



XDIP

Dante-Format I/O-Interface

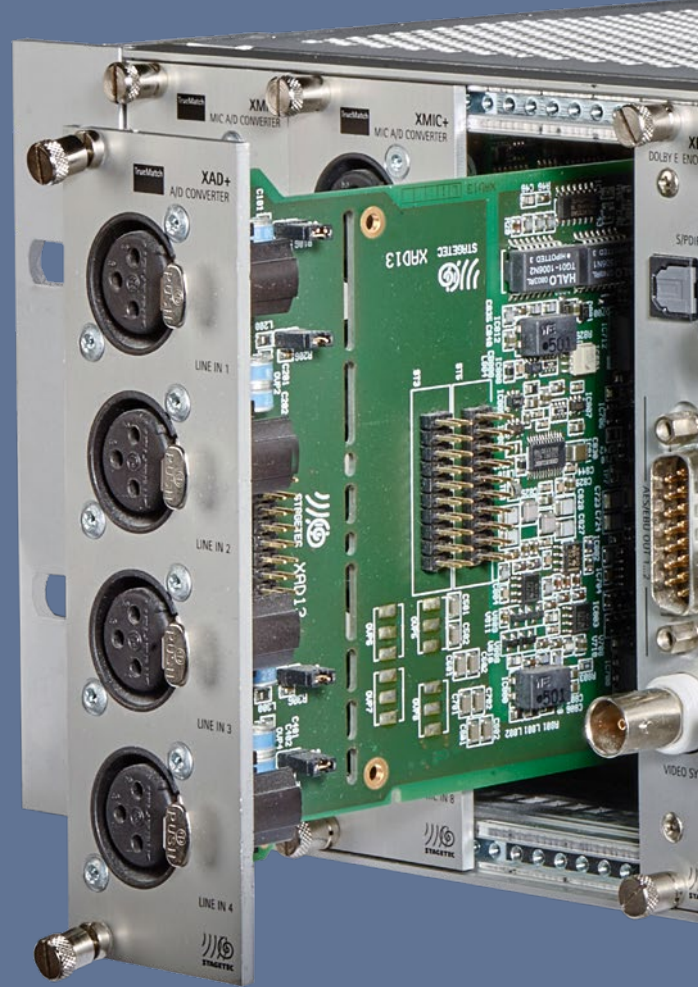


A U D I O E X C E L L E N C E

XDIP

The Dante Interface for NEXUS Base Devices

The XDIP card establishes the connection between Dante and NEXUS networks. With four Ethernet ports, it operates as a switch and supports redundant Dante connections.



The XDIP card is the perfect solution for integrating the proprietary Dante audio network into the NEXUS world. With up to 64 input and output channels, it is perfect for integrating DAWs for recording and playback applications or external, Dante-enabled audio devices for additional I/Os. A sample rate converter allows for operating both networks with different sample rates. Preferably, the XDIP card provides the very accurate NEXUS clock to the Dante network as a master. Of course, the NEXUS system can also use the clock of the Dante network as a sync source. For full flexibility, each input and output can be controlled with its own digital gain and allows the XCPU's signal tone generator to be switched on so that all settings can be made within the NEXUS world if

no Dante signals are available. The card is completed as an IP interface by an integrated, AVB-capable gigabit switch. The first two RJ45 ports can be configured as primary and secondary to be active in two redundant networks. XDIP cards are suitable for recording, playback or virtual soundchecks. Combining multiple XDIP cards within a NEXUS network is easily possible.





Dante interface to the NEXUS network

Dante is the Audio-over-IP (AoIP) format of the Australian company Audinate, that can realize real-time audio streams in ordinary Ethernet networks. The XDIP board is the interface from NEXUS to Dante.

Use as AVB-capable switch

Two of the four Ethernet ports act as AVB-enabled switches, e.g. to integrate other Dante devices or the XCPU into the network.

Support for redundant Dante networks

The integrated switch allows redundancy to be established using separate LANs/VLANs. The 4 Ethernet ports can be all in the same network, or one port or two ports in the second network.

sample rate conversion

For asynchronous operation of NEXUS and Dante networks, the XDIP provides sample rate converters on all inputs and outputs. The output-side converters are synchronized by the incoming Dante signal so that sampling rate and word clock are corresponding with the Dante signal.

Using Dante as a clock master for NEXUS

The clock of the Dante network can be used to synchronize the NEXUS system.

Reclocking and stabilization of the Dante clock

To stabilize the partly fluctuating word clock of the Dante network, a phase locked loop (PLL) is provided on the XDIP card, which forwards a more even clock

to the XCPU. This is used when the NEXUS network is to synchronize to the XDIP board.

Multi-channel recording from the NEXUS network

More and more often there is already the desire to record many audio channels at the same time, even for smaller productions, be it studio productions or live performances. With the current digital recording technology, this is possible without any problems. Artists and producers want multi-track recordings for a wide variety of purposes: from professional studio recordings to fast live CDs to playback stems or simply for the musician's or sound engineer's own control. Especially popular for recording purposes are digital audio workstations, called „DAW“, equipped with a Dante Virtual Soundcard, a low-cost driver for the Dante Ethernet protocol that allows a standard PC to send and receive 64 audio channels simultaneously over an Ethernet connection.

The NEXUS XDIP card offers an excellent way to transmit the desired audio channels from the NEXUS network to the Dante Ethernet network or to receive Dante channels over the same Ethernet port.

Feeding pre-produced audio into NEXUS networks

Shows of various sizes have been using complex playback arrangements for a long time, which can be adapted live and universally to the circumstances. Be it virtuoso sound landscapes, multi-track effect or background pre-productions or a complete band or orchestra, where the multi-track feed can be used to react flexibly to changing live line-ups or changing venues.

The NEXUS XDIP card offers a tailor-made solution for transferring up to 64 audio

channels simultaneously to the NEXUS network, routing them as desired and integrating them into the show with the mixing consoles on the network.

„Virtual soundchecks“ for live and theatre productions

In live or theatre productions it is often not possible to conduct an extensive sound check with all artists at the same time. Therefore, the XDIP card is the ideal interface for a virtual sound check. Usually the recording of the input signals (PreFader, PreEq i.e. Direct Out) of the last show, dress rehearsal or a production made for this purpose, e.g. as an accessory of a recording process, is placed on the inputs of the mixing console in order to create a mix or to refine an existing one or to adapt it to the venue. The great benefit comes from the variety of applications: For large productions it is possible to perform partial rehearsals with full sound, e.g. soloist rehearsals without orchestra or only the band without singers, etc. Another, otherwise impossible use of the virtual sound check is the sound engineer's own practice, in which a mix can be created and worked out without having to pay attention to the stage and with time for the details. In combination with the time code output of Stage Tec's AURUS mixing console, this is a convenient solution, as it allows the connected playback machine to follow even with dynamic automation. In addition, MIDI messages can be output during static and dynamic automation, e.g. to change presets of effect devices or to give cues for single players..

Connection between any Dante equipment and NEXUS networks

The actual application of the XDIP card is of course the connection of Dante-enabled devices or entire Dante networks. Dante is the proprietary audio-over-IP format of the Australian company Audinate and allows the exchange of audio channels using conventional IP networks. Each Dante-enabled device can transmit 64 input and output channels and synchronize the sampling rate using the PTPv1 protocol. A configuration tool for setting up the connections and switching the sources to the sinks is available free of charge. A standard network cable can be used to connect a wide variety of devices to the XDIP card to increase the number of I/Os in the NEXUS system. Meanwhile, especially in the semi-professional area, many devices with Dante interface are in use due to the better price-performance ratio, so that e.g. musicians need such a connection. If all four RJ45 ports are switched to primary, the connections are combined in one network; up to three Dante-enabled devices can be integrated into the Dante network if the XDIP board is connected to a larger Dante network via the fourth port. Without connection to a network, four Dante-enabled devices or two redundantly connected devices can be connected. With the Pri-Sec-Pri-Pri port configuration, one redundantly connected and two singularly operated Dante connections can be established.

Connections

XDIP_5	1 x 4TE		
RJ45	4x	Dante	bidirektional

Technical specifications

Dante

Data formats	Dante Audio-over-IP technology (using Audinate Brooklyn II module)
Channels	64 bidirectional at 44.1/48 kHz 32 bidirectional at 88.2/96 kHz 16 bidirectional at 176.4/192 kHz
Sample rates	44.1/48 kHz, 88.2/96 kHz when using synchronous connections; 44.1...192 kHz when using SRCs
Audio data	16-bit, 20-bit, 24-bit, 32-bit
Latency	adjustable for the network; ≥ 0.43 ms

Configuration

	Input gain and phase; sample-rate converters; Ethernet switch
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Interfaces

Data rate	100/1000 Mbit
Cable length	100 m (max.), CAT5e or better

Sample rate converter

Resolution	24-bit
Conversion range	32...192 kHz
Distortion factor (THD+N)	130 dB (typ.)
Latency	1.2 ms (typ.)

Operation conditions

Temperature range	0 °C bis +50 °C
max humidity	max. 90 %, non-condensing

Storage conditions

Temperature range	-35 °C bis +70 °C
max humidity	max. 90 %, non-condensing

Power supply

Voltage	+4,75...5,25 V
Current	max. 850 mA (SRCs switched on)

Mechanical data

Weight	0,24 kg
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Stage Tec NEXUS: A global reference!*



*The map shows selected reference locations. To date more than 1,000 Stage Tec NEXUS systems have been delivered and installed worldwide.

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