

AXON

NEURON

NPG1600

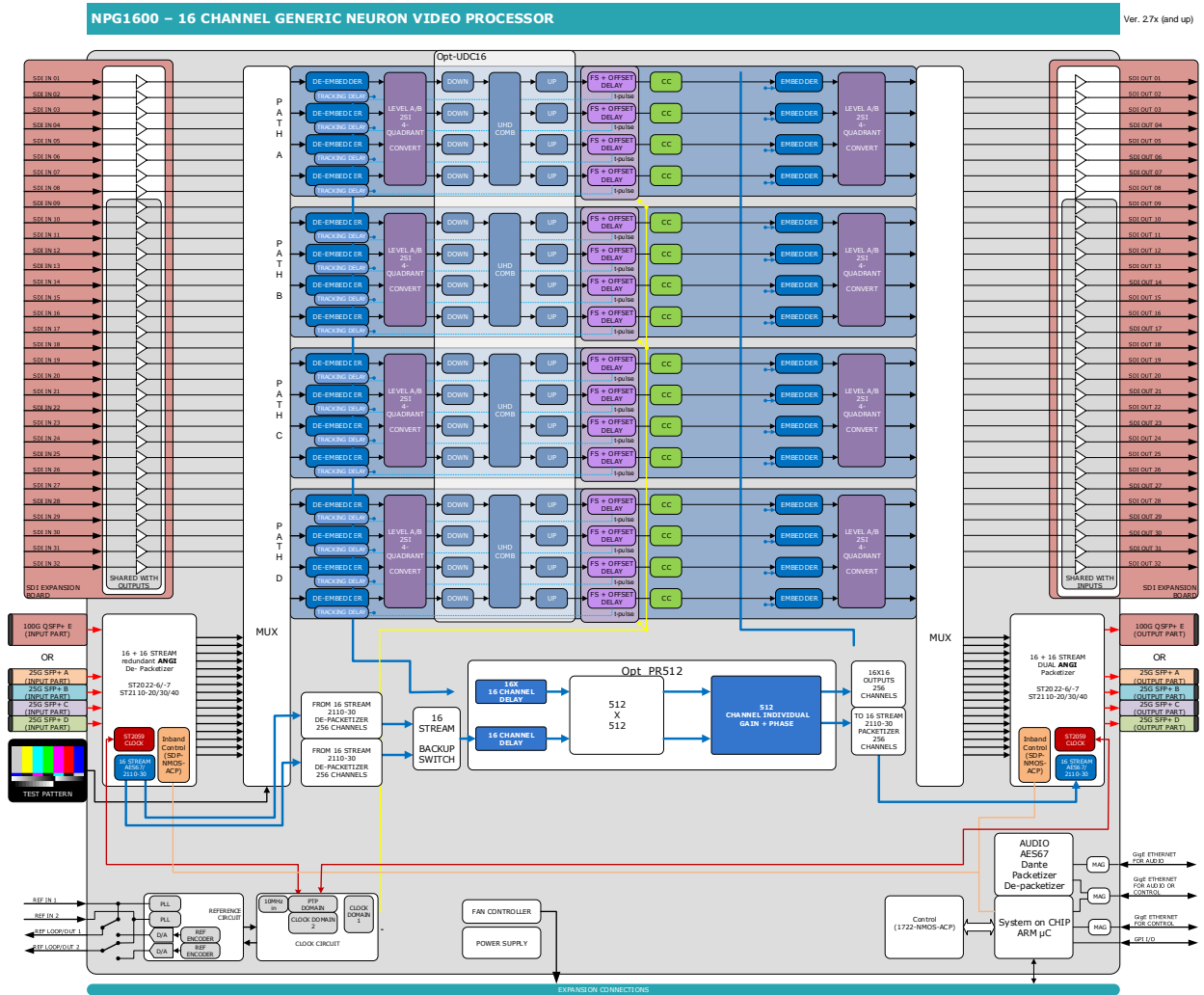
**IP gateway, bridge, synchronizer, processor for all-IP,
all-SDI and hybrid video and audio**

A Neuron product

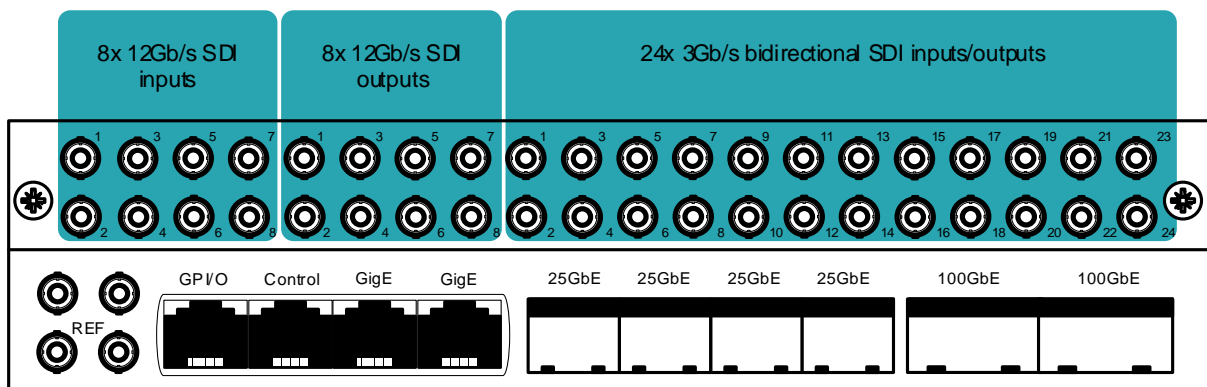
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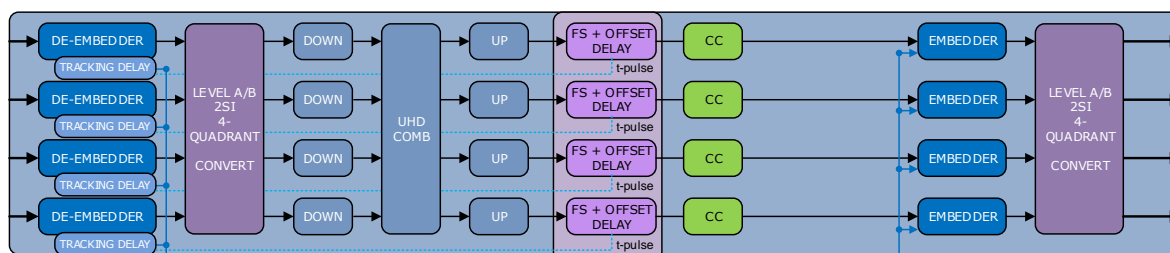
Block schematic



I/O Panel



Processing Paths A - D



The NGP1600 has 16 processing paths, which include audio de-embedding, framesync, up/dn/cr conversion, UHD remapping, Proc Amp, embedding and audio gain/phase/delay functionality.

Features

The NPG1600 is a multi-channel A/V-over-IP transceiver developed for use within low-latency and high-bandwidth Ethernet IP networks. Using the ST2110 and ST2022 encapsulation methods, the NGP1600 is capable of processing up to 16x 3Gb/s signals and transport them over redundant Ethernet links or SDI I/O (optional).

The NPG1600 can be utilized in many different ways. Each video channel is capable of frame-synchronizing, up/down/cross conversion, color correcting, UHD remapping, embedding, de-embedding and audio gain and phase. Grouping four signal paths will offer UHD handling up to 4 UHD channels. Virtually any signal can be processed with this unit from SD to UHD signals.

Optionally, the NPG3200 can be enhanced with an SDI I/O module. This will add physical connectors and allows easy integration of video over IP networking with existing SDI baseband operations acting as bridge or gateway.

- Cost efficiency by integrating IT equipment and speed in a broadcast environment. Lowering cable cost and scalable systems.
- Standards supported: UHD-SDI (12G single wire or four-wire in 4 Quadrants or 2SI), 3G-SDI level A, HD-SDI, ST2022-6 and ST2110-20/30.
- 32 IP video listeners and 32 IP audio listeners
- Up to 16 channels of bridging SDI to/from Ethernet (requires SDI optional board)
- Up to 16 channel frame-sync to local clock on external ref (B&B or ST2059)
- Up to 16 channels of up/down/cross conversion (UHD requires 4 channels)
- UP to 4 channels UHD remapping (SQD from/to 2SI, 4 wire from/to 1 wire)
- Up to 16 times 16 channel audio de-embedding
- Up to 16 times 16 channel audio embedding
- Up to 16 times Proc-amp for RGB and RGB-Black gains
- 512 channels audio gain/phase and offset delay
- 512x512 ch audio matrix (256ch deembedded audio + 256ch ST2110-30 I/O)
- Clean switch and fast switch capabilities between all inputs (IP and/or SDI)
- Several configurations of Ethernet links for maximum signal transport using both SFPs, quad 25 GbE Ethernet
- Clean switch between incoming SDI and IP signals
- QSFP+ or SFP+ cages, 4x 25GbE
- Each SDI or IP input can be used as a back-up signal for an SDI or IP output
- Redundant IP signals in and out (output port replication, ST2022-7 compliant)
- PTP Network timing with slave functionality on the Ethernet ports, compliant with SMPTE ST2059-2 External black burst inputs
- Audio synchronization
- 2x Analog bi-level reference out

- Multicast and Unicast selectable per streams
- Selectable VLAN and priority per stream
- Compatible protocols: ACPv2, DNS, IGMPv2, IGMPv3, LLDP, HDCP, SDP, NMOS IS04, NMOS IS-05, 802.1as, ST2059-1/2, ST2022-6, ST2110-20/30

Applications

- Universal SDI to Ethernet bridge in Ethernet networks (with Opt-I/O A)
- Point to point (back to back) applications for direct replacement of CWDM systems (with Opt-I/O A)
- SDI router replacement; Router unit for distributed routing over an IP network with clean switching
- Outputs at shader position. Ultra-fast clean switching.
- Enabling local or remote productions over private or commercial networks
- Network attached processor
- All 4k 4 wire challenges
- Video frame synchronization
- Video Auto phasing
- Audio embedding and de-embedding
- 4 wire synchronization and alignment
- Up, down and cross conversion

Ordering information

Module:

- **NPG1600:** IP gateway, bridge, synchronizer, processor for all-IP, all-SDI and hybrid video and audio

Options:

- **Opt_I/O SDI40:** SDI I/O board with 8 12G inputs, 8 12G outputs and 24 3G bidirectional connectors
- **Opt_UDC16:** 16 channel up/down/cross conversion with up to 4 UHD converters
- **Opt_PR512:** Audio gain, phase and delay per stream up to 1,2 seconds

Specifications

Serial Video Input

Standard	SD, HD, 3Gb/s and 12Gb/s SDI: SMPTE 292M, SMPTE 259M, SMPTE424, ST2082
Number of Inputs	8 up to 32 inputs
Connector	HD-BNC
Equalization	Typical maximum equalized length of Belden 1694A cable: 70m 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	8 up to 32 outputs
Connector	HD-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

IP interface

Cage	SFP+, QSFP+
Number of cages	4, 2
Supported modules	SR, LR, ZR (Optical)
Phy	4 x 25GB/s, Max. power 1.5W/module

Miscellaneous

Weight	Approx. < 2.5kg (5.5 lbs)
Operating Temperature	0 °C to +30 °C
Dimensions	40x188x365mm (HxWxD)

Electrical

Voltage	+12V
Power	<250 Watts