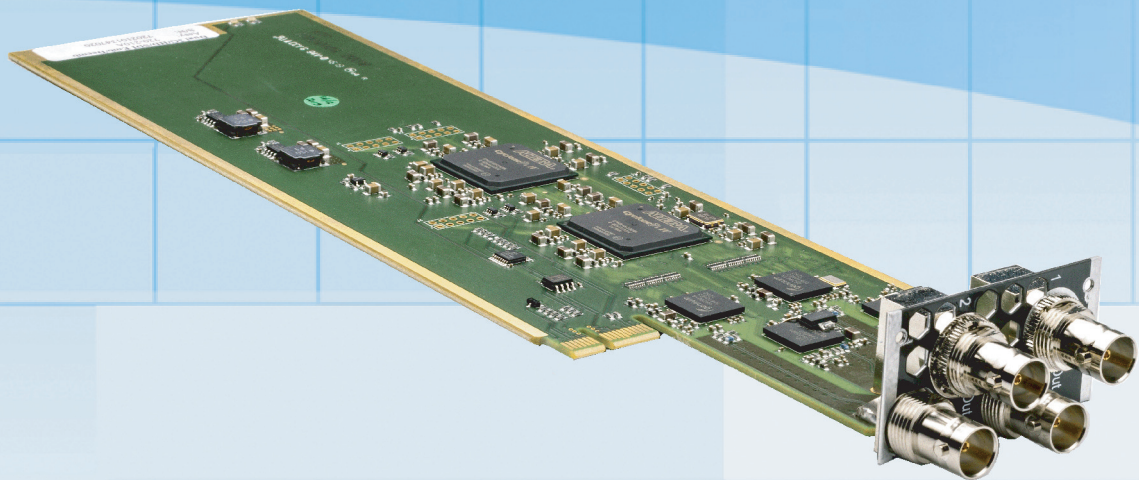# Dual 3G/HD/SD SDI audio embedder/de-embedder card for Penta 720

The Penta 720-210 card is a dual 3G/HD/SD audio embedder /de-embed-der card for insertion in the Penta 720 Modular I/O router interface. 8 cards can be installed providing a total of 16 3G/HD/SD SDI embedder /de-embedders in one unit.

The 720-210 card offers multi format support for SDI formats up to 3G with auto detection of the input format, and can be used for a variety of different applications in an embedded audio and video environment.

Penta 720 frame

Key features:
- SDI formats up to 3Gbit
- 16 channel embedder or de-embedder or a combination of both.
- Video and audio can be asynchronous
- Sample rate conversion can be enabled.
- Two embedder/de-embedders on one card
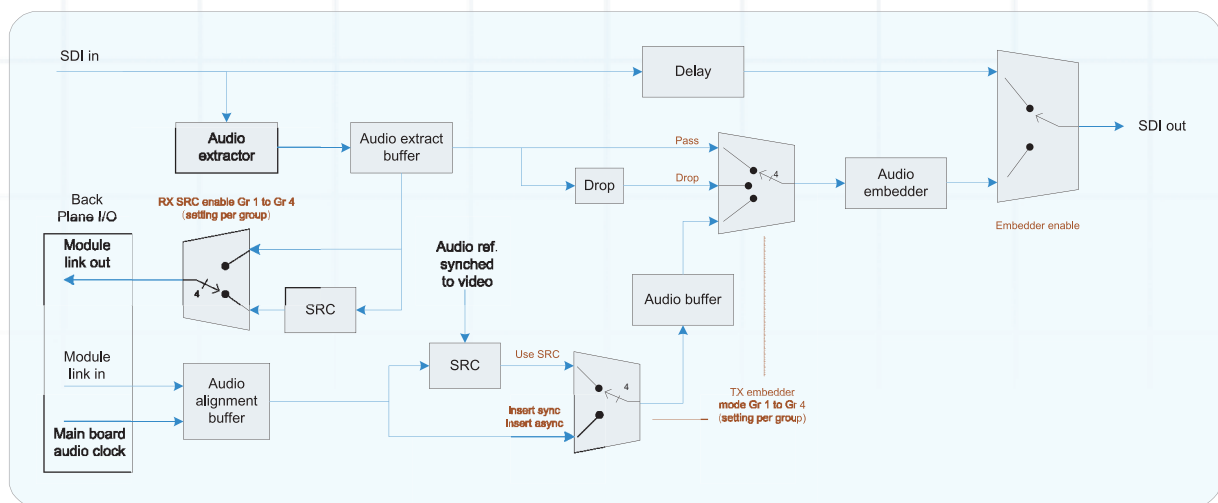- Hot swappable

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Specifications

Audio Signal flow

The 720-210 cards interface the embedded audio signals via the internal bus of the Penta 720 and each card provides two times16 input and 16 output audio channels, giving a total of 256 I/O channels which are interfaced to the matrix core and I/O interfaces.. Penta 720 provides 192 channels on 3 MADI I/Os, 16 AES3 I/O channels, 64 channels via Pro Tools HDX™ interface, and 64 channels via the NTP IP Ethernet interface powered by Dante.

The block diagram of the embedder/de-embedder circuit is chown below.

General

Signal type compliance	Serial digital video acc. to SMPTE,
Formats : SD	292M, 424M, 259M, SMPTE 425 A+B
	525 / 59.94Hz, 625/50Hz
Formats : .5 Gbit/s	720p / 60 / 59.94 / 50 / 30 / 29.97 /
	25 / 24 / 23.98 Hz
	1080i / 60 / 59.94 / 50 Hz
	1080p / 30 / 29.97 / 25 / 24 / 23.98 Hz
	1080psF / 25 / 24 / 23.98 Hz
Formats : 3 Gbit/s	1080p / 60 / 59.94 / 50 Hz (Level A)
Return loss	> 15dB (270Mbit and 1.48 Gbit)
	> 10dB (2.97Gbit)
Input impedance	75 Ohm
Connector	

SDI input

Signal type	3G/HD/SD with automatic video format and standard detection,
No. of inputs	2
Cable length 3G/HD/SD	120/180/320 m (Belden 1694A)

SDI output

Signal type	3G/HD/SD .Output format Follows input format
No. of outputs	2
Timing Jitter	3G/HD/SD: < 2.0/1.0/0.2 UI
Alignment Jitter	3G/HD/SD: < 0.3/0.2/0.2 UI

Audio I/O, processing

No. of inputs / outputs	16 channel on each SDI I/O
De-embedding modes	16 channels, selectable SRC for Gr. 1 to Gr. 4, Selectable pass trough or drop for all channels
Embedding modes	16 channels, selectable for Gr. 1 to Gr. 4 Pass trough, Insert synchronously, asynchronously or with SRC
Audio/Video sync	Synchronously or asynchronously with SRC
Sample rates	32, 44,1 and 48 kHz.
Audio/Video delay	