

**AXON**

**NEURON**

**NPG3200**

**IP media gateway, bridge, synchronizer and processor  
for all IP/hybrid SDI and audio**

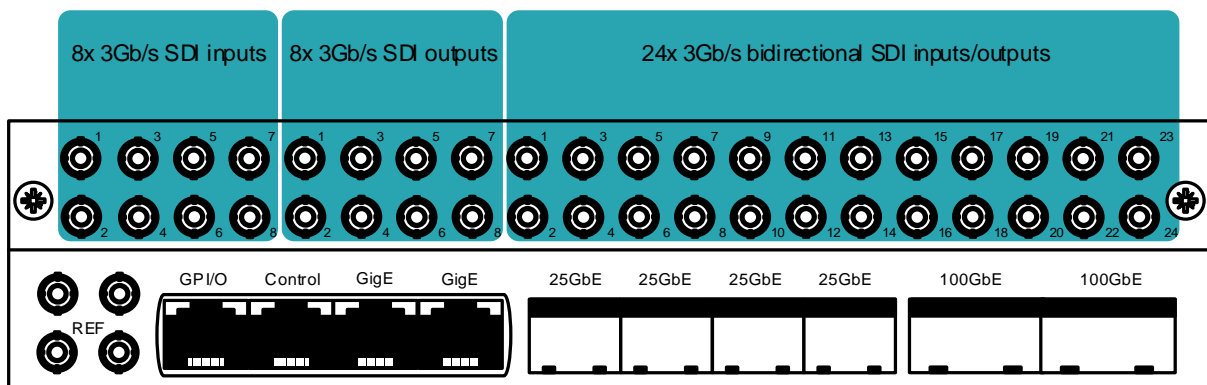
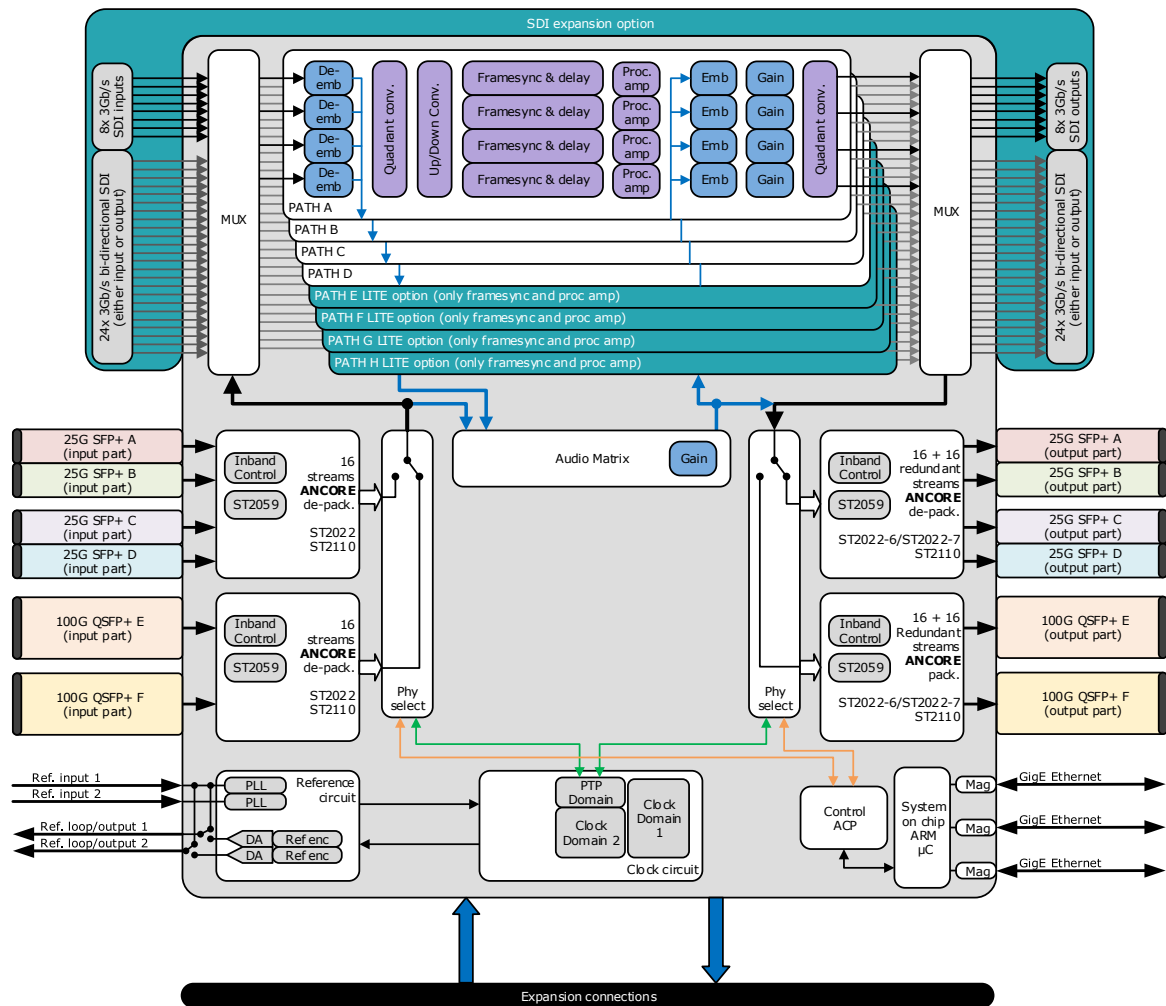
**A Neuron product**

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# Block schematic & I/O panel

**NPG3200 – Neuron main video processor**



## Features

The NGP3200 is a multi-channel A/V-over-IP transceiver developed for use within low-latency and high-bandwidth Ethernet IP networks. Using the ST2022 and ST2110 encapsulation methods, the NGP3200 is capable of processing up to 32x 3Gb/s SDI signals (requires optional SDI board) and transport them over redundant 25GbE links.

The NPG3200 can be utilized in many different ways. 16 video processing paths are capable of de-embedding, frame-synchronizing, down-conversion, proc. Amp, embedding and audio gaining. Add 16 additional video processing paths, which can only framesync and proc. amp, is optional. Grouping four signal paths will offer UHD handling up to 8 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.
- Supports asynchronous SDI inputs
- Input standards supported: UHD-SDI (four-wire in 4 Quadrants), 3G-SDI level A, HD-SDI, ST2022-6, ST2110 on 50Hz and 59.94Hz.
- Up to 32 channels frame-sync to local clock on external ref (B&B or ST2059)
- Up to 32 channels of bridging SDI to Ethernet (ST2022-6, ST2022-7 or ST2110) and/or back (requires SDI optional board)
- Up to 16 times 16 channel audio de-embedding
- Up to 16 times 16 channel audio embedding
- Up to 16 additional ST2110-30 audio stream inputs, which can be embedded by any of the 16 audio embedders
- Up to 16 additional ST2110-30 audio stream outputs with shuffle and gain processing functionality
- Up to 16 up/down/cross converters in HD mode and up to 4 in UHD mode (optional)
- Several configurations of Ethernet links for maximum signal transport using both SFPs or QSFPs, quad 25 GbE Ethernet
- Clean switch between incoming SDI and IP signals
- Each SDI or IP input can be used as a back-up signal for an SDI or IP output.
- Multiple transport types available for each SDI input including uncompressed video transport using ST2022-6, ST2022-7 or ST2110 encapsulation
- 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, DHCP, 802.1as, ST2059-1/2, ST2022-6, ST2022-7, ST2110-20, ST2110-30
- ST2110 block packing and general packing mode supported

## Applications

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- Universal SDI to Ethernet bridge in Ethernet networks
- Network Attached Processor (NAP)
- Universal SDI to Ethernet bridge in Ethernet networks (with optional I/O expansion board)
- Point to point (back to back) applications for direct replacement of CWDM systems (with optional I/O expansion board)
- System 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
- Video frame synchronization
- Video Auto phasing
- Audio embedding and de-embedding
- 4 wire synchronization and alignment

## Ordering information

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**Module:**

- **NPG3200:** IP media gateway, bridge, synchronizer and processor for all IP/hybrid SDI and audio. Processing board for Neuron.

**Optional features:**

- **Opt\_I/O\_SDI40:** I/O expansion board for NPG3200 with 8 SDI inputs, 8 SDI outputs and 24 bi-directional SDI connectors on HD BNC
- **Opt\_16ch:** 16 additional video processing paths with framesync and proc amp processing capabilities
- **Opt\_UDC16:** 16 channels up/down/cross conversion with up to 4 UHD converters
- **Opt\_PR512:** 512 channel audio processing (gain/phase/delay) for 512 channels

## Specifications

### SDI Input (optional)

<b>Standard</b>	SD, HD, 3Gb/s, 12Gb/s SDI: ST259M, ST292M, ST424M, ST2082
<b>Number of Inputs</b>	8
<b>Connector</b>	Micro BNC (HD BNC)
<b>Signal level</b>	800 mV
<b>DC offset</b>	0V $\pm$ 0.5V
<b>Overshoot</b>	Within 10% of signal level
<b>Return Loss</b>	>15dB up to 1.5GHz, >10dB up to 3Ghz, >7dB up to 6Ghz, >4dB up to 12Ghz

### SDI Output (optional)

<b>Standard</b>	SD, HD, 3Gb/s, 12Gb/s SDI: ST259M, ST292M, ST424M, ST2082
<b>Number of outputs</b>	8
<b>Connector</b>	Micro BNC (HD BNC)
<b>Signal Level</b>	800mV nominal
<b>DC Offset</b>	0V $\pm$ 0.5V
<b>Overshoot</b>	< 10% of amplitude
<b>Wideband Jitter</b>	< 0.2UI
<b>Return Loss</b>	>15dB up to 1.5GHz, >10dB up to 3Ghz, >7dB up to 6Ghz, >4dB up to 12Ghz

### SDI Output (optional)

<b>Standard</b>	SD, HD, 3Gb/s SDI: ST259M, ST292M, ST424M
<b>Number of connectors</b>	24
<b>Connector</b>	Micro BNC (HD BNC)
<b>Signal Level</b>	800mV nominal
<b>DC Offset</b>	0V $\pm$ 0.5V
<b>Overshoot</b>	< 10% of amplitude
<b>Return Loss</b>	>15dB up to 1.5GHz, >10dB up to 3Ghz

### Gigabit Ethernet

<b>Connector type</b>	RJ45
<b>Number of connectors</b>	3
<b>Standards</b>	10/100/1000BASE-T
<b>Protocols streaming</b>	AES67, ST2110-30, ST2059
<b>Protocols for control</b>	ACP2
<b>Cable</b>	Shielded twisted pair

### QSFP+ Cages

<b>Number of cages</b>	2
<b>Standards</b>	100gigE, 40GigE, 4x 25GigE, 4x 10GigE
<b>Protocols</b>	ST2022-6, ST2022-7, ST2110, AES67, ST2059

### SFP+ Cages

<b>Number of cages</b>	4
<b>Standards</b>	25GigE, 10GigE
<b>Protocols</b>	ST2022-6, ST2022-7, ST2110, AES67, ST2059

**Reference I/O**

<b>Connector type</b>	Micro BNC (HD BNC)
<b>Number of inputs</b>	2
<b>Number of outputs</b>	2, loop input or analog reference out
<b>Termination</b>	75 Ohms when not looped
<b>Tri-level</b>	ST274M, ST296M, 600mV pp
<b>Bi-level</b>	PAL/NTSC Black Burst ITU624-4/ST318/ST170M, 1Vpp

**GPI**

<b>Connector type</b>	RJ45
<b>Number of contacts</b>	7
<b>Direction</b>	In or Out selectable per pin
<b>In- Output levels</b>	3.3V TTL compatible (or closed contact in)
<b>Cable</b>	Shielded Twisted Pair
<b>Note</b>	One GPI is default assigned as recovery button. It must be edge based to prevent problems when it is stuck to GND

**Recovery reset switches**

<b>Switch type</b>	Push button, not momentary
<b>Accessibility</b>	Via 1mm hole through front
<b>Reset action</b>	Press reset only
<b>Recovery action</b>	Press recovery and hold -> press reset -> release recovery

**Miscellaneous**

<b>Weight</b>	-
<b>Operating Temperature</b>	0 °C to +40 °C
<b>Dimensions</b>	-

**Electrical**

<b>Voltage</b>	+24V to +30V
<b>Power</b>	-