

TXP2000

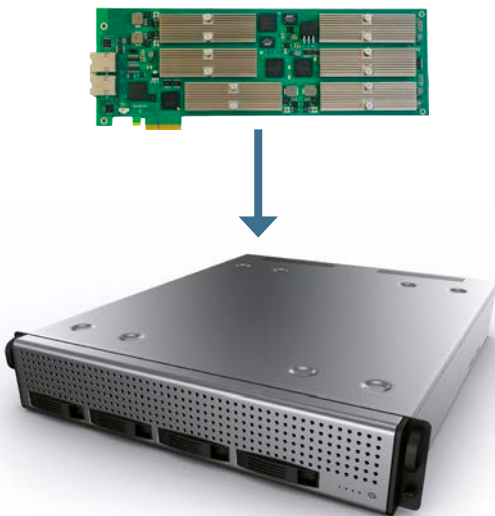
High Density Transcoding Cards



Add media processing and cut your server costs by 66%

The TXP2000 family of PCIe plug-in cards provide media processing acceleration for use in standard server architectures or appliances. The TXP2000 cards use Octasic's OCT2224M Digital Signal Processors (DSPs) and Octasic's Vocallo MGW media processing suite to provide an easy to use and low power accelerator card in a PCI Express form factor. A single TXP2000 card can replace one or more servers. With models supporting between 4 and 12 DSPs, the TXP2000 can be matched to the required level of performance.

The TXP2000 cards provide the highest density H.264, MPEG4, H.263 video CODEC, and G.711, G.729, AMR voice CODEC transcoding density per watt in the industry. Furthermore, the standard functionality is also extended to provide video and voice quality processing features such as video scaling, mixing & keying, as well as voice echo cancellation, conferencing and adaptive noise reduction.



TXP2000 Applications

- Session Border Controllers
- Media Gateways
- Video Conferencing Server (MCU)
- Video / Content Optimization (transcoding and transrating)
- Media Servers / Media Resource Function
- Video Communications Servers
- Interactive Voice and Video Response Systems (IVVR)
- IPTV

KEY FEATURES

- Audio transcoding: G.711, G.723.1, G.729AB, EVRC-A/-B, SILK, Opus
- Video transcoding: H.263, H.264, MPEG-2, MPEG-4
- Audio & Video conferencing
- SRTP
- IPv4/IPv6
- T.38 Fax Relay

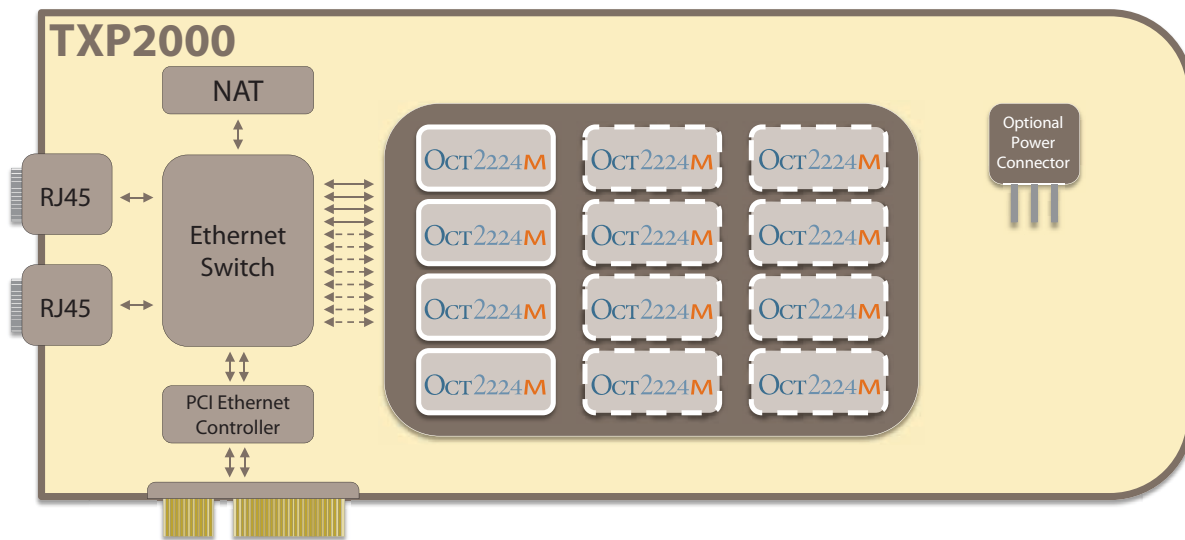


Block Diagram

The TXP2000 is based on Octasic's OCT2224M DSPs. Each DSP is fitted with its private external memory and operates autonomously. This pool of DSPs is controlled from a host application running on the server or remotely. The internal data flows of the board are all based on Gigabit Ethernet connections with all DSPs accessible via a local Ethernet switching subsystem. Host access to all the DSPs is via a standard PCI-connected Ethernet controller. The Ethernet switching subsystem supports two links to each DSP to support 1080p video conferencing functions.

Standard configurations include a choice of 4 and 8 DSPs but for enclosures with additional power and cooling capability, a 12 DSP variant is available. An additional power connector can be used to supplement the standard PCIe power provision.

Principal media flows can be routed via the host CPU or via two external Gigabit Ethernet ports provided for direct traffic termination. In this configuration, packets for transcode can bypass the host computer entirely while a special Network Address Translation (NAT) device makes the board appear as a single IP address to external networks.



TXP2000 Performance

Any combination of voice and video codecs and functions can be used simultaneously. The following table lists common modes of operation to provide a reference for the level of performance that can be achieved by a single TXP2000 card.

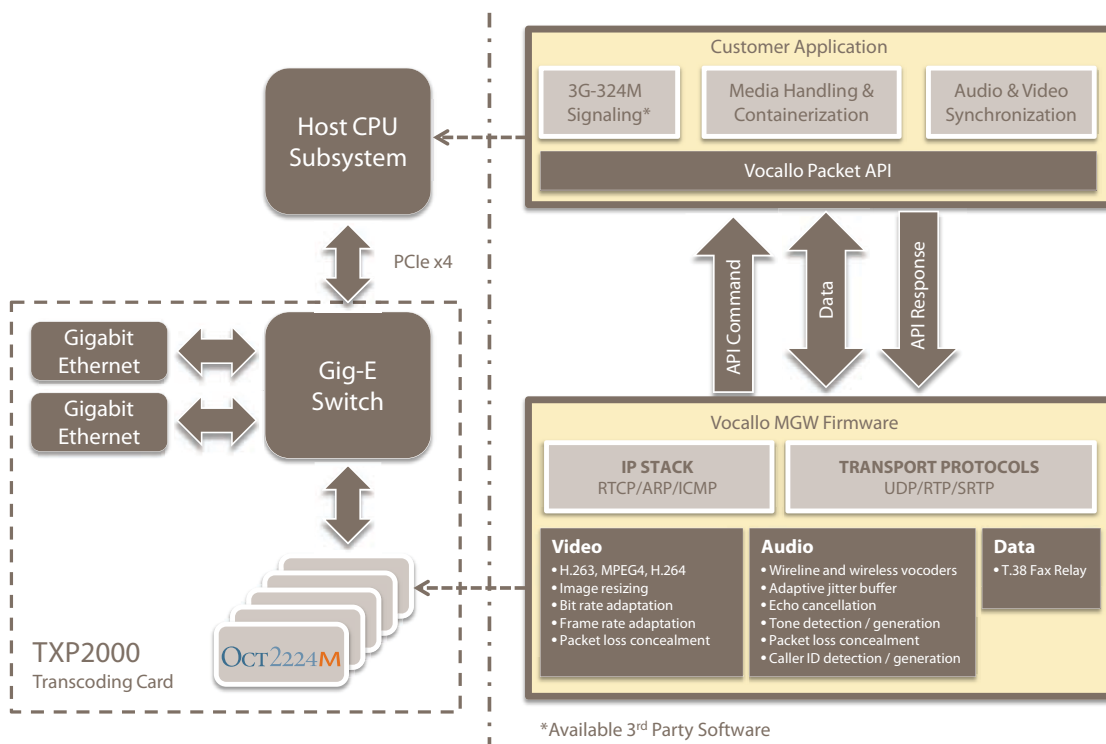
TXP2000 Channel Density*

	TXP2200	TXP2400	TXP2600
# of OCT2224M DSPs	4	8	12
Standard Voice Media Gateway G.711 (20 ms) ← → G.729AB (20 ms)	2560	5120	7680
Wireless Voice Gateway G.711 (20 ms) ← → AMR NB (20 ms)	1716	3432	5148
Mobile Video transcode MPEG4/CIF → H.263/CIF 30 FPS	92	184	276
SD → HD Video resize and transcode H.264/SD 30 FPS → H.264/720p30	8	16	24

* Actual channel density may vary slightly based on specific system level use conditions and codec mix.

Software Architecture

A comprehensive host Application Programmers Interface (Vocallo API) is provided. This is used to configure and execute voice and video stream processing functions. The API commands communicate directly with the DSP array based on an endpoint and stream resource model. A non-blocking command/response protocol aids multi-channel programming efficiency.



Vocallo MGW Advantages

- **Integrated solution** - One API for both video and audio.
- **Extremely low power** - Enables higher density applications and simplifies cooling.
- **High quality video processing** - Advanced video profiles and quality enhancement algorithms.
- **Quick to deploy solution** - Integrated debug capabilities, and development tools.
- **Single vendor solution** - Hardware and software developed, manufactured and supported by one vendor. Simplifies support model and reduces cost of ownership.

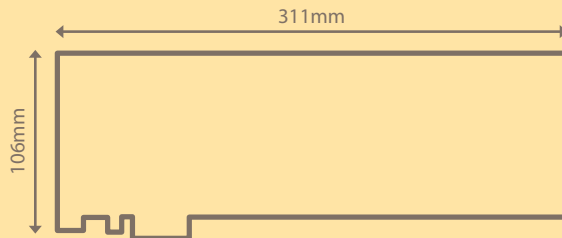
TECHNICAL SPECIFICATIONS

HARDWARE

- PCI Express Long Card
 - Full Height (106mm) x Full Length (311mm), single slot width
 - PCIe x4 Gen 2 Electrical Connection
- External Ethernet Ports
 - 2 x Gigabit Ethernet 1000BASE-T RJ45
 - Network Address Translation function presents card as single IP address (up to 1Gbit/s)
- Internal Ethernet Infrastructure Capacity
 - 2 x 1Gbit/s to host via PCI Ethernet controller
 - 2 x 1Gbit/s to each DSP

DEPLOYMENT ENVIRONMENT

- Board Power Consumption (Estimated worst case)
 - 4 DSP Variant: 35W
 - 8 DSP Variant: 46W
 - 12 DSP Variant: 82W (requires external power connector to be fitted)
- Board Operating Temperature
 - Normal Operation: 0 °C to 50 °C [to be confirmed]
 - NEBS exceptional operation: 0 °C to 65 °C [to be confirmed]
- Reference Deployment Environments
 - HP DL380 G8 (2 per system)
 - Kontron CG2200 (2 per system)
 - IBM BladeCenter PCIe Expansion Unit (1 per Unit)



Ordering Information

Part number	Description
TXP2200	TXP2000 Card with 4x OCT2224M processors
TXP2400	TXP2000 Card with 8x OCT2224M processors
TXP2600	TXP2000 Card with 12x OCT2224M processors

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