



## GPD100 – HPD100

3Gb/s, HD, SD embedded domain PCM to Dolby Digital (plus) encoder with audio shuffler

A Synapse ® product

The Synapse logo, which is the word "Synapse" written in a light blue, cursive script font.

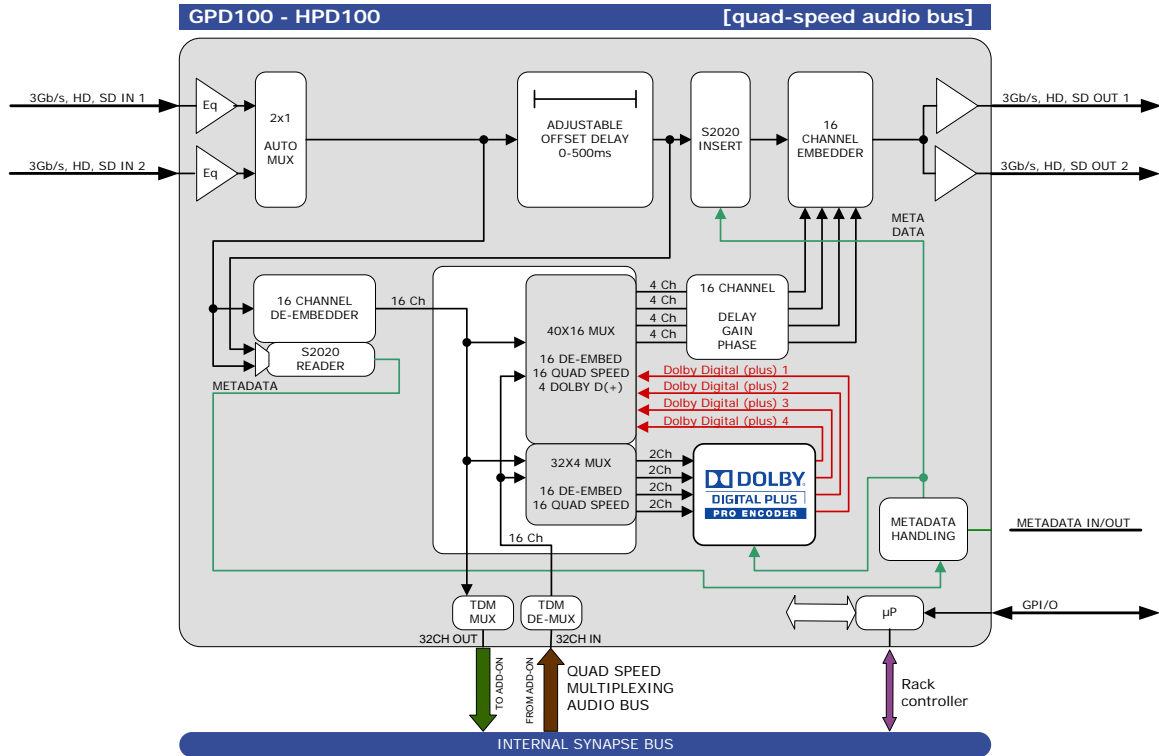
Quad speed <b>MASTER</b>	<b>3</b> TRIPLE RATE GB/s, HD, SD
Powered by <b>LINUX</b>	Upgradable to <b>3Gb/s</b>
DESIGNED FOR <b>DOLBY</b> DIGITAL PLUS	Embedded <b>Metadata</b> S2020

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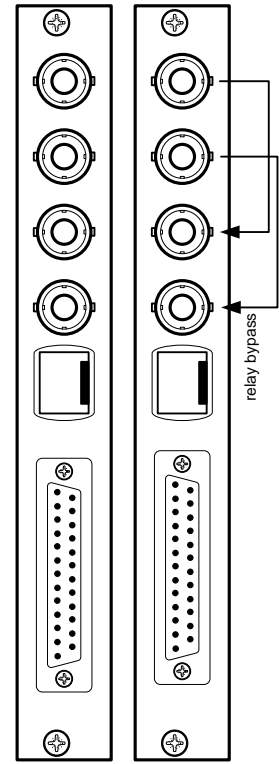
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Block schematic & I/O panel



- 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 GPD100 and HPD100 are embedded domain PCM to Dolby Digital or Dolby Digital Plus transcoders.

Simultaneous encoding of 5.1+2.0 or 4 individual stereo channels (languages) to 4 Dolby Digital (Plus) 2.0 streams is possible.

The new Quad Speed audio bus allows for implementation of 'in between' audio processing. This means that we can stream the decoded Dolby E audio to a Quad Speed Audio ADD-ON card like the DLA44 or DLA42, process this audio and send it back to the G/HPD100 for encoding into Dolby Digital or Dolby Digital plus.

The ADD-ON card often does not need a connector panel and all audio routing is performed inside the Synapse frame by just placing these cards in adjacent slots.

The HPD100 can be future upgraded to GPD100. This allows for staged implementation of HD infrastructures and spread the cost over multiple budget years.

- Encoding of up to 4 times 2.0 Dolby Digital (Plus) outputs.
- Or 5.1 Dolby Digital (Plus) + 2.0 Dolby Digital (Plus)
- Dolby Pro Logic II encoding on the 2.0 channel
- Downmix of 5.1 to 2.0
- Embedded S2020 handling
- 2 SDI inputs (with auto switch on carrier loss, and switch back function)
- Compatible with the following input formats (auto selecting) (1080p only for GPD):
 

▪ 1080p/59.94	▪ 720p/59.94
▪ 1080p/50	▪ 720p50
▪ 1080i/59.94	▪ SD525
▪ 1080i/50	▪ SD625
▪ 1080p/29.97	
▪ 1080p25	
▪ 1080p(sf)/23.98	
▪ 1035i/59.94	
- Offset video delay of up to 1000ms
- Quad Speed Audio ADD-ON bus for bidirectional audio processing
- 2 SDI + embedded audio outputs
- 7 presets that configure all 16 input channels at once. controlled by GPI or ACP (Cortex)
- Append and overwrite modes
- Audio level and phase control
- Audio offset delay up to 5000 ms
- Peak detection 0dBFS
- Transparent for ATC time code RP188, RP196, RP215
- Locks to Tri-level, Bi-level syncs or input
- 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 (BHX18 or BHX18D)

Complementary cards:

- DLA44, DLA43, DLA42, DLA41 and DIO88 (plus all future quad speed audio ADD-ON cards)

## Applications

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- 3Gb/s, HD and SD Dolby transcoding in transmission
- Preset based 16 channel audio/bitsream shuffling
- On the fly audio routing to two individual SD, HD and 3Gb/s SDI video streams.

## Ordering information

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**Module:**

- **GPD100:** 3Gb/s, HD, SD embedded domain Dolby Digital (plus) encoder re-embedder
- **HPD100:** HD, SD embedded domain Dolby Digital (plus) encoder re-embedder

**Standard I/O:**

- **BPH18D\_GPD100:** I/O panel for G/HPD100 with balanced AES/EBU inputs

**Relay bypass I/O:**

- **BHX18D\_GPD100:** relay I/O panel for G/HPD100 with balanced AES/EBU inputs

**Fiber outputs:**

- **BPH18DT\_GPD100:** I/O panel for G/HPD100 with one fiber transmitter
- **BPH18DT2\_GPD100:** I/O panel for G/HPD100 with two fiber transmitters

**Fiber inputs:**

- **BPH18DR\_GPD100:** I/O panel for G/HPD100 with one fiber receiver
- **BPH18DR2\_GPD100:** I/O panel for G/HPD100 with two fiber receiver

**Fiber inputs and outputs:**

- **BPH18DTR\_GPD100:** I/O panel for G/HPD100 with one fiber transmitter and receiver

## Specifications

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### Serial Video Input

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<b>Standard</b>	SD,HD and 3Gb/s SDI: SMPTE 292M, SMPTE 259M, SMPTE424
<b>Number of Inputs</b>	2
<b>Connector</b>	BNC
<b>Equalization</b>	Typical maximum equalized length of Belden 1694A cable: 90m at 2.97Gb/s, 120m at 1.485Gb/s, and 250m at 270Mb/s
<b>Return Loss</b>	> 15dB up to 1.5GHz

### Serial Video Output

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<b>Number of Outputs</b>	2
<b>Connector</b>	BNC
<b>Signal Level</b>	800mV nominal
<b>DC Offset</b>	0V $\pm$ 0.5V
<b>Rise/Fall Time</b>	135ps nominal
<b>Overshoot</b>	< 10% of amplitude
<b>Return Loss</b>	> 15dB up to 1.5GHz (typ.) > 10dB up to 3GHz (typ.)
<b>Wideband Jitter</b>	< 0.2UI

### Reference Input through RRC

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

### Miscellaneous

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<b>Weight</b>	Approx. 250g
<b>Operating Temperature</b>	0 °C to +50 °C
<b>Dimensions</b>	137 x 296 x 20 mm (HxLxD)

### Electrical

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<b>Voltage</b>	+24V to +30V
<b>Power</b>	<15 Watts