

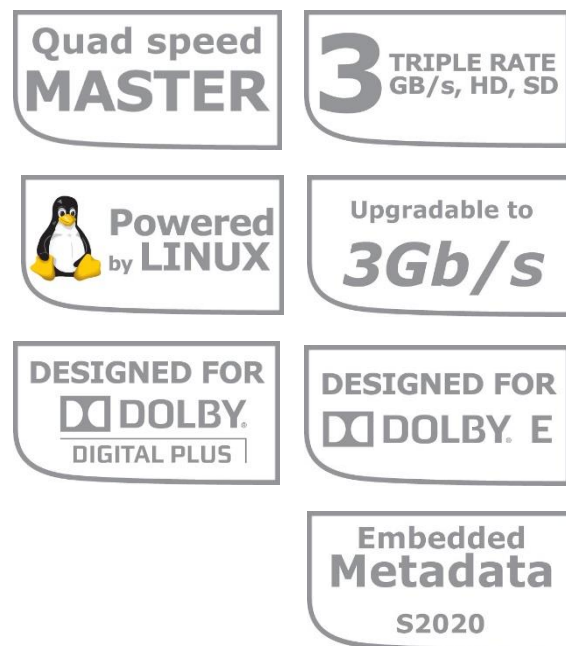


GEE200/230 – HEE200/230

3Gb/s, HD, SD embedded domain Dolby E/D/D+ decoder and to Dolby E encoder with audio shuffler and optional audio description processor

A Synapse ® product

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

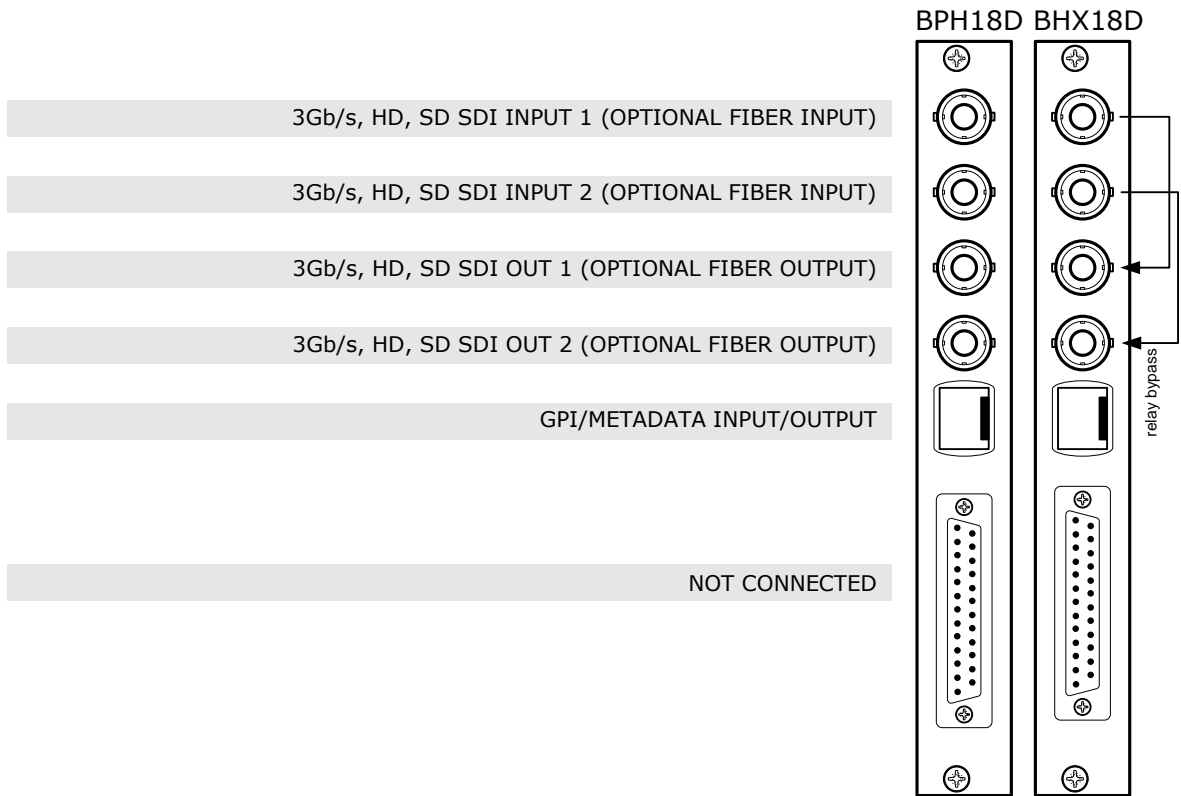
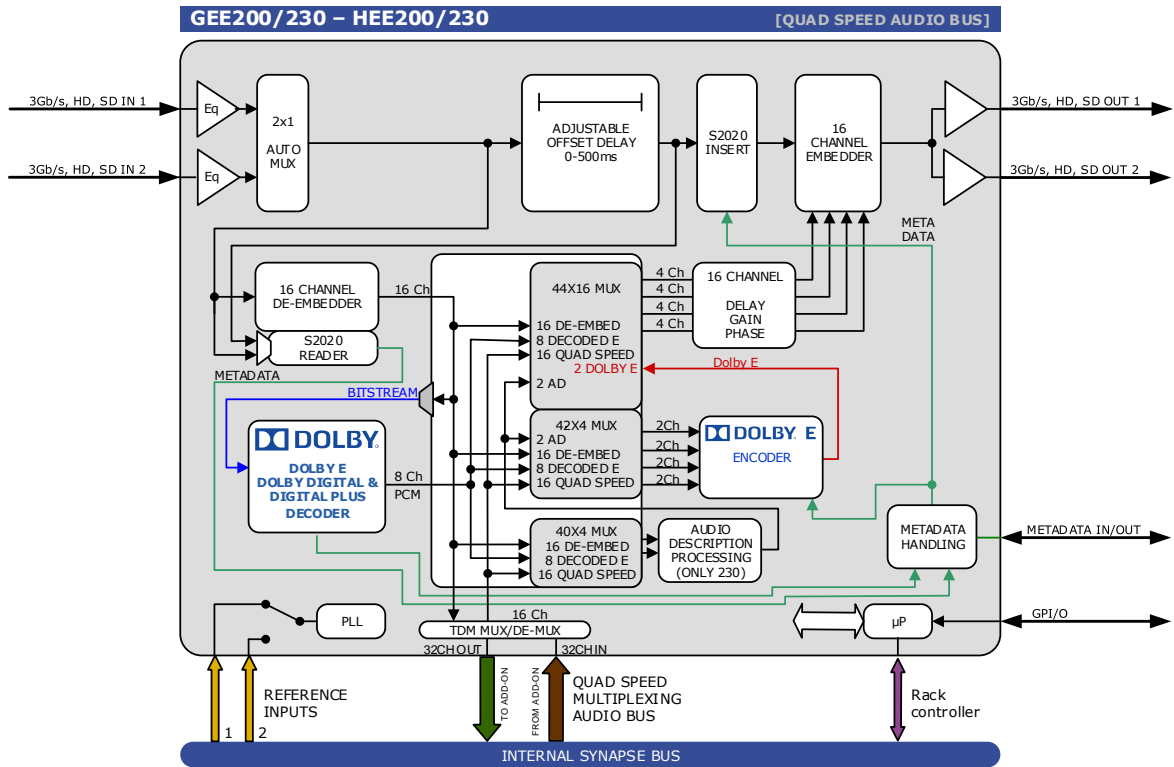


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Block schematic & I/O panel



Features

The GEE200/230 and HEE200/230 are embedded domain Dolby E/D/D+ to Dolby E processors with optional fully routable Audio Description processor. This processor uses a stereo track as main program (input 1-2 of the AD processor) and mixes the AD track triggered by the mix enable track (input 3-4 of the AD processor).

The output of the AD processor can be routed to any of the Dolby E encoder inputs or any of the normal PCM channels of the 16 channel embedder.

Simultaneous encoding of 5.1, 5.1+2.0 or 4 individual stereo channels (languages) to a Dolby E stream is possible.

The 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/HED2x0 for encoding into Dolby E. The ADD-ON card 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 HEE2x0 can be future upgraded to GEE2x0. This allows for staged implementation of HD infrastructures and spread the cost over multiple budget years.

- Dolby E, Dolby Digital and Dolby Digital Plus decoding
- Encoding of up to 4 times 2.0 Dolby E outputs, or 5.1 Dolby E or 5.1+2.0 Dolby E
- Audio Description processor with free routable I/O
- S2020 metadata 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 GED):
 - 1080p/59.94
 - 1080p/50
 - 1080i/59.94
 - 1080i/50
 - 1080p/29.97
 - 1080p25
 - 1080p(sf)/23.98
 - 720p/59.94
 - 720p50
 - SD525
 - SD625
- Offset video delay adjustable between 0 and 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
- Silence detection with threshold (-100 to -20dBFS) and time control (1 to 255 sec)
- 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 (BHX18D)

Complementary cards:

- DLA44, DLA43, DLA42, DLA41, DEE28, DAW30 and DIO88 (plus all future quad speed audio ADD-ON cards)

Applications

- 3Gb/s, HD and SD Dolby transcoding in transmission
- Preset based 16 channel audio/bitsream shuffling

Ordering information

Module:

- **GEE200:** 3Gb/s, HD, SD embedded domain Dolby E,D,D+ decoder and Dolby E encoder re-embedder
- **HEE200:** HD, SD embedded domain Dolby E,D,D+ decoder and Dolby E encoder re-embedder
- **GEE230:** 3Gb/s, HD, SD embedded domain Dolby E,D,D+ decoder and Dolby E encoder re-embedder with audio description processor
- **HEE230:** HD, SD embedded domain Dolby E,D,D+ decoder and Dolby E encoder re-embedder with audio description processor
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Standard I/O:

- **BPH18D_GEE100:** I/O panel for GED-HED130 with (future use) balanced AES/EBU inputs

Relay bypass I/O:

- **BHX18D_GEE100:** I/O panel for GED130-HED with (future use) balanced AES/EBU inputs with relay bypass

Fiber outputs:

- **BPH18DT_FC/PC_GEE100:** I/O panel for GED-HED130 with (future use) balanced AES/EBU inputs with one fiber transmitter
- **BPH18DT2_FC/PC_GEE100:** I/O panel for GED-HED130 with (future use) balanced AES/EBU inputs with two fiber transmitters
- **BPH18DT_SC_GEE100:** I/O panel for GED-HED130 with (future use) balanced AES/EBU inputs with one fiber transmitter
- **BPH18DT2_SC_GEE100:** I/O panel for GED-HED130 with (future use) balanced AES/EBU inputs with two fiber transmitters

Fiber inputs:

- **BPH18DR_FC/PC_GEE100:** I/O panel for GED-HED130 with (future use) balanced AES/EBU inputs with one fiber receiver
- **BPH18DR2_FC/PC_GEE100:** I/O panel for GED-HED130 with (future use) balanced AES/EBU inputs with two fiber receiver
- **BPH18DR_SC_GEE100:** I/O panel for GED-HED130 with (future use) balanced AES/EBU inputs with one fiber receiver
- **BPH18DR2_SC_GEE100:** I/O panel for GED-HED130 with (future use) balanced AES/EBU inputs with two fiber receiver

Fiber inputs and outputs:

- **BPH18DTR_FC/PC_GEE100:** I/O panel for GED-HED130 with unbalanced AES/EBU inputs with balanced AES/EBU inputs with one fiber transmitter and receiver
- **BPH18DTR_SC_GEE100:** I/O panel for GED-HED130 with unbalanced AES/EBU inputs with balanced AES/EBU inputs with one fiber transmitter and receiver

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
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