



Synapse

GXG500

GXG510

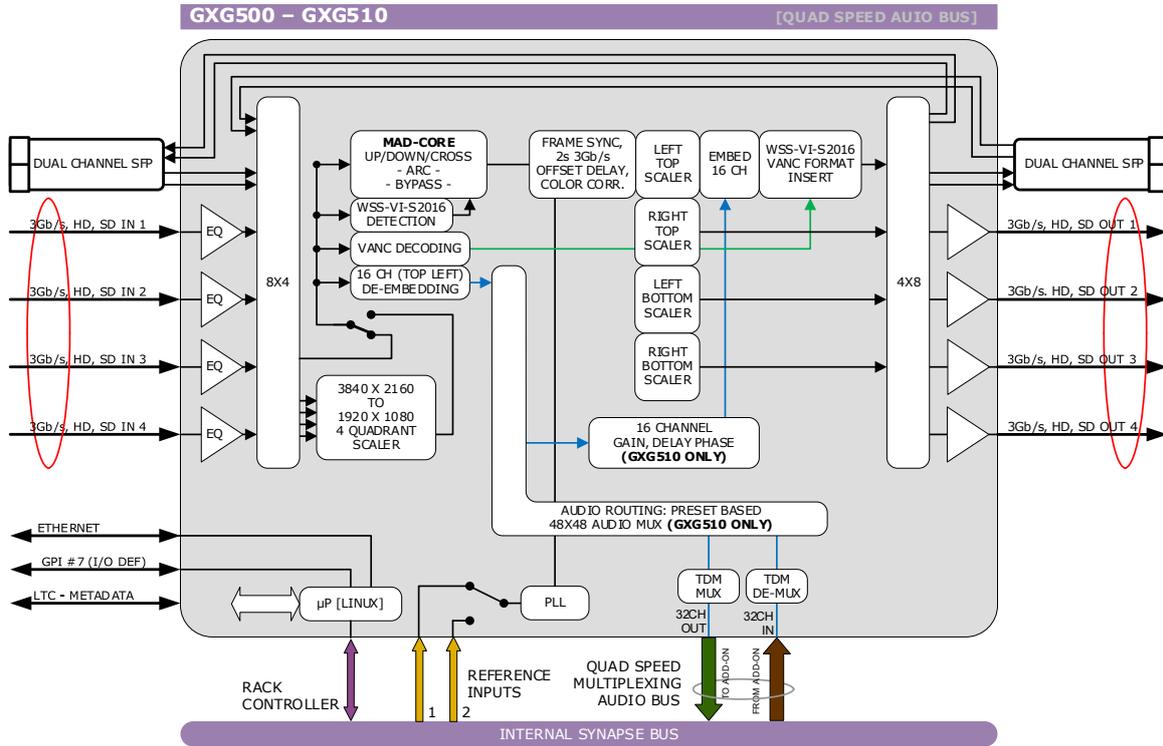
High End 4K (UHD) and 3Gb/s, HD, SD up/down/cross converter and synchronizer with optional audio shuffler

A Synapse® product



Due to constant product research and development all specifications are subject to change without notice. EVS does not warrant or assume any legal liability or responsibility for the accuracy, completeness, availability and/or delivery of the products and/or services listed in this datasheet. Copyright © 2021 EVS

Block schematic & I/O panel



GPI I/O, LTC, METADATA	
3Gb/s, HD, SD SDI IN 1	3Gb/s, HD, SD SDI IN 2
3Gb/s, HD, SD SDI IN 3	3Gb/s, HD, SD SDI IN 4
3Gb/s, HD, SD SDI OUT 1	3Gb/s, HD, SD SDI OUT 2
3Gb/s, HD, SD SDI OUT 3	3Gb/s, HD, SD SDI OUT 4
NOT CONNECTED	NOT CONNECTED
DUAL CHANNEL SFP, INPUTS OR OUTPUTS (BPH55 ONLY)	
DUAL CHANNEL SFP, INPUTS OR OUTPUTS (BPH55 ONLY)	
ETHERNET	
NOT CONNECTED	NOT CONNECTED

The physical I/O panel shows the layout of ports for BPH50 and BPH55. It includes four SDI ports (IN 1-4 and OUT 1-4), two SFP ports, two Ethernet ports, and GPI I/O ports. The BPH50 and BPH55 labels are at the bottom of the panel.

Features

The GXG500/510 is a high end up/down/cross converter. With high quality de-interlacers, and extensively computer optimized scaling and filter algorithms, the new 500 series of up/down/cross converters ensure the absolute best quality video conversion from any standard to any standard within the same framerate. The card allows you to simulcast any output standard in any format from any source standard.

The embedded audio is carried over to the SD, HD or 3Gb/s domain. The appropriate aspect ratio can be applied by control of VI, WSS and GPI inputs by use of 16 presets per output that can store the aspect ratio conversions. The GXG510 also has very powerful cross-input audio shufflers and proc-amps.

Besides being the industry highest quality up/down converter, the GXG500/510 also functions as a 4K 4-wire up and down converter.

- Industry highest quality de-interlacing algorithm
- 4 x 3Gb/s SDI inputs (level B compliant)
- 4 x 3Gb/s SDI outputs, equal signals or 4K quadrants
- 2x dual channel SFP connections for extra inputs or outputs (BPH55 only).
- 4K four wire (3840 x 2160) compatible
- Medium latency conversion process (2 frames)
- Quad Speed audio bus Embedding and de-embedding
- Videos proc-amp (Y and C control), Color corrector (RGB gain and black) and Hue control
- Locks to Tri-level, Bi-level or SDI input 1 or 2
- Compatible with the following input (auto selecting) and output formats (only one output standard can be chosen for all outputs simultaneously): 1080p25/29.97/50/59.94, 1080i50/59.94, 720p50/59.94, SD625, SD525
- Frame sync with auto-phaser and control in Frames, Lines and pixels with respect to reference with a maximum of 25 frames delay offset per channel
- All ARC modes contain Anamorphic, Center Cut, V-Zoom, LBox-16:9, LBox-14:9, PBox-4:3, PBox-14:9 and Variable H and V (50-200%)
- 16 free individual programmable preset banks with settings for Down-, Up- and, Cross Conversion, Pass through (with ARC function), Simultaneous VI, WSS and AFD (S2016) insertion and Embedder shuffling, gain, phase and delay
- Multiple GPI inputs/outputs with predefined modes
- ARC triggers by VI, WSS, WSS-ext and S2016 (AFD)
- Transparent for 16 channels of embedded audio
- Embedded domain 48x48 routing to and from the in/outputs and Quad Speed Audio Bus (510 only)
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)
- Complementary cards: DIO88, DSF66, DDP24/94, DBD28 or any other Quad Speed Bus ADD-ON card

Conversion capabilities

CONVERSION		Output													
		2160p59.94	2160p50	1080p59.94	1080p50	1080p29.97	1080p25	1080i59.94	1080i50	720p59.94	720p50	720p29.97	720p25	480i59.94(525)	576i50(625)
Input	2160p59.94			x		x		x		x		x		x	
	2160p50				x		x		x		x		x		x
	1080p59.94	x		x		x		x		x		x		x	
	1080p50		x		x		x		x		x		x		x
	1080p29.97	x		x		x		x		x		x		x	
	1080p25		x		x		x		x		x		x		x
	1080i59.94	x		x		x		x		x		x		x	
	1080i50		x		x		x		x		x		x		x
	720p59.94	x		x		x		x		x		x		x	
	720p50		x		x		x		x		x		x		x
	720p29.97	x		x		x		x		x		x		x	
	720p25		x		x		x		x		x		x		x
	480i59.94(525)	x		x		x		x		x		x		x	
	576i50(625)		x		x		x		x		x		x		x

Applications

- High End Truck dual input frame synchronizer and anything to anything converter
- High End Infrastructure up/down/cross conversion
- High End transmission up/cross conversion
- UHD (4k) up and down conversion from and to any supported video standard in the same frequency

Ordering information

Module:

- **GXG510-I/O:** High End 3Gb/s, HD, SD-SDI up/down/cross converter with full audio shuffling
- **GXG500-I/O:** High End 3Gb/s, HD, SD-SDI up/down/cross converter

Standard I/O:

- **BPH50-PANEL:** I/O panel for GXG500 and GXG510
- **BPH55-PANEL:** I/O panel for GXG500 and GXG510 with SFP I/O (future)

Specifications

Serial video input

Standard	SD, HD and 3Gb/s SDI: SMPTE 292M, SMPTE 259M, SMPTE424
Number of inputs	4 (+ up to 4 via SFP cage)
Connector	DIN 1.0/2.3
Equalization	Typical maximum equalized length of Belden 1694A cable: 90m at 2.97Gb/s, 120m at 1.485Gb/s, and 250m at 270Mb/s
Return loss	> 15dB up to 1.5GHz

Serial video output

Number of outputs	4 (+ up to 4 via SFP cage)
Connector	DIN 1.0/2.3
Signal level	800mV nominal
DC offset	0V \pm 0.5V
Rise/Fall time	135ps nominal
Overshoot	< 10% of amplitude
Return loss	> 15dB up to 1.5GHz (typ)
Wideband jitter	< 0.2UI

Reference Input through RRC

Number of Inputs	2 on SFR18, 2 on SFR08 and 1 on SFR04
Tri-level	SMPTE274M, SMPTE296M 600 mVp-p nominal, 75 Ohms terminated through loop
Bi-level	PAL Black Burst ITU624-4/SMPTE318, Composite NTSC SMPTE 170M 1Vp-p nominal, 75 Ohms terminated through loop

Miscellaneous

Weight	Approx. 550g
Operating temperature	0 °C to +40 °C
Dimensions	137 x 296 x 20 mm (HxWxD)

Electrical

Voltage	+24V to +30V
Power	<TBD Watts