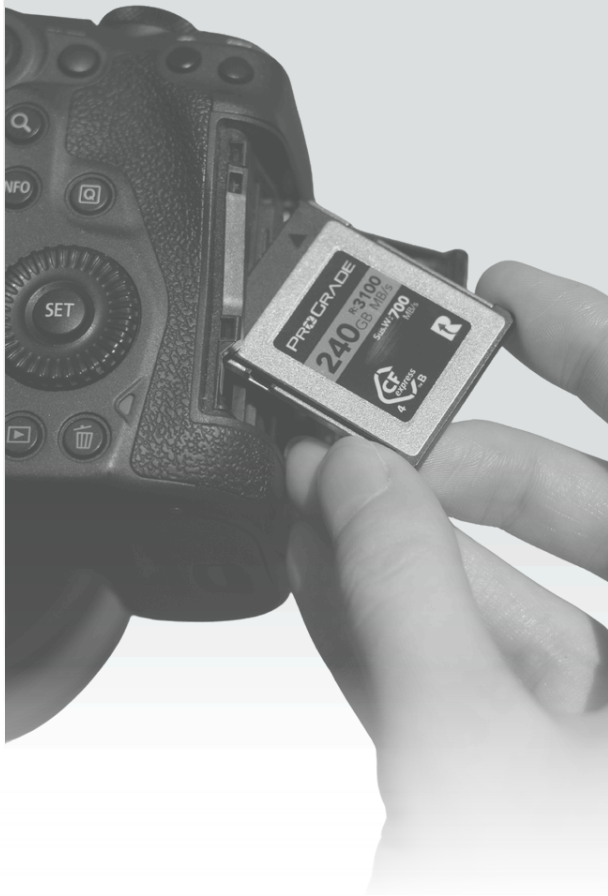
Capture Performance

	Broadcast ProRes422HQ*			Episodic ProRes4444*			Cinema Raw**		
	Color Depth	Frames/ sec	Write MB/sec	Color Depth	Frames/ sec	Write MB/sec	Color Depth	Frames/ sec	Write MB/sec
4K	10	30	78	10	30	176	10	24	265
4K	10	60	236	10	60	353	10	60	664
6K	10	24	212	10	24	318	10	24	597
6K	10	60	530	10	60	795	10	30	746
8K	10	24	377	10	24	565	10	24	1062
8K	10	60	942	10	60	1414	10	30	1327

*From Apple ProRes white papers
**No oversampling included

Gold | Cobalt

From a workflow perspective, read speed in cards is essential in terms of minimizing delay for content ingest into the editing environment. ProGrade Digital Gold and Cobalt CFexpress 4.0 Type B cards provide nearly 2x the performance level or CFexpress Type B 2.0 cards dramatically improving workflow efficiency.



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ProGrade Digital CFexpress Type B Delivers:

	Gold				Cobalt
	240GB	512GB	1TB	2TB	1.3TB
Densities and Performances	Max Read: 3100MB/s Max Write: 1600MB/s Sus Write: 700MB/s	Max Read: 3400MB/s Max Write: 3000MB/s Sus Write: 850MB/s	Max Read: 3400MB/s Max Write: 3000MB/s Sus Write: 1500MB/s	Max Read: 3400MB/s Max Write: 3000MB/s Sus Write: 1500MB/s	Max Read: 3400MB/s Max Write: 3000MB/s Sus Write: 2100MB/s
Interface	NVMe 1.4 c with PCIe Gen4 interconnect				
Operating Voltage	+3.3V; Min = +3.0V, Max = +3.6V				
Max Operating Current	900mA for Gold & 1200mA for Cobalt				
ECC Engine	LDPC				
Power Management	Supports Power States (PS0, PS1, PS2, PS3, and PS4) with PS4 power consumption under 2mW				
Storing Temperature	-20C to 85C				
Operating Temperature	-10°C to 70°C				
Operating & Storage Humidity	95% or less (non-condensing)				
Shock	50G, 11ms duration				
Vibration	10Hz - 200Hz / 1.52mm displacement 10Hz - 2000Hz, 15G acceleration				
Altitude	2.26psi/Altitude:24384m				
SMART & Sanitize	Yes				
X-ray Proof	Yes				
Dimensions	Type B: 29.6mm x 38.5mm x 3.8mm				
Warranty	3-year				

- Fully compliant with CompactFlash™ Association 4.0 specification and backwards compatible with 2.0 specification
- NVMe host interface with PCIe Gen4 X2 interconnect
- Low standby power through NVMe PS0 - PS4 support enabling extended battery life
- Metal enclosure/encasement to endure high temperatures while providing better thermal conductivity
- Built-in thermal throttling to protect your card and its content in the event of overheating
- Designed to provide peak performance for flagship cinema, video and photography cameras
- Optimized controllers specifically designed for use in professional-grade cameras
- Rigorous full card testing with serialized tracking of key components and manufacturing data for the highest quality control
- Component-level testing down to individual memory chips for optimal quality
- Refresh Pro™ enabled to quickly refresh card performance and monitor card health

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v60 tested and certified to perform at a minimum 60 MB/second write speed

1GB=1,000,000,000 bytes. Actual user storage is less. Up to 250MB/s read speed; write speed is lower. Speed is based on internal testing; user's performance may be lower depending on host device, interface, usage conditions and other factors. 1MB = 1,000,000 bytes.

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