

# PENTA 720/721

## Audio distribution and modular router interface



**NTP TECHNOLOGY**

A DAN TECHNOLOGIES COMPANY

# Flexible Audio Interface

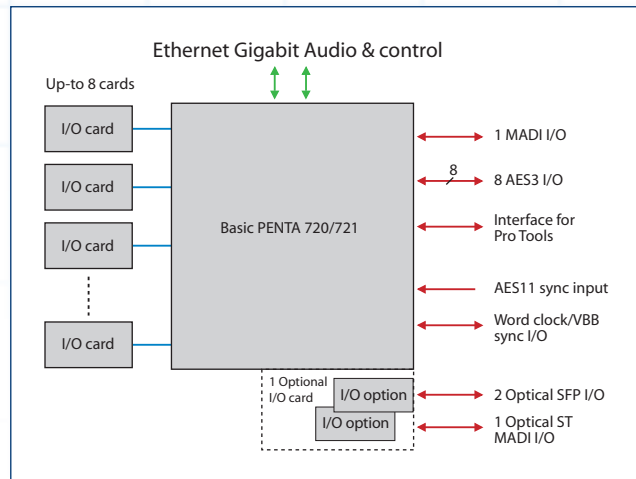
**PENTA 720 and PENTA 721 are a new generation of audio router and audio distribution interfaces from NTP Technology, which provides a versatile and flexible interface for signal distribution of analogue and digital audio via AES/EBU, MADI, SDI SD/HD/3G embedded audio as well as routing via IP Gigabit Ethernet and optical fibre networks.**

## Audio distribution and modular router interface

PENTA 720 is a 2U modular audio interface designed for use in television or radio studios, outside broadcast vehicles and public-event venues. It comes with eight channel AES3 input/output channels, MADI, two IP Audio Ethernet in/outs and an Avid Pro Tools™ interface.

Up to eight optional cards can be incorporated to match specific operational requirements. The range of available plug-in cards includes an eight-channel analogue input interface, eight-channel analogue output, two-channel SDI/HD/3G embedder interface and a two-channel SDI/HD/3G de-embedder interface. All cards support hot-swap.

A mini-module slot is available for dual SFP MADI optical input/output module, which is also compliant to the NTP HotLink/Dual MADI format.



## PENTA 721 Digital audio interface

The PENTA 721 is a compact 1U digital audio interface designed for stand-alone use in recording studios, radio stations and stage venues. It has the same basic input/output configuration as the 720, eight channel AES3 input/output channels, MADI, two IP Audio Ethernet in/outs and an Avid Pro Tools interface as well as a mini-module slot for a dual SFP MADI optical input/output module as well as an ST optical MADI connector.



PENTA 721 rear panel

## Signal routing

PENTA 720 and PENTA 721 include a 1024x1024 multiplexer, enabling all analogue and digital inputs and outputs to be routed in any combination; this enables the unit to also split signals for advanced signal distribution.

The multiplexer can be used to establish the static connections of the signal inputs and outputs, and furthermore it incorporates soft switching with a fade down and fade up functionality of the signal level. Soft switching ensures that setting or changing a signal path can be made without any audible click or artefact.

With embedder/de-embedder cards installed in the PENTA 720 the multiplexer will handle advanced routing of all the embedded audio signals, in and out of the SDI video signal as well as audio loop-through.

## IP Audio powered by Dante

The PENTA 720 and PENTA 721 IP Audio protocol is based on the robust tried-and-tested Dante™ digital audio network technology, and will interoperate with products of other brands that comply with Dante. The protocol will provide AVB support once standardization is fully completed. The Dante and NTP IP Audio formats provide fast, flexible, and economical audio routing via IP and are compatible with NTP PENTA 725 IP Audio router, and other Dante devices.

The IP Audio routing provides Low latency, tightly synchronised, transport of uncompressed audio over Gigabit IP Ethernet Layer 3 networks using off the shelf switches, and routers for audio routing via one or more sub-nets. A total of 512 channels can be routed on a 1 Gigabit network, and more if the network capacity is higher.

# Modular Configuration

The basic I/O configuration for the digital interfaces of the PENTA 720 and the PENTA 721 is:

- 8 AES3 I/O interface via 2 D25 connectors
- 1 MADI I/O coax interface via BNC connectors
- 2 IP Audio I/O Gigabit Ethernet RJ45 connectors
- 1 interface for Pro Tools™ via 2 SDR connectors

The mini-module slot can hold one of the following modules:

- Dual SFP MADI optical input/output module, which is also compliant to the NTP HotLink/Dual MADI format
- Multi mode MADI I/O ST optical interface



The cards slots of the PENTA 720 can hold the following cards:

- 8 ch analog input interface
- 8 ch analog output interface
- 2 ch SDI/HD/3G embedder interface
- 2 ch SDI/HD/3G de-embedder interface

The power supply for the units can be either single or dual. PENTA 720 also provides the option of a dual hot-swop power supply unit for redundant operation.

## Control

PENTA 720 and PENTA 721 are TCP/IP controlled via one or two Ethernet ports. Control and supervision can be made by the NTP RCCore control system, and the operation is done via the NTP VMC control software client applications.

A simple dedicated software control application for Windows is available for controlling and setting up PENTA 720 and PENTA 721 on a unit to unit basis when less advanced operation is required.

The IP Audio routing is controlled by the NTP RCCore Router Control System, for easy and simple setting of connections on the Gigabit IP Ethernet. PENTA 720 and PENTA 721 can also be the Dante IP Audio routing controller software.

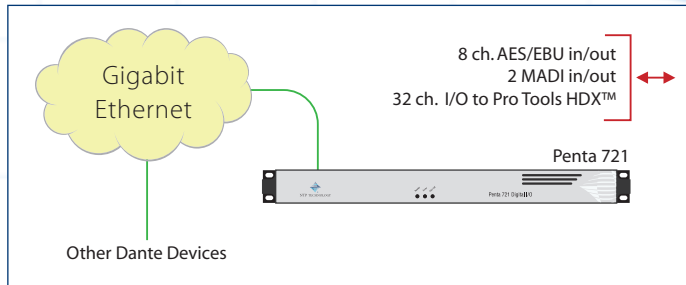


*PENTA 720 rear panel*

# Applications

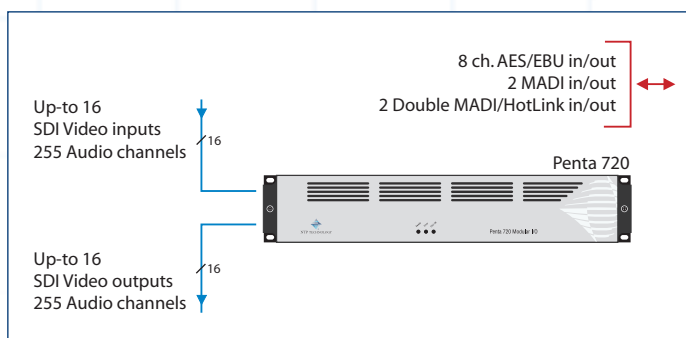
## Audio distribution and modular router interface

For distribution or interfacing of digital audio signals a typical application for PENTA 721 would be an interface bridging MADI-to-Dante IP Audio, AES3-to-Dante IP Audio or Pro Tools-to-MADI or Dante IP Audio. Additionally the signals can be spitted on to provide more interfaces.



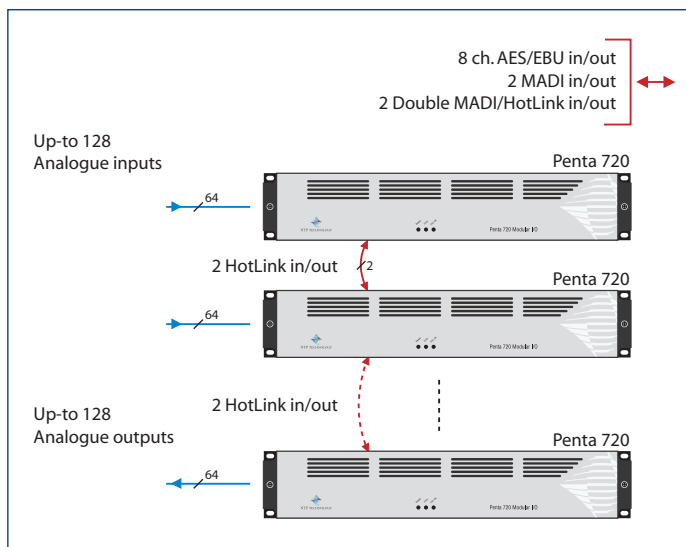
## PENTA 720, Embedder/de-embedder

PENTA 720 installed with embedder/de-embedder cards provides an interface between audio embedded in SD/HD/3G SDI video signals, and the analogue and digital interfaces of the unit. A typical application would be embedding/de-embedding audio to MADI, with two MADI ports 128 channels can be accessed.



## PENTA 720, Analogue I/O for NTP router system

PENTA 720 installed with analogue cards provides an interface with 64 analogue inputs or 64 outputs or as shown in a combination of groups of 8. A typical application would be to interface the NTP router system via MADI or Dual MADI/HotLink optical interface. 4 units can be connected for a full 128 channel input and output configuration.



## Specifications:

- 64 channel A/D, 64 channel. D/A conversion with 8 channels In or Out – 8 cards total.
- 16 channel SDI SD/HD/3G embedder/de-embedder card with 2 channels In or Out – 8 cards total.
- 8 AES3 I/O, 1 MADI I/O, 1 Avid Pro Tools I/O
- IP Audio powered by Dante, dual RJ45
- Mini-option I/O with
- External synchronization via the digital audio interfaces or
- AES11, Word Clock, Video burst
- Sample rates 44,1/48 kHz, up-to 192 kHz
- Single or dual power supply, 90-264 VAC

## NTP Technology A/S

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