PROGRADE DIGITAL Gold CFexpress Type B Memory Card Instruction Manual

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Product Information

The ProGrade Digital CFexpress Type B memory card is a popular choice among professionals. It comes in two variants: Gold and Cobalt. These memory cards are specifically designed for 4K video capture and offer exceptional performance.

- **Gold:** This variant supports cinema-grade raw 4K video at up to 12 bits of color depth and up to 60fps. It also allows for 8K raw video at up to 30fps.
- **Cobalt:** This variant enables capturing 8K raw video at up to 60fps, as well as cinema-grade raw 4K video at up to 12 bits of color depth and up to 60fps.

Here are the specifications for the available capacities of the CFexpress Type B memory cards:

Capacity	Max Read Speed	Max Write Speed	Min Write Speed*
128GB	1700MB/s	1400MB/s	140MB/s*
256GB	1700MB/s	1400MB/s	300MB/s*
512GB	1700MB/s	1500MB/s	850MB/s*
1TB	1700MB/s	1500MB/s	1300MB/s*

Min Sustained Write

The CFexpress Type B memory cards use the NVMe 1.3 interface with PCIe Gen3 X4 interconnect. They operate at a voltage range of +3.0V to +3.6V and come with a 3-year warranty.

Product Usage Instructions

To use the ProGrade Digital CFexpress Type B memory card, follow these steps:

1. Ensure that your device supports CFexpress Type B cards and is compatible with the specifications mentioned above.
2. Insert the CFexpress Type B memory card into the appropriate slot or reader in your device.
3. If required, connect the device to a power source to ensure sufficient power supply during data transfer.
4. You can now use the memory card for various purposes, such as capturing high-quality 4K or 8K video footage, storing large files, or transferring data between devices.
5. After use, safely eject the memory card from the device to avoid data corruption or loss.

- Remember to handle the memory card with care and avoid exposing it to extreme temperatures, shocks, or vibrations.
- Regularly back up your important data to ensure its safety.
- For more information and support, visit the ProGrade Digital website.

Designed for what's next
The ProGrade Digital Gold and Cobalt CFexpress memory card families are based on proven, Solid State Drive (SSD), Quad-lane 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 is optimized for our leading-edge CFexpress product lines. All ProGrade Digital CFexpress cards are compliant with the CompactFlash Association, CFexpress 2.0 specification–including PCIe and NVMe interoperability compliance. For emerging mainstream imaging applications, our Gold label cards support burst write speeds up to 1500MB/second – ideal for DSLR and Mirrorless, full-frame burst, shooting. In our Gold label cards, the minimum sustained write speed across the entire volume ensures uninterrupted recording for a broad range of compressed video modes. Our Cobalt label cards can sustain minimum write speeds of 1,400MB/second and allow capture of RAW 6K & 8K video across the entire volume up-to 650GBs of capacity. Both card families provide sequential read speeds of up to 1,700MB/sec. ensuring that offload time is minimized, and workflow efficiency is greatly improved over applications that traditionally use SD UHS-II or CFast memory formats.
With a 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* Color	Frames/ sec	Write Depth MB/sec	**Episodic** ProRes4444* Color	Frames/ sec	Writec Depth MB/sec	**Cinema** Raw** Color	Frames/ sec	Write Depth MB/sec
10	30	78	10	30	176	10	24	265
10	60	236	10	60	353	10	60	664
10	24	212	10	24	318	10	24	597
10	60	530	10	60	795	10	30	746
10	24	377	10	24	565	10	24	1062
10	60	942	10	60	1414	10	30	1327

- 4K
    - 4K
- 6K
    - 6K
- 8K
    - 8K
- 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 cards provide nearly 3x the performance level of CFast cards – dramatically improving workflow efficiency. By example, the table below shows a 1 hour, 4K video file of 636GB transferred in just 11.8 minutes from a ProGrade CFexpress card to a workstation using a ProGrade Digital USB 3.2, Gen 2 reader at a real-world transfer speed up to 900MB/sec. Using the ProGrade Digital Thunderbolt 3 CFexpress reader that same transfer would take just 6.2 minutes.

Workflow Performance

- Broadcast
    - Episodic
- Cinema

Resolution	Color Depth	fps	Encoding	File size GBs**	MB/sec*	Minutes
4K	10	60	ProRes422HQ	566	1700	5.5
4K	10	30	ProRes4444	848	1700	8.3
4K	10	30	Raw	1,273	1700	12.5

- Using a Thunderbolt 3 reader

- From Apple ProRes white paper

ProGrade Digital CFexpress Type B Delivers

Densities and Performances					
	128GB	256GB	512GB	1TB	165GB – 650GB
	Max Read: 1700 MB/s Max Write: 1400MB/s Min Write*: 140MB/s *Min Sustained Write	Max Read: 1700 MB/s Max Write: 1400MB/s Min Write*: 300MB/s	Max Read: 1700 MB/s Max Write: 1500MB/s Min Write*: 850MB/s	Max Read: 1700 MB/s Max Write: 1500MB/s Min Write*: 1300MB/s	Max Read: 1700 MB/s Max Write: 1500MB/s Min Write*: 1400MB/s
Interface	NVMe 1.3 with PCIe Gen3 X4 interconnect (2.0 specification requires 2 lanes only)				
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 2 mW				
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 2.0 specification
- 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
- **www.prodigitaldigital.com**
- 1GB=1,000,000,000 bytes. Actual user storage is less. Up to 200MB/s read speed; write speed is lower. Speed is based on internal testing; the user's performance may be lower depending on the host device, interface, usage conditions, and other factors. 1MB = 1,000,000 bytes.

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- ProGradeDigital 1660 Hamilton Ave. Suite 101, San Jose, CA 95125, USA

Documents / Resources

	PROGRADE DIGITAL Gold CFexpress Type B Memory Card [pdf] Instruction Manual Gold, Cobalt, Gold CFexpress Type B Memory Card, CFexpress Type B Memory Card, Type B Memory Card, Memory Card, Card

References

- Photography & Videography Memory Cards and Readers | ProGrade Digital
- Photography & Videography Memory Cards and Readers | ProGrade Digital