Datasheet

Intel® NetStructure™ IPT Series

The Intel® NetStructure™ IPT Series offers some of the industry's highest-density, standards-based VOIP interface boards for developing scalable, carrier-grade IP telephony gateways and media servers. Developers have the choice of 120-, 240-, 480-, and 672-port low bit rate vocoder port configurations and up to 1000 channels of G.711 streaming per board[1], with the ability to scale to support thousands of ports per system.

The IPT Series high-density VOIP boards are optimized to deliver the most popular public network and enterprise IP-based solutions. The product readily scales to support thousands of channels in media gateway, media server, IP-PBX, and IP contact center solutions. The Series offers a choice of 120 to 1000 channels per slot and interoperates with a broad suite of PSTN signaling and media processing boards for developing open systems solutions.

Intel in Communications

Features and Benefits

One of the industry's highest density IP interfaces on open systems
- — Choice of 120, 240, 480, or 672 channels of low bit rate coders lets developers scale solutions more effectively and reduce overall system footprint

IP call control and media gateway protocol-agnostic
- — Split call control provides interoperability and greater flexibility with any IP call-control stack or media gateway stack such as Session Initiation Protocol (SIP), Media Gateway Control Protocol (MGCP), and Megaco (H.248)
- — Optional support for Intel® Dialogic® Global Call API simplifies call control development and can be used for faster time to market

Broad choice of vocoders (G.711, G.723.1+a, G.729a+b) with support for packet sizes as small as 5ms featured on the Intel® IXS1000 Media Signal Processor enables development of PSTN-grade voice solutions

G.168-2000-compliant echo cancellation with support for up to 64 ms echo tail lengths for developing carrier-grade access and trunking gateways

Supports RFC-2833 for reliable tone detection and pass-through

Supports T.38 fax relay enabling reliable Fax over IP (FOIP) detection and pass-through

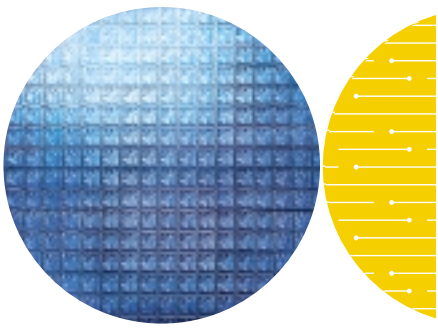
PICMG* 2.12 basic Peripheral Hot Swap (PHS) and Redundant System Slot (RSS) support is provided on an Intel® chassis supporting CompactPCI*, enabling high-availability solutions

Dual Ethernet interfaces, provided by one Intel® LXT1000 PHY, 1000BaseT and 100BaseTX Ethernet interface for optimized traffic throughput and redundancy

Standard SNMP agent software for board monitoring and control

VOIP and QM features include RTP/RTCP processing and packetization, jitter buffer management, lost packet recovery, silence suppression, CNG, IP precedence, and VAD, supported on the Intel® IXP1200 network processor results in minimized latency, high voice quality, and lower network bandwidth utilization

Support for H.110 CT Bus standard enables developer to select from a full, complementary suite of PSTN signaling and media boards



[1]Contact product line manager (PLM) for more information.

Product	IP Channels
Intel® NetStructure™ IPT1200C	120
Intel NetStructure IPT2400C	240
Intel NetStructure IPT4800C	480
Intel NetStructure IPT6720C	672

Intel NetStructure IPT Series boards offer many optimized, low-bandwidth vocoder algorithms for transmitting audio over an IP network, including ITU-T G.711, G.723.1+a, and G.729a+b. These algorithms use a variety of coding techniques, bit rates, and frame sizes to compress audio for managing data network bandwidth. Frame sizes as small as 5 ms are supported for some of the highest voice-quality IP telephony available on the market today. The wide algorithm support lets developers deploy IP-based applications for the diverse requirements of the modular network.

In addition to its powerful transcoding capabilities, other standard features include high-performance echo cancellation up to 64 ms, RFC-2833 support for tone detection and pass-through capabilities, and T.38 fax relay support for development of high performance solutions. In addition, the board series supports high quality of service through Quality Monitoring (QM) features including IP precedence for setting traffic priority; voice activity detection (VAD) and silence suppression for reducing the number of packets in a link and lower bandwidth utilization; comfort noise generation (CNG) to simulate typical PSTN voice calls; packet loss recovery, and jitter buffer management compensating for latency and resulting in high voice quality. The Intel NetStructure IPT Series lets developers deploy competitive, feature rich, carrier-grade IP telephony solutions with a lower cost of ownership when compared to today's proprietary systems.

The IPT Series is built on high performance Intel® communications silicon. The boards feature the Intel® IXS1000 media signal processor, one of the industry's highest-density media signal processors; the powerful Intel® IXP1200 network processor, and the Intel® LXT1000 Ethernet interfaces, including support for 1000BaseT and 100BaseTX network interface connectivity.

A split call control framework off-loads IP signaling from the board to the system host. This gives developers flexibility to use call control stacks integrated and supported by Intel, or to easily create or port another signaling stack of choice.

The IPT Series supports both Linux* RedHat* 7.x and Windows* 2000 based systems. Intel offers software development kits (SDKs) and interoperability with a wide array of globally approved high-density digital telephony interface boards and media processing boards for rapid development and deployment of voice, fax, speech, conferencing, and switching solutions worldwide.

Configurations

Sample configurations for developing the most popular VOIP solutions with the Intel NetStructure IPT Series of communications building blocks include media gateways, and IPT Series media servers.

Applications

When used in conjunction with high-density digital telephony interface and media resource products, the Intel® NetStructure™ IPT Series boards lets developers create

- IP media gateway and media servers
- IP-enabled contact centers
- Enhanced service platforms
- IP-enabled voice portals

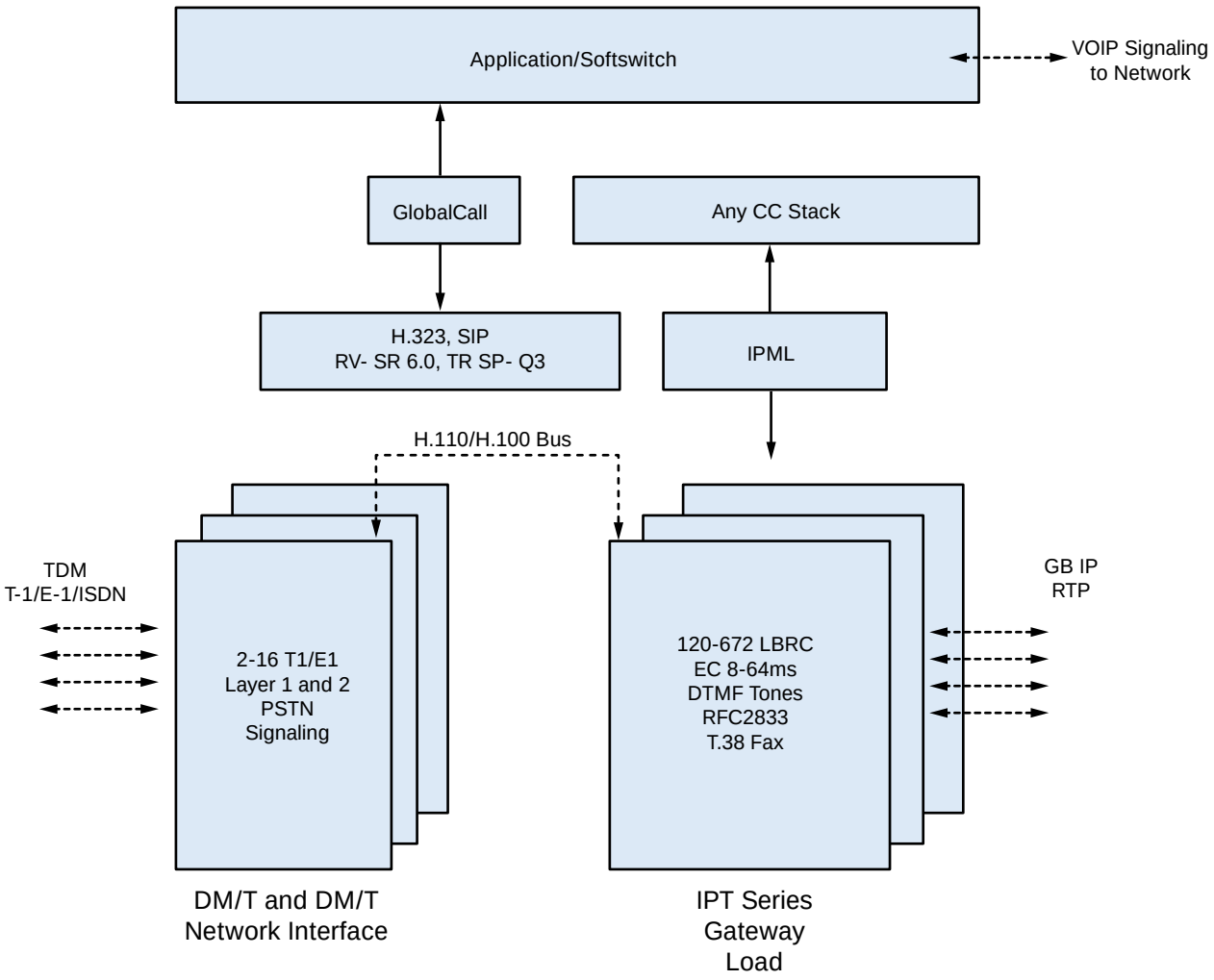


Figure 1: Sample Media Gateway Configuration with IPT Series Boards

Use any of the IPT Series boards with the suite of Intel Dialogic DM/N and DM/T high-density network interface boards for the development of robust media gateway solutions. The gateway configuration in Figure 1 enables transcoding and supports up to 64 ms echo cancellation, RFC-2833 support for tone detection and relay, and T.38 support for fax relay. The Intel IP Media Library (IPML) interface lets developers port their call control stack of choice. Developers can also choose the Intel® Dialogic® Global Call call-control utility with H.323 and SIP support for simplified, fast call control implementation.

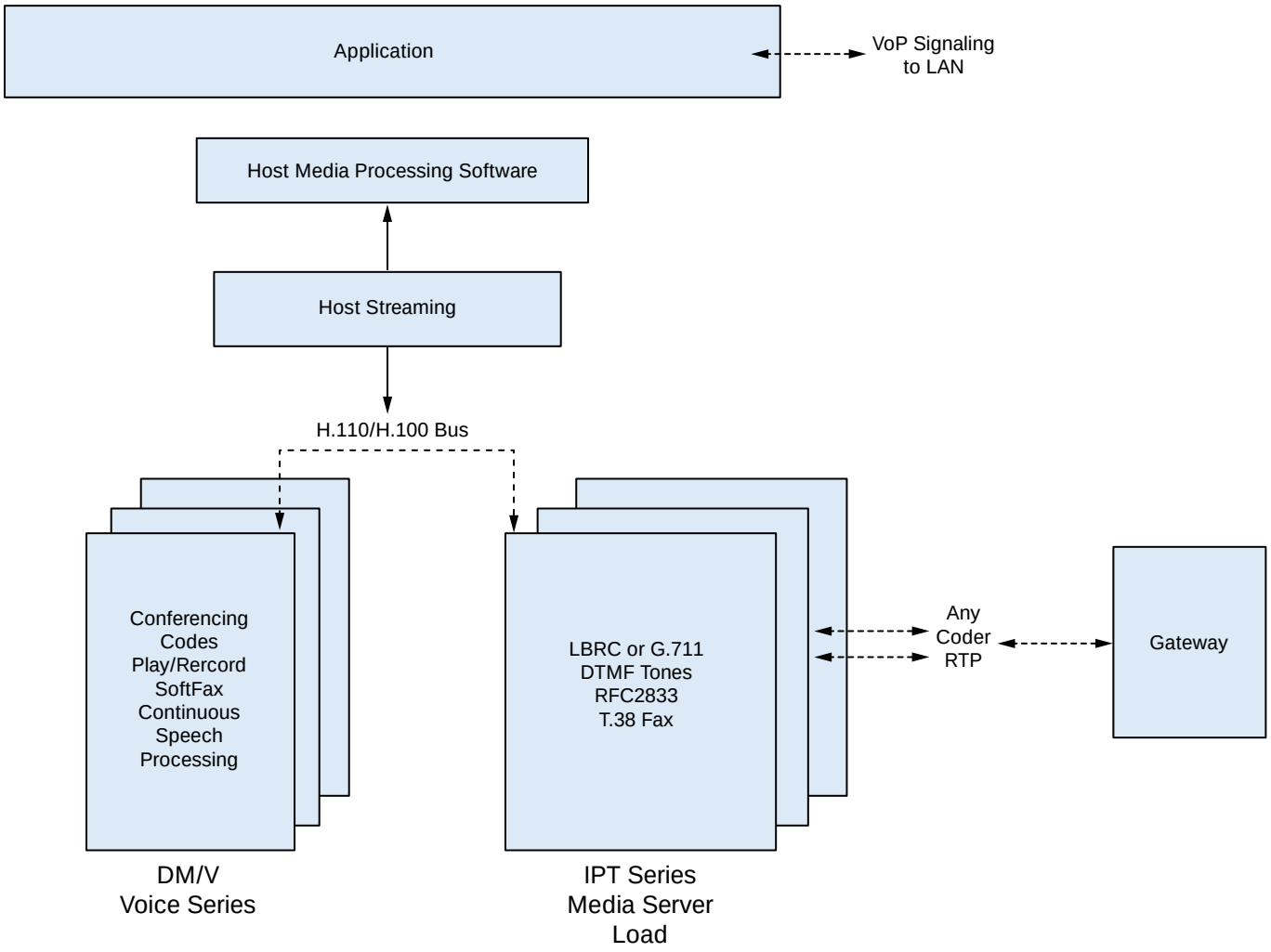


Figure 2: Sample Media Server Configuration with IPT Series Boards

In Figure 2, the IPT Series boards can be connected via an H.110 bus to any of the high-density Intel® Dialogic® DM/V Voice Series media processing cards. Combining the IPT Series and DM/V boards, developers can deploy voice processing, fax, speech, and conferencing solutions that scale from hundreds to thousands of ports per system. Developers can also choose to use the IPT series as high-density interface boards and stream to the PCI bus for access to media processing performed on the host processor.

Software Support

Intel NetStructure IPT Series boards are supported in the Intel® Dialogic® System Release (SR) 6.0 software for RedHat* 7.2 Linux* and Windows* 2000 operating systems. Intel Dialogic SR software contains the complete documentation and demonstration code needed to quickly develop complex, well-managed, high-density solutions.

Global Call, a high-level call control API, supports the IPT Series of products. This enables developers to write the signaling portion of their application once and easily adapt it to their solution in almost any type of TDM or IP voice network in the world.

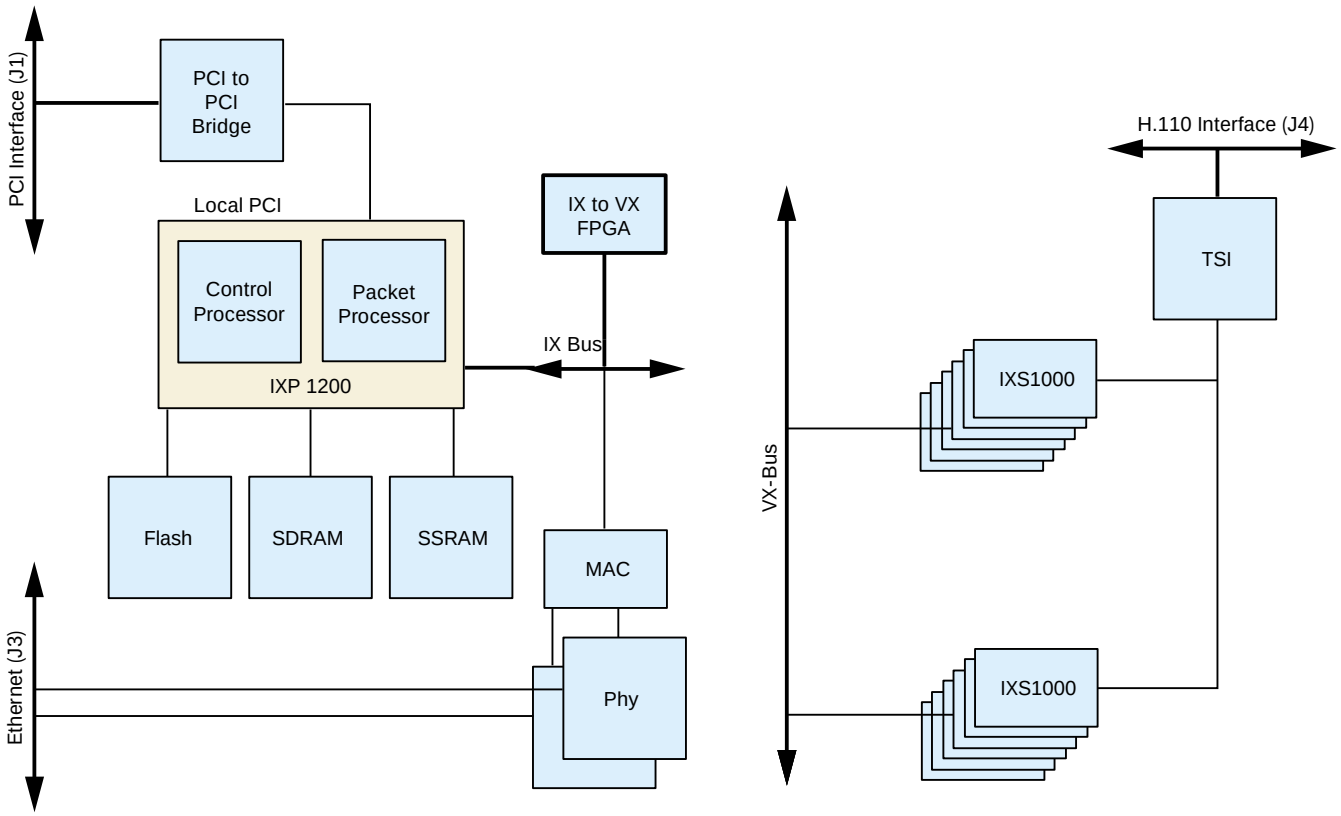


Figure 3: Intel® NetStructure™ IPT Series Boards

Functional Description

Intel NetStructure IPT Series boards are controlled through the PCI interface. The boards are CompactPCI boards with three ports: a connection to the H.110 bus, potentially multiple connections to Ethernet, and a connection to the PCI bus.

TDM PCM data enters and exits the Intel NetStructure IPT Series boards through the H.110 bus. It is routed through a TSI* CT1012 chip to provide connectivity to the full 4096 H.110 time slots. The Intel NetStructure IPT Series boards can be easily configured for a variety of densities and interface types. For connection to T-1 or E-1 lines, an Intel® NetStructure™ DMN160TEC network interface board can be used. For smaller solutions, developers can choose from a lower density network interface board. These configurations result in adaptable and cost-effective systems. The Intel NetStructure IPT Series boards connect to the host Intel® Pentium® processor class CPU over the PCI bus.

This interface supports an I2O-like messaging interface. The Intel NetStructure IPT Series boards perform burst transfers as a bus master. The host card allows control over the entire system, as well as host-based call control stacks to simplify integration of custom stacks.

The Ethernet connections support dual 1000BaseT (Gigabit over copper) and dual 100BaseTX network interfaces. The dual connections can be set in two modes. In redundancy mode, one link operates as a hot spare backup for the active link; in load sharing mode, the traffic is divided equally between the two links. If a link fails, calls are immediately rerouted to the functioning link.

Technical Specifications**

Hardware Specifications	Network processor	Intel® IXP1200 network processor, running at 200 MHz, 1400 MIPS, Memory 256 MiB
	Digital signal processor	Intel® IXS1000 media signal processor, 72 Billion MAC/second per Intel® NetStructure™ IPT Series boards
	Ethernet interfaces	Dual, redundant 1000BaseT, 100BaseTX network interface
	Host bus compatibility	Rev 2.2 of PCI Bus Specification
	Computer telephony bus	H.110 compliant 8 MHz CT Bus
Physical Requirements		
	Operating temperature	0° to 40° C
	Storage temperature	–20° to +70° C
	Humidity	8% to 80% non condensing
	Shared memory	4 x 64 KB page
	Form factor	CompactPCI
	Warranty	Intel® Telecom Products Warranty Information at http://www.intel.com/network/csp/products/3144web.htm
Power Requirements		
	IPT1200C	42 W
	IPT2400C	54 W
	IPT4800C	66 W
	IPT6720C	75 W

Hardware System Requirements

- CompactPCI platform
- Intel® Pentium® III processor, 500 MHz or above with a minimum of 256Mb RAM recommended

Operating System Requirements

- Windows 2000 and Linux RedHat 7.x

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