MGU100-MGG100

SDI multiview monitoring building block with 8 inputs and up to 8 outputs (heads) or dual 4k/UHD output resolution

A Synapse® product

Modular Multiview

3 TRIPLE RATE Gb/s, HD, SD

4K ULTRAHD 3840 x 2160

Powered by LINUX

3Gb/s Level B compliant

Introduction

SynView 2 is Axon's next generation Synapse modular multi-viewer. The feature-set has been increased tremendously with double the amount of inputs, 8 times the amount of outputs (heads) UHD/4K/60Hz output resolution on display outputs and a 6-fold increase of processing power.

The system consists of 5 models. These versions can be mixed and matched to build a hybrid multiviewer with up to hundreds of inputs and 8 1080p heads (on SDI) or two heads with UHD/4K resolution.

Multiple connector panels will be available to allow for different I/O configurations.

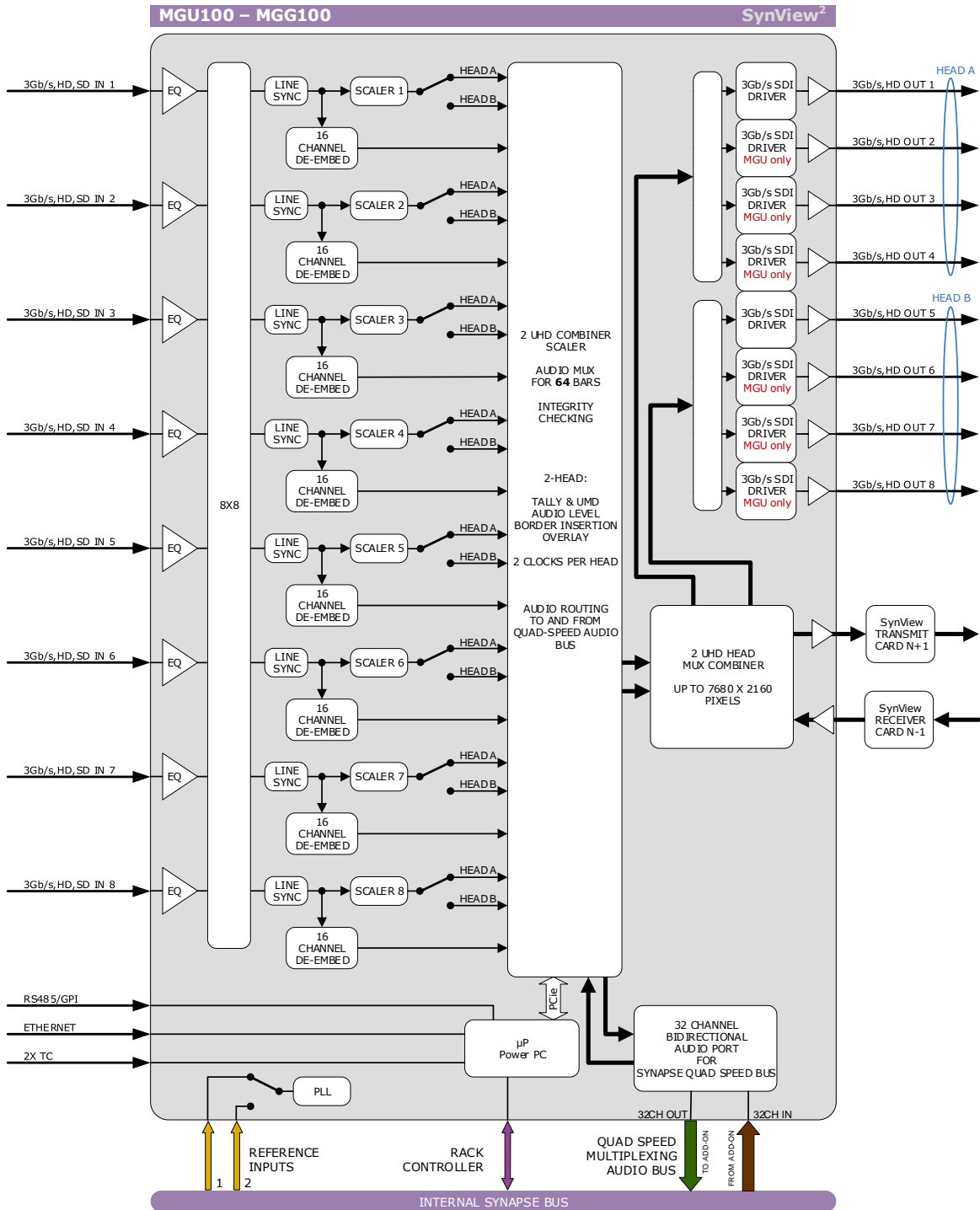There are currently 5 models defined below their differences:

differentiation Model name Application	SDI IN	SDI OUT	IP inputs (physical)	IP inputs (logical)	IP outputs	PIP	monitoring
MGU200 Production SDI inputs	8	8	-	-	-	16	basic
MGG200 Production SDI inputs	8	2	-	-	-	16	basic
MGU100 Monitoring SDI inputs	8	8	-	-	-	8	extensive
MGG100 Monitoring SDI inputs	8	2	-	-	-	8	extensive
MNU100 Network IP inputs	-	8	2x6 Back-up redundancy	6	-	6	basic

The above cards have the same output configuration with up to dual head UHD/4k or dual quad 3Gb/s SDI, or 8 heads on SDI. The cards can be combined in any combination up to **12** cards in the new SFR18 gen3 with the new SMP175 power supply. In the Gen3 SFR08 will fit up to 5 boards.
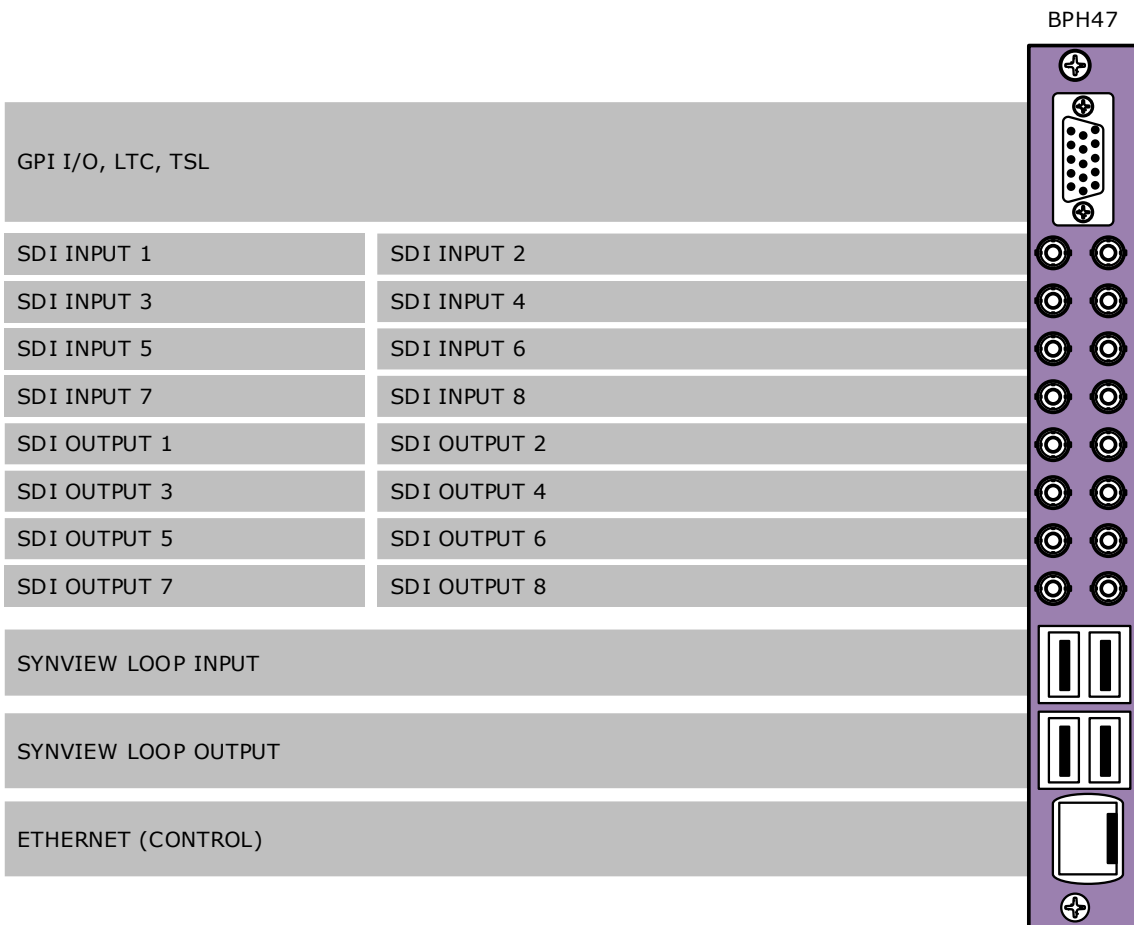
Because of the external Daisy Chain mini SAS-HD connector you can build a multi viewer with, in theory, an <u>unlimited</u> amount of input channels as you can chain the cards even between frames. You can split the multiviewer into smaller chunks of cards, each block with its own set of PIPs (Picture In Pictures) and its own outputs. A MGU/MGG100 can also be used stand alone as a dual quad split.

Block schematic MGU100 & MGG100

Connector panel option

BPH47

GPI I/O, LTC, TSL	
SDI INPUT 1	SDI INPUT 2
SDI INPUT 3	SDI INPUT 4
SDI INPUT 5	SDI INPUT 6
SDI INPUT 7	SDI INPUT 8
SDI OUTPUT 1	SDI OUTPUT 2
SDI OUTPUT 3	SDI OUTPUT 4
SDI OUTPUT 5	SDI OUTPUT 6
SDI OUTPUT 7	SDI OUTPUT 8
SYNVIEW LOOP INPUT	
SYNVIEW LOOP OUTPUT	
ETHERNET (CONTROL)	

HDMI connectivity

The consumer display market supplies our industry with great monitor options at very reasonable prices. The UHD compatibility of Synview2 allows for the use of very cost effective 4k UHD screens. The inputs for these screens are always based on HDMI. Recently the standard has been improved and the 2.0 spec allows for 4k with up to 60p frame rates.

A four wire to HDMI 2.0 converter ideally compatible with 2SI (or two sample interleaved) or Quadrants is needed to connect the SDI outputs to these commercial screens.

Features

The MGU200, MGG200, MGU100, MGG100 and MNU100 are all based on the same hardware. Via different firmware and selected connector panels, you can build a vast array of multiview application by mixing and matching the different versions.

Features MGU100/MGG100:

- 8 inputs to on panel outputs or 8 SDI outputs (MGU100) or 2 SDI (up to 1080p) outputs (MGG100)
- Each input can be displayed on one of the heads with an individual scale and position
- Low latency (20 ms for 50Hz, 17 ms for 59.94Hz)
- Full RGB domain (internal 20bit processing for scaling)
- Up to 2x 4k/UHD (2160p60) resolution on 2x 4-wire SDI (MGU200 only)
- Up to 8 3Gb/s SDI outputs
- Full variable scaling and positioning for all individual inputs
- All inputs are compatible with 1080p50/59.94, 1080p(sf)29.97/25/24, 1080i50/59.94, 720p59.94/50/29.97/25/24 and SD625/525 (mixing is allowed with different frame rates)
- 32 audio bars (per head) free assignable from 128 embedded sources and/or 32 sources via the Quad Speed Audio bus
- Three assignable regions in or under monitor: Input format, Static UMD and Dynamic UMD, VITC, ATC, LTC, Aspect Ratio
- Lock to input, reference or free running
- Masked or transparent audio bar graphics with AES/EBU, BBC or Nordic scale VU meters.
- Customizable color schemes for audio meters
- Two definable clocks per head; Analog, Digital or Combined
- Digital clock can be set to normal time, up counter or down counter
- Clocks can be assigned to VITC, ATC, LTC, NTP (Ethernet) or system
- UMD colors: gray, green, red and amber
- Border, UMD and tally brightness adjustments
- Automatic 4:3 and 16:9 modes through VI or WSS triggers (SD-SDI inputs)
- GPI control for Aspect ratio, Full screen modes and Tally
- Locks to Bi-level, Tri-level syncs or SDI input
- Monitoring capabilities; Input loss, Video Freeze, Video Black, AFD, WSS, VI, Audio Silence, Audio Mute
- Full control and status monitoring through the front panel of the SFR08/SFR18 frame and the Ethernet port (ACP)

For more information, screen examples and explanations about the various I/O modes, please refer to the Synview brochure via our website www.axon.tv/synview.

Why SynView 2

There are some unique features that will make this system stand out over the competition:

- Linear expandable system in steps of 8 input channels
- Multi card multi view systems can span multiple frames by use mini SAS-HD cables connecting the SynView bus
- Unlimited amount of inputs per dual UHD output configuration
- Unlimited amount of inputs per 8 3Gb/s SDI output configuration
- Linear increase of cost, no penalty for a small system
- Linear increase of horse power
  - The card has enough processing power to scale, position, de-embed, overlay and process 8 video channels. When you double the amount of inputs you double the amount of processing power
  - A 128 channel system has 16 times the processing power of an 8 channel system
- Ultra fast boot time
- The only single field latency (20ms@50Hz and 16,7ms@59.94Hz) multiview system
- Modular, as in can be combined with over 300 different processing modules

Applications

- Small to extremely large monitoring walls
- Fast response production monitor walls with unequalled low processing delay and startup time
- Monitoring of feeds
- High resolution high source count monitor walls
- OB van preview monitoring and shading

Ordering information

Module:

- **MGU100:** 8 input 3Gb/s, HD, SD with 8 scaled windows to 1 UHD head or 4 HD displays (extensive video/audio analysis)
- **MGG100:** 8 input 3Gb/s, HD, SD with 8 scaled windows to 1 HD head (extensive video/audio analysis)

Standard I/O:
- **BPH47_MGXxxx:** Connector panel for SDI inputs

Specifications

Serial Video Input

Standard	625/50 or 525/59.94 SMPTE 259M-C (270Mb/s) with SMPTE 272M embedded audio
	SMPTE 292M, SMPTE424 1080i/59.94, 1080i/50, 720p/59.94, 720p/50 1080p/50 and 1080p/59.94
Connector	DIN1.0/2.3
Equalization	Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable. Automatic to 80m @ 3Gb/s with Belden 1694A or equivalent cable.
Return Loss	> 15dB up to 1.5GHz
Number of Inputs	8

Reference Input through Rack controller

Number of Inputs	2 on SFR18, 2 on SFR08
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
Connector	BNC

Display output

Standard	SMPTE 424M, SMPTE 292M
	1080p50, 1080p59.94, 1080i59.94, 1080i50, 1080p/50 and 1080p/59.94
	UHD outputs in SQD or 2Si QL
Number of Outputs	Up to 8 3Gb/s SDI, 2 times UHD or 8x 1080i or 1080p display signals
Cable driver	Up to 100 meters on SDI

GPI

Standard	Contact closure
Connector	Serial (D-sub)

Tally/UMD

Standard	V3.1/V5.0
Connector	Serial (D-sub)/IP (RJ-45)

LTC Input

Standard	SMPTE 12M
Connector	15pins D-sub
Number of Inputs	2

Miscellaneous

Weight	Approx. 350g
Operating Temperature	0 °C to +50 °C
Dimensions	137 x 296 x 20 mm (HxWxD)

Electrical

Voltage	+24V to +30V
Power	<35 Watts