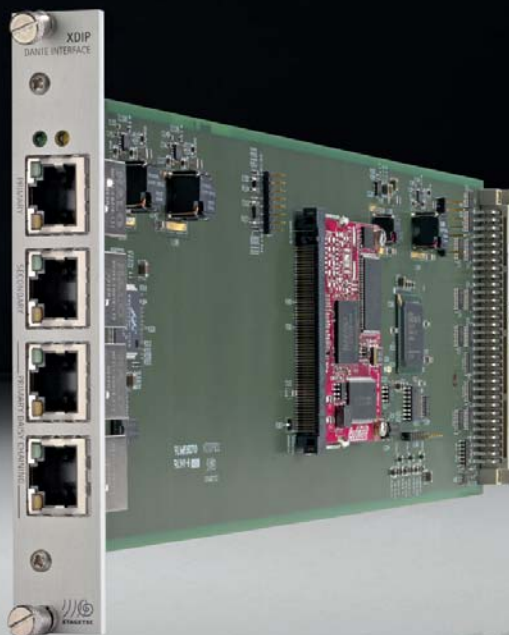


XDIP Dante Audio-over-IP Interface

Multichannel I/O board

- Up to 64 duplex channels via Brooklyn II module
- Transparent forwarding of AES control data
- Supports 44.1/48 kHz, 88.2/96 kHz sample rates on the NEXUS side and 44.1/48 kHz, 88.2/96 kHz (synchronous connection) and 44.1 to 192 kHz sample rates (asynchronous connection using SRCs) on the Dante side
- NEXUS can be either wordclock master or slave
- Gain for all send and receive channels can be set individually ($-\infty$ to +20 dB)
- NEXUS generator switchable to any input / output
- Firmware updates supported
- 2 front-panel LEDs for status and error indication
- AVB-enabled Gigabit Ethernet switch with four Ethernet ports for redundant Dante connections and / or daisy chaining



IP-based networks have been subject to considerable development in recent years. Designed originally for computer systems, the technology has become very popular for audio transmission thanks to high data rates and omnipresence. With their Dante™ product line, Audinate is one of the world's leading names in high-performance networking for the transmission of uncompressed audio over standard IP connections.

Multichannel NEXUS I/O board

The XDIP (NEXUS **D**ante **I**P) board for the NEXUS is the result of a successful collaboration between Stage Tec and Audinate. Based on the Dante Brooklyn module, the XDIP sends and receives 64 input channels and 64 output channels simultaneously, thus providing an interface between the IP world and the synchronously clocked NEXUS routing system. The actual number of channels is determined by the Brooklyn II module and varies according to the sampling rate selected:

Sample Rates and Channels

48 kHz – 64 channels
96 kHz – 32 channels
192 kHz – 16 channels

The module is equipped with FPGA sampling rate converters. XDIP is fully compatible with Dante's unique plug and play network integration with automatic device discovery and system configuration and complies with the emerging AVB standard. A virtual driver for sound cards connects any PC to a Dante network. Thus, for example, a DAW may be plugged into NEXUS without the need for additional hardware.

Ethernet

The XDIP incorporates an AVB-enabled Gigabit Ethernet switch which provides four Ethernet ports for maximum flexibility. The Brooklyn II module communicates with the switch directly and sends and receives network packets containing audio and sync data. Two of the four ports provide the primary and secondary connections to the Dante audio network. This enables a VLAN-based setup with redundant lines to be created. The other two ports are available for connections to other network nodes, e.g., an XCPU board.

Wordclock

NEXUS can be connected to a Dante network either as wordclock master or slave. Asynchronous operation is also possible where the audio signals are converted by 2×64 SRCs on the XDIP card. The XDIP reads the sample rate received from the Brooklyn II module continuously and uses it to generate a Wordclock signal which is then sent to the XCPU. The Brooklyn II module, on the other hand, receives the NEXUS wordclock. In the Dante controller software, the NEXUS wordclock can be selected as a sync source for the Brooklyn II module and the Dante audio network. Within the Dante network the XDIP acts as the master.



XDIP Dante Audio-over-IP Interface

an overview

Data formats	Dante Audio-over-IP technology (using an Audinate Brooklyn II module)	
Channels	Dante (Brooklyn II)	64 bidirectional at 44.1/48 kHz
		32 bidirectional at 88.2/96 kHz
		16 bidirectional at 176.4/192 kHz
	NEXUS	up to 64 bidirectional (determined by Brooklyn II module)
Sample rates	NEXUS: 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz	
Audio data	Dante	16/20/24/32-bit
	NEXUS	24-bit
Latency	XDIP <-> XDIP	0.43 ms
Sample-rate converters	2 × 64 FPGA based	
	Resolution	24-bit
	Conversion Range	44.1 - 192 kHz
	Latency	1-1.5 ms (@ 48 KHz, typ.)
	THD+N	-130 dB typ. (-125 dB to -139 dB)
Ethernet	Port	4 × RJ 45, 1 000 BASE-T, with galvanic isolation, usable for primary or secondary redundant-line connections to the Dante network or for daisy chaining
	Data rate	100/1 000 Mbps
	Cable length	100 m max., CAT5e or better
Power supply	Voltage	+4.75 to 5.25 V
	Power consumption	< 4.5 W
Operating conditions	Temperature range	0 °C to +50 °C
	Humidity	90 % (max.), non-condensing
Storage conditions	Temperature range	-20 °C to +70 °C
	Humidity	90 % (max.), non-condensing
Physical properties	General	Plug-in board for 19" module frame; 3 U, 340mm long
	Front panel	4 HP (20.02 mm × 128.5 mm)
	Slot requirements	1
	Weight	0.23 kg

Dante

Dante is a technology designed by the Australian company Audinate. Dante makes it possible to transmit high-quality audio over Ethernet. The Dante transport mechanisms overcome many of the typical design limitations inherent in conventional network systems. With Dante robust and flexible audio networks are set up quickly and easily.

Dante was developed with Gigabit Ethernet in mind but can also be used on 100 Mbps networks. It ensures sample accurate synchronisation and minimum latency. Dante uses standard IP over Ethernet but will also support future networking standards. This is particularly interesting in the context of the forthcoming AVB standard. Therefore, it offers better future-proofing than any other existing audio- transmission protocol.

Read more about Dante Technology: www.audinate.com