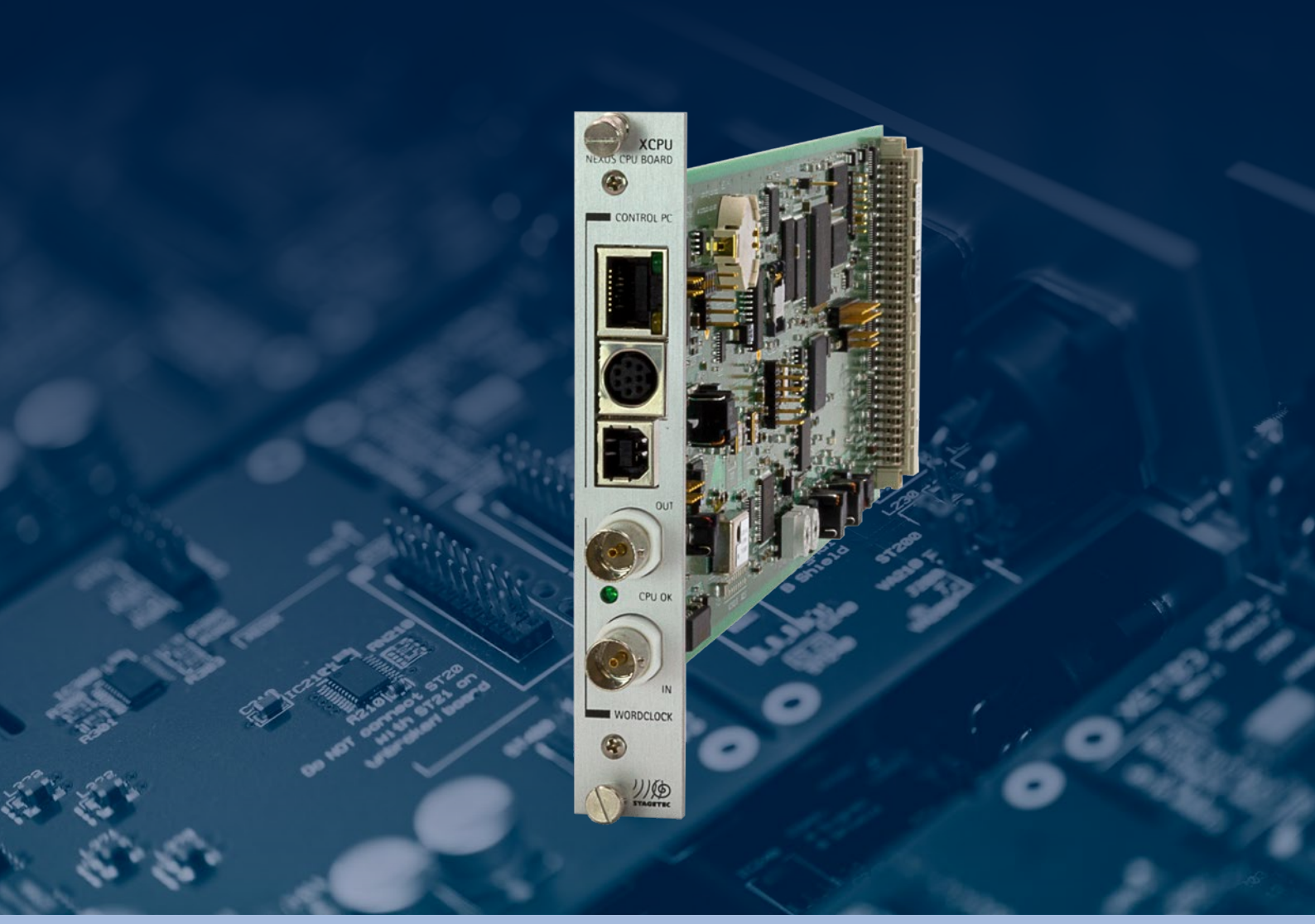


English

XCPU

Central of the system

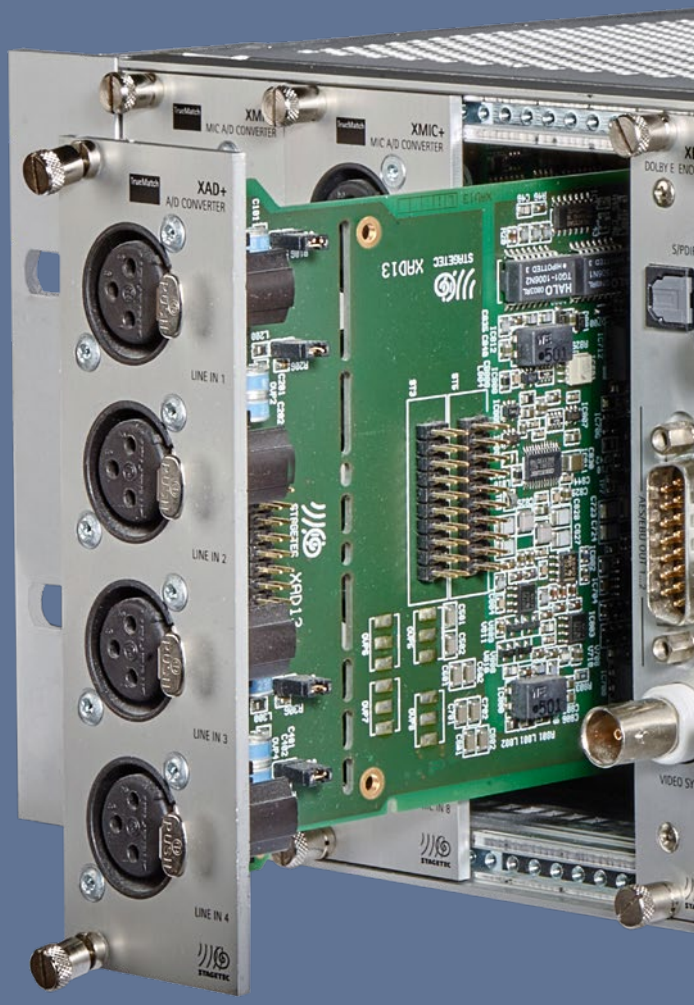
STAGETEC

AUDIO EXCELLENCE

XCPU

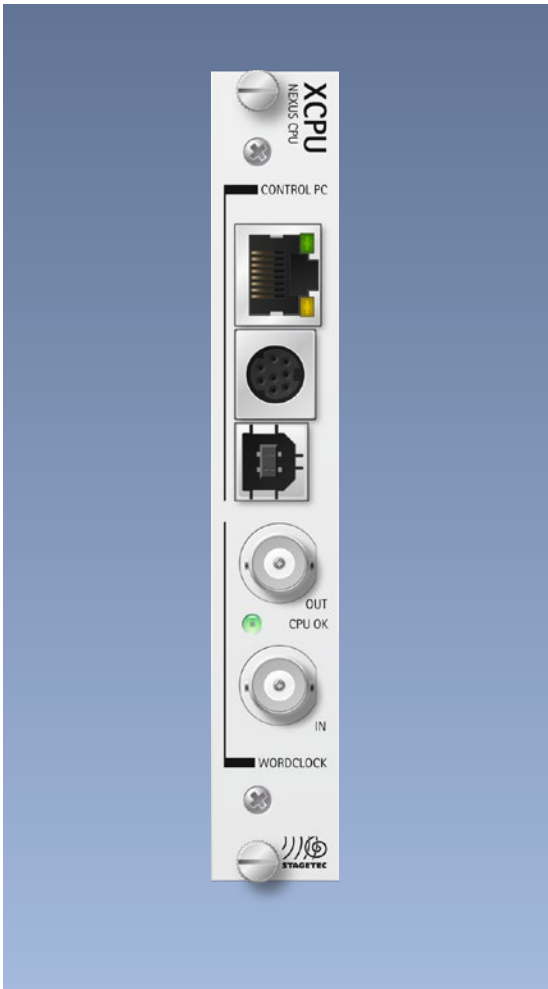
The central module in the base unit: interface, logic and decentralized intelligence of the NEXUS system

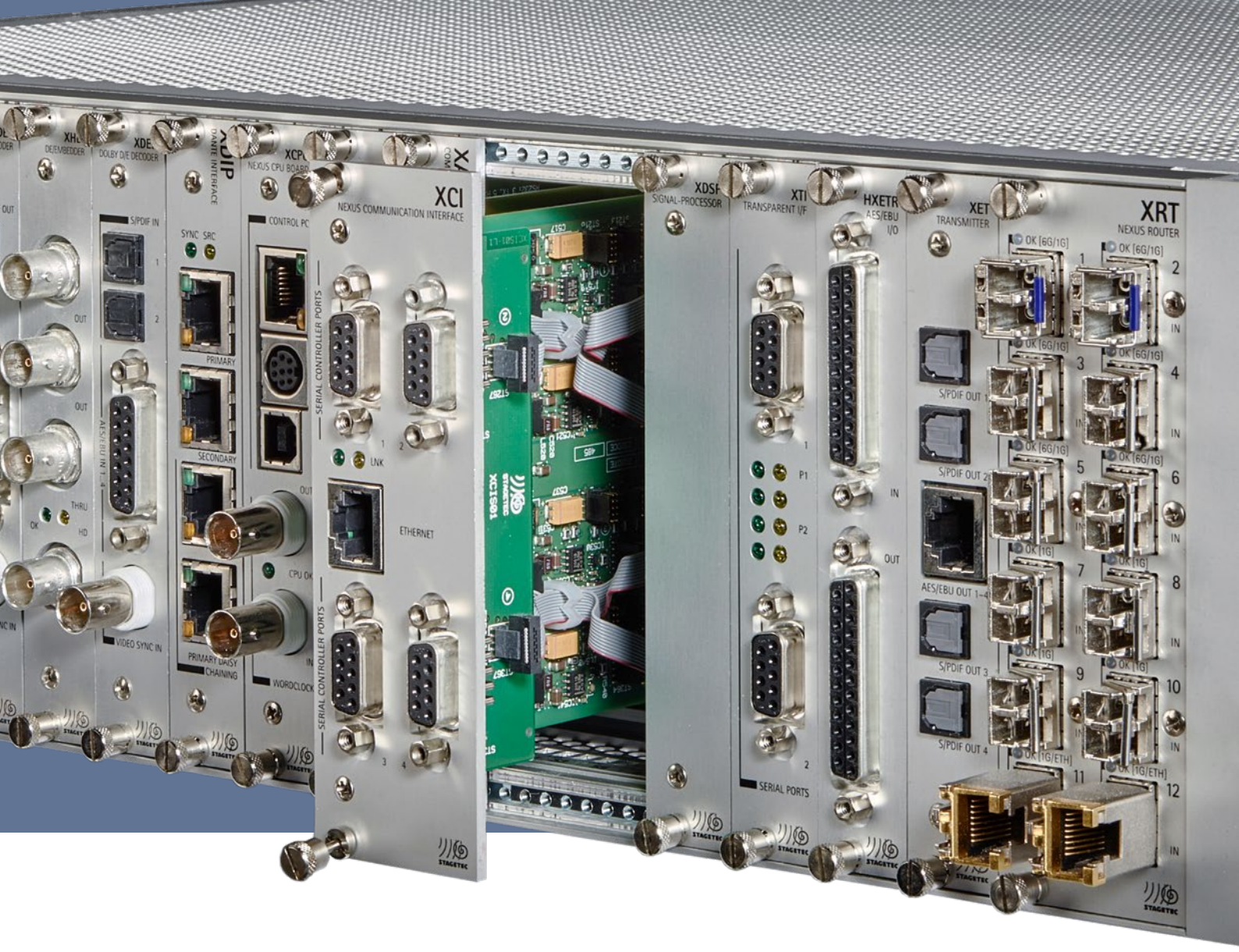
An XCPU card is the core of every base unit. It has an organizational and monitoring function and provides interfaces for user operation. External control systems can also access the system via the XCPU cards. Thanks to the decentralised system and safety concept, this can be done simultaneously on several basic devices.



Exactly one XCPU board is used for each basic device. This takes over control and monitoring of all modules in the base unit as well as the system administration of the unit itself. It also generates the NEXUS system clock and, if necessary, controls synchronization to the currently selected external clock source. All states of the entire NEXUS system are available at any time and on each individual XCPU module in the network; all volatile data are always stored immediately in a battery-buffered SRAM. This concept guarantees that a total failure can never occur in a NEXUS system and that, for example, newly switched-on base devices are ready for use and informed about everything within a few seconds.
Any XCPU card in the network can be used to connect external control computers or systems, from the native Matrix-5 control interface to the most complex control systems used in broadcasting stations. Integration into an SNMP system is also possible, which significantly enhances the already comprehensive security and monitoring functions of NEXUS networks. The board has an internal level and noise generator so that routing tests can also be carried out without external signals.

For the level measurement, the XCPU module determines and calculates the level data of the inputs and outputs in its base unit. Due to the increased computing power from hardware version 09, the XCPU card can also perform tasks such as loudness metering and spectral analysis.





Signal generator for system-wide use

This central module provides a system-wide test signal, which consists of a sine tone with adjustable level and frequency, a white or pink noise.

NEXUS Logic Control as integrated media control

NEXUS Logic Control can be used to program the simplest to the most complex interactions and automations. Each base unit has a stand-alone logic unit that communicates with the entire NEXUS system. For example, the status of crosspoints can be evaluated or the level of specific signals can be monitored. In combination with other NEXUS boards, certain additional functions are available. Thus, relay inputs can be queried and set with the XRI card.
In conjunction with complex conditions, Logic Control
can trigger virtually any control functions throughout the NEXUS network, such as switching relay contacts, setting crosspoints, setting levels or even controlling mixer functions. This can also be used, for example, to integrate the NEXUS system into comprehensive external disaster systems or to trigger alarms.

Extensive internal and external synchronization options

The NEXUS system can be synchronized and the internal clock can be output via the integrated word clock inputs and outputs. The board can also synchronize the NEXUS system to any digital input. A sync hierarchy can be created so that, in the event of a source failure, an uninterrupted and inaudible fade over to the next sync source.

System state fail-safe memory

All volatile data is immediately stored on a battery-buffered SRAM memory and is retained in the event of a power failure or switch-off. This means that the system boots immediately to the last operating state and is ready for use again within seconds.

Determination of level data for level indication

The level measurement data converge on the XCPU card and can be visualized via the operating program.

System-wide level monitoring of any NEXUS I/Os

The XCPU card calculates the level data of the inputs of the respective base unit. By exchanging data with the other XCPU boards in the NEXUS network, each one can monitor and display the channel levels of the input and output boards of the entire audio network. The XCPU board forms the intelligent control center in every NEXUS base unit: here, the operating computer is connected to display level values and offer the user the possibility of changing all parameters and querying the status. The XCPU modules communicate with each other via the fiber optic network and exchange information on the status of the modules, control information and the central synchronization clock clock.

Management of the most complex networks without a single point of failure

A total failure of a NEXUS network cannot be caused, especially not by the failure of a single base unit, since each XCPU board knows the state of the entire system at all times. The burning process, which is part of commissioning, provides the control board with information about the number of NEXUS base devices, the cards they contain, and the intended network topology, so that discrepancies can be detected immediately. This means that in the event of a power failure, e.g. of a base unit's power supply, only the base unit and the associated I/Os are affected. Maintenance and operation can be performed from any point in the NEXUS network, since the XCPU modules continuously exchange the status information of the base units.

Connections

XCPU_09	1 x 4TE		
BNC	1x	Wordclock	Input
BNC	1x	Wordclock	Output
USB	1x	USB	bidirektional
Mini-DIN, 8 Pin	1x	RS-232, RS-422	bidirektional
RJ45	1x	IP	bidirektional

Technical specifications

CPU and memory	
CPU	Motorola MCF547x
Clock frequency	200 MHz (core), 50/100 MHz (bus)
Working memory	2 MB SRAM (buffered), 64 MB SDRAM
Flash memory	16 Mbit plus extra Micro-SD card slot (32 GB max.)
Interface RS 232	
Port	Mini-DIN port, 8 pins, galvanically isolated
Data rate	38.4 Kbps (typ.), 115.2 Kbps (max.)
Recommended Cable length	10 m (max)
RS 422 interface	
Port	Mini-DIN, 8 Pin, galvanically isolated
Data rate	38.4 Kbps (typ.), 115.2 Kbps (max.)
Input voltage	–7…12 V (max.)
Impedance	Input/output: 120 ohm
Cable length	100 m carrying 110-ohm line (max.)
RS 232/422 interface	
optional expansion card XDEM	Two additional serial ports are available via D-Sub 15 jacks
USB port	

Technical specifications	
Version	Compliant with USB 1.1, Type B; standard-compliant pinout, galvanically isolated
Data rate	12 Mbps, 38.4 Kbps (typ.); 115.2 Kbps (max.)
output voltage	4…6 V
output current	200 mA (max.)
Cable length	5 m (max.) carrying 90-ohm line
Ethernet interface	
Port	RJ 45, galvanically isolated, 10/100 Base-TX
Data rate	10/100 Mbps
Cable length	100 m carrying CAT-5e line
word clock input	
Port	BNC, galvanically isolated
Voltage	1…5 V
Impedance	75/500 ohms (jumper configurable)
Sample rates	44,1 kHz, 48 kHz, 88,2 kHz, 96 kHz
Frequency stability	< ±150 ppm min. (±50 ppm typ. compliant with AES-11, Grade 2)
word clock output	
Port	BNC, galvanically isolated, AC or DC-coupled
Voltage	2.4 V (on 75 ohms)
Sample rates	44,1 kHz, 48 kHz, 88,2 kHz, 96 kHz
Frequency stability	±10 ppm (min.), ±5 ppm (typ., internal generator)
Sample rates	
Supported standard rates	44,1 kHz, 48 kHz, 88,2 kHz, 96 kHz
Test-Tone Generator	
Rates	20…20,000 Hz, adjustable in 1-Hz steps; white and pink noise
Inaccuracy	< 0,01 Hz
Level	–34…+6 dBu
Level inaccuracy	±0,3 dB bei 1 kHz
Distortion factor (THD+N)	< 0,1 %
Metering	
Typ	Digital multichannel metering of the audio-bus time slots, 14 most significant audio bits evaluated
Channels	256
Metering type	peak
Resolution	0,25 dB
Retrace	20 dB/1,5 s
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
Currrent	0,45 A (Leerlauf) 1,1 A
Mechanical data	
Weight	0,25 kg

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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