



GRB100-HRB100

3Gb/s, HD, SD dual SDI in embedded domain shuffler
and re-embedder with S2020 metadata insertion

A Synapse ® product

Synapse

Quad speed
MASTER

3 TRIPLE RATE
GB/s, HD, SD

 Powered
by **LINUX**

Upgradable to
3Gb/s

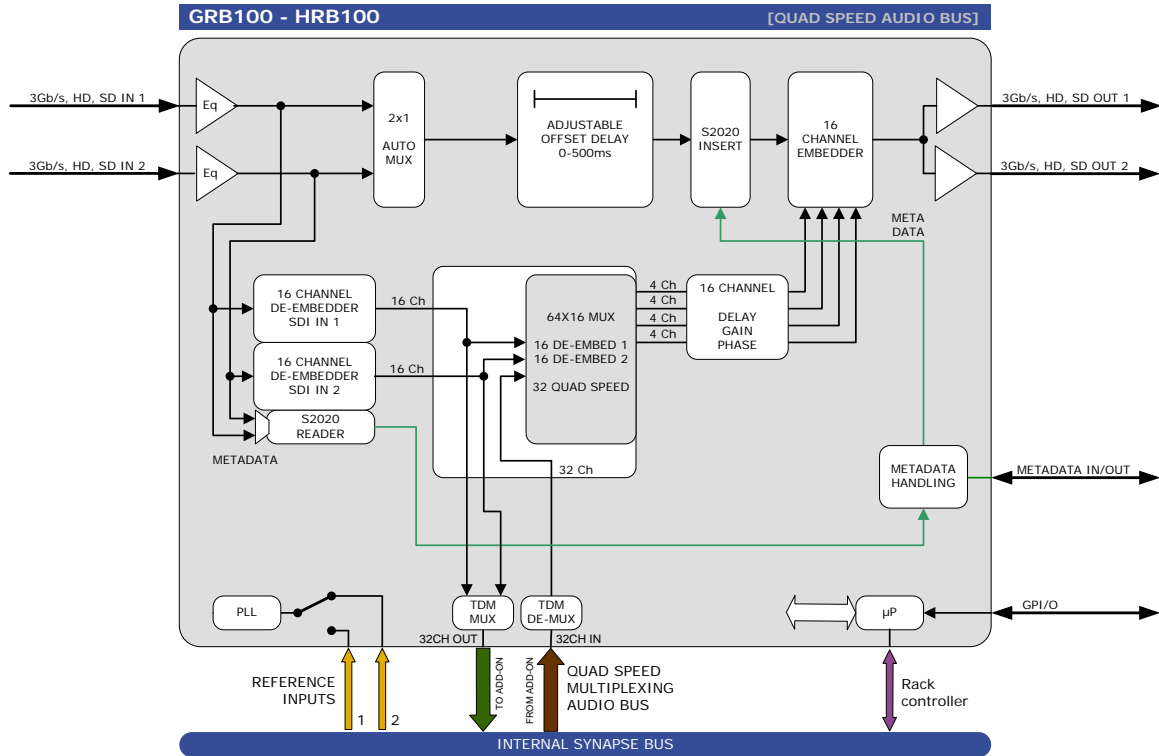
Embedded
Metadata
S2020

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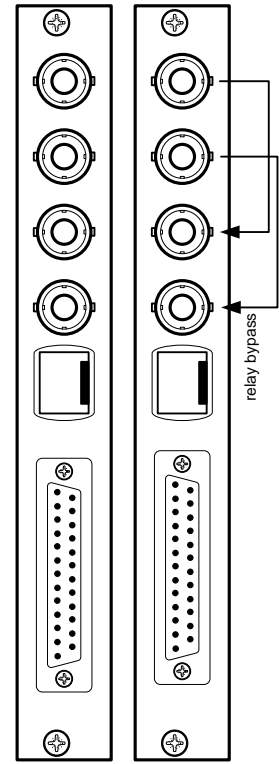
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Block schematic & I/O panel



- 3Gb/s, HD, SD SDI INPUT 1 (OPTIONAL FIBER INPUT)
- 3Gb/s, HD, SD SDI INPUT 2 (OPTIONAL FIBER INPUT)
- 3Gb/s, HD, SD SDI OUT 1 (OPTIONAL FIBER OUTPUT)
- 3Gb/s, HD, SD SDI OUT 2 (OPTIONAL FIBER OUTPUT)
- GPI/METADATA INPUT/OUTPUT
- NOT CONNECTED

BPH18D BHX18D



Features

The GRB100 is a 64x16 channel shuffler - re-embedder. The source audio channels used for embedding into the output SDI can be derived from 2 individual 3Gb/s HD or SD inputs and from the 32 channels that are available in the quad speed multiplexing audio ADD-ON bus.

One of the nice features of this card is that the output embeds 16 channels and that the source for these audio can be derived from both SDI input 1 (that normally also carries the video) and from SDI input 2. Input two can be connected to a second SDI source that is just used for carrying audio. (the two SDI streams need to be clock locked)

The HRB100 can be future upgraded to GRB100. This allows for staged implementation of HD infrastructures and spread the cost over multiple budget years.

- 2 SDI inputs (with auto switch on carrier loss, and switch back function)
- 2 SDI outputs
- Compatible with the following input formats (auto selecting) (1080p only for GXX):

▪ 1080p/59.94	▪ 1080p(sf)/23.98
▪ 1080p/50	▪ 1035i/59.94
▪ 1080i/59.94	▪ 720p/59.94
▪ 1080i/50	▪ 720p50
▪ 1080p/30	▪ SD525
▪ 1080p25	▪ SD625
- Single VIDEO delay adjustable between 0 and 500ms
- Two SDI inputs can source the audio de-embedder when sources are clock locked (not phase locked*)
- De-embedding of all 32 channels from SDI 1 and SDI 2 to the Synapse bus
- 32 extra inputs through the quad speed Synapse bus
- 7 presets that configure all embedding channels. controlled by GPI or ACP (Cortex)
- S2020 metadata reading and insertion from an external source
- Metadata-shuffler (can also be used as metadata-generator)
- Append and overwrite modes
- Audio level and phase control
- Audio offset delay up to 5000 ms
- Transparent for ATC time code RP188, RP196, RP215
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)
- Optional 1 or 2 fiber inputs, 1 or 2 fiber outputs or a fiber in and output (replacing 1 SDI in and output) on the I/O panel
- Optional relay bypass (BHX18D)

* (In 2-SDI shuffle mode the sources need to be running on the same clock, the phase is not critical)

Complementary cards:

- DIO88, DLA44, DLA43, DLA42, DLA41, DBD18

Applications

- Embedded domain shuffling and swapping (from second SDI input)
- Master card for high end audio processing such as performed in the DLAx

Ordering information

Module:

- **GRB100:** 3Gb/s, HD, SD re-embedder/shuffler
- **HRB100:** HD, SD re-embedder/shuffler

Standard I/O:

- **BPH18D_GRB100:** I/O panel for GRB100

Relay bypass I/O:

- **BHX18D_GRB100:** relay I/O panel for GRB100

Fiber outputs* :

- **BPH18DT_FC/PC_GRB100:** I/O panel for GRB100 with one fiber transmitter
- **BPH18DT2_FC/PC_GRB100:** I/O panel for GRB100 with two fiber transmitters

Fiber inputs* :

- **BPH18DR_FC/PC_GRB100:** I/O panel for GRB100 with one fiber receiver
- **BPH18DR2_FC/PC_GRB100:** I/O panel for GRB100 with two fiber receiver

Fiber inputs and outputs* :

- **BPH18DTR_FC/PC_GRB100:** I/O panel for GRB100 with one fiber transmitter and receiver

* Ordering information fiber input and/or output modules:

- In case of HRB100 replace GRB100 by HRB100
- In case of SC connector: replace FC/PC by SC.

Specifications

Serial Video Input

Standard	SD,HD and 3Gb/s SDI: SMPTE 292M, SMPTE 259M, SMPTE424
Number of Inputs	2
Connector	BNC
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	2
Connector	BNC
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.) > 10dB up to 3GHz (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. 250g
Operating Temperature	0 °C to +50 °C
Dimensions	137 x 296 x 20 mm (HxLxD)

Electrical

Voltage	+24V to +30V
Power	<15 Watts