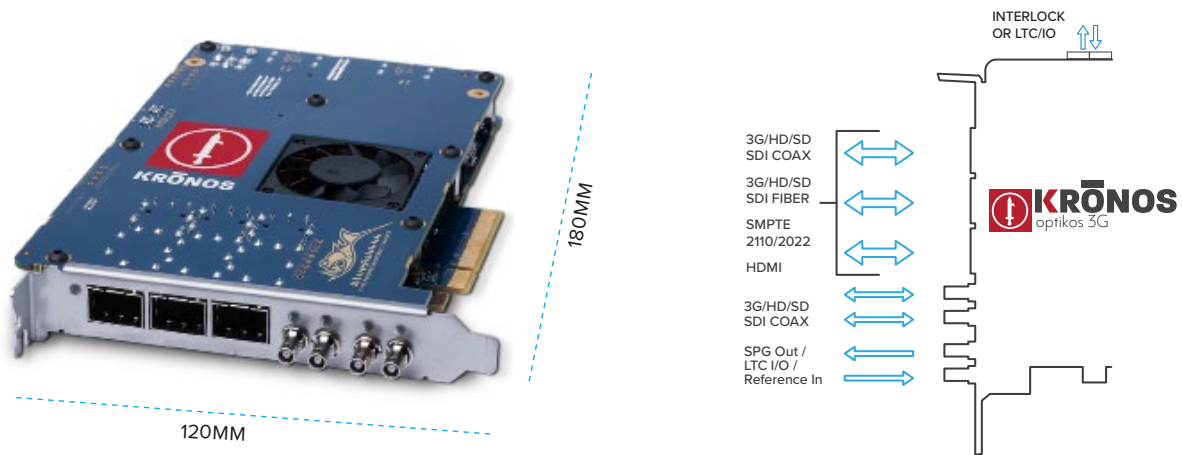


A HYBRID VIDEO CARD FEATURING INTERCHANGEABLE SFP+ INTERFACES FOR SDI VIA COAX OR FIBRE, SMPTE 2110/2022 & HDMI



MAJOR FEATURES FOR KRONOS OPTIKOS 3G	K4102		K4102
Bi-directional SDI (HD-BNC)	2	<i>Optional AUX/IO via STEM</i>	YES
1.5G HD/SD-SDI	2	<i>LTC I/O (HD-BNC), RS-422 (RJ45), AES Audio I/O (DB25)</i>	EX-1
3G-SDI (Level A+B)	2	<i>Analogue Audio I/O (2 x 3.5mm TRS), RS-422 (RJ45), AES Audio I/O (DB25)</i>	EX-2
Interchangeable SFP+ Interfaces (SDI COAX/SDI FIBER/HDMI SFP+ Modules)	3	Bundled Software BlueToolbox and BlueSigGen	YES
Dual Link 1.5G (4:2:2/4:4:4:4)	YES	VBI, HANC & VANC	YES
Dual Link 3G (Level A+B)	YES	Colour space converter	YES
Low-latency hardware keys	4	Customisable pixel formats and rasters	YES
Bypass relays	1	Multi-card support	YES
LTC In / Out	YES	Full-duplex DMA	YES
Reference In / SPG Out	YES	Thunderbolt compatible	YES
Interlocking I/O	YES	NVIDIA GPU Direct	YES
Embedded audio	YES	Stereoscopic/3D imaging	YES

OPTIKOS3G ONLINE CONFIGURATOR

WWW.BLUEFISH444.COM/KRONOS-OPTIKOS3G-SFP-CONFIGURATOR.HTML

CROSS-PLATFORM SUPPORT WITH INDUSTRY-LEADING 3RD-PARTY SOFTWARE



For a comprehensive and up-to-date list of supported software, visit bluefish444.com/software

SPECIFICATIONS		KRONOS OPTIKOS3G	
Width	18.4MM (SINGLE SLOT PCIE)		
Internal Length	167MM (HALF LENGTH PCIE)		
Total Length	180MM		
Height	111MM (FULL HEIGHT PCIE)		
Total Height	120MM		
Weight	300G		
Power requirement	PCI 12V 2A		
VIDEO I/O			
SDI VIDEO			
SD SMPTE 295M	2		
HD 1.5G SMPTE 292M	2		
3G (Level A+B) SMPTE 424M	2		
Dual Link 1.5G SMPTE 372M	YES		
Dual Link 3G	YES		
12/10/8-bit 4:4:4 SDI	YES		
12/10/8-bit 4:2:2:4 SDI	YES		
REFERENCE			
Reference In / SPG Out (Dedicated HD-BNC)	YES		
Interlocking I/O supporting KRONOS and Epoch Neutron cards	YES		
INTERCHANGEABLE SFP+ MODULES		MODULE	STREAM
SDI			
3G/HD/SD Reclocked SDI Coaxial (2in/2out/1in/1out)		3*	6*
3G/HD/SD SDI Singlemode Fiber (2in/2out/1in/1out)		3*	6*
SMPTE IP			
ST 2110 - 20/30/40 10Gb Multimode Fiber		3*	6*
ST 2022 - 6/7 10Gb Multimode Fiber		3*	6*
NMOS, EMBER+, REST API		YES*	
Clean Switch and Frame Sync option		YES*	
HDMI			
HD/SD HDMI 1.4a Type D (Micro-HDMI)		3*	3*
ANCILLARY			
HANC			
RP-188 timecode		YES	
16 channels of embedded audio per Memory Channel		YES	
Video payload ID		YES	
Custom packets		YES	
VANC			
Closed Captioning		YES	
3 Line VITC		YES	
Custom packets		YES	
AUDIO I/O			
16 channels of embedded audio IN per Memory Channel		YES	
16 channels of embedded audio OUT per Memory Channel		YES	
Dolby digital pass-through SDI		YES	
OPTIONAL AUX I/O VIA STEM PORT			
LTC I/O (HD-BNC), RS-422 (RJ45), AES audio I/O (DB25)		EX1	
Analogue audio I/O (2 x 3.5mm TRS), RS-422 (RJ45), AES audio I/O (DB25)		EX2	

OPTIONAL AUX LTC I/O VIA INTERLOCK	
LTC I/O (BNC) Aux shield	EX3
MAJOR HARDWARE FEATURES	
Interchangeable SFP+ Interfaces (SDI COAX/SDI FIBER/HDMI SFP+ Modules)	3
High-performance, 3G bypass relays	1
Low-latency hardware keyers	4
Fully programmable 4 x 4 x 33-bit colour matrix	YES
12-bit video signal path throughout	YES
Automatic cross-locking and phasing across formats	YES
Audio sample-rate converters	YES
(MR2) MASTER ROUTING RESOURCE	
ISIM (Input Stream Integrity Management)	YES
4K/UHD HDR HFR modes	YES*
8-lane PCI-Express Gen3 (16-lane compatible)	YES
Full-duplex DMA data transfer bandwidth	YES
LTC I/O (Via reference BNC)	YES
LTC I/O (Via Interlock) *requires EX3	YES
STEM Port	YES
VIDEO FORMATS	
SUPPORTED YUV SDI & IP VIDEO MODES	
(2K) 2048 x 1080p/PsF @ 23.98, 24, 25, 29.97, 30 FPS	YES
(2K) 2048 x 1080P/PsF @ 48, 50, 59.94, 60 FPS	YES
(HD) 1920 x 1080p/PsF @ 23.98, 24, 25, 29.97, 30 FPS	YES
(HD) 1920 x 1080p/PsF @ 48, 50, 59.94, 60 FPS	YES
(HD) 1920 x 1080i @ 25, 29.97, 30 FPS	YES
(HD) 1280 x 720p @ 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 FPS	YES
SUPPORTED SD SDI VIDEO MODES	
(SD) 720 x 576i @ 25 FPS PAL	YES
(SD) 720 x 486i @ 29.97 FPS NTSC	YES
SUPPORTED RGB SDI VIDEO MODES	
(2K) 2048 x 1080p/PsF @ 23.98, 24, 25, 29.97, 30 FPS	YES
(HD) 1920 x 1080p/PsF @ 23.98, 24, 25, 29.97, 30 FPS	YES
(HD) 1920 x 1080i @ 25, 29.97, 30 FPS	YES
(SD) 720 x 576i @ 25 FPS PAL	YES
(SD) 720 x 486i @ 29.97 FPS NTSC	YES
SUPPORTED HSDL SDI VIDEO MODES	
(2K) 2048 x 1556PsF @ 14.98, 15 FPS	YES
SUPPORTED UHD YUV SDI VIDEO MODES	
(4K) 4096 x 2160p @ 23.98, 24, 25, 29.97, 30 FPS	YES
(4K) 4096 x 2160p @ 48, 50, 59.94, 60 FPS	YES*
(UHD) 3840 x 2160p @ 23.98, 24, 25, 29.97, 30 FPS	YES
(UHD) 3840 x 2160p @ 48, 50, 59.94, 60 FPS	YES*
SUPPORTED UHD RGB SDI VIDEO MODES	
(4K) 4096 x 2160p @ 23.98, 24, 25, 29.97, 30 FPS	YES*
(UHD) 3840 x 2160p @ 23.98, 24, 25, 29.97, 30 FPS	YES*
SUPPORTED PIXEL FORMATS	
2VUY, YUVS, BV8, V210, AYUV_4224, AYUV_4444, YV12, I420	YES
ARGB, BGRA, RGB24, CINEON, DPX, RGB48	YES
Customisable hardware pixel or video format engine	YES

* Supported by the exchanging of interchangeable SFP+ modules

WWW.BLUEFISH444.COM/KRONOS-OPTIKOS3G-SFP-CONFIGURATOR.HTML

Bluefish444 contact sales@bluefish444.com, or visit bluefish444.com/contacts