



Intel® NetStructure™ SS7HDP Board

High-Performance, High-Density SS7 PCI Board

Today's Signaling System 7 (SS7) networks require high-performance and high-density solutions to meet the growing demands of telecommunication networks throughout the world. Enhanced services and features such as short message service (SMS), televoting, local number portability, location-based services, and mobile communications are driving an ever-increasing need for performance and density. The Intel® NetStructure™ SS7HDP board is designed to meet the needs of telecommunication equipment manufacturers, systems integrators, and services providers deploying these services worldwide.

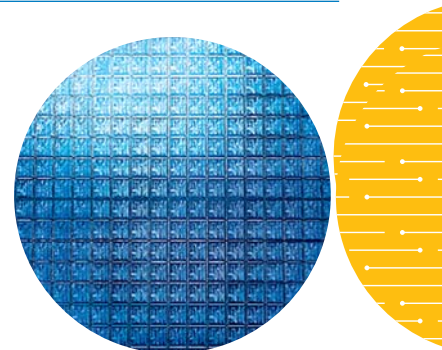


Intel in Communications

Features

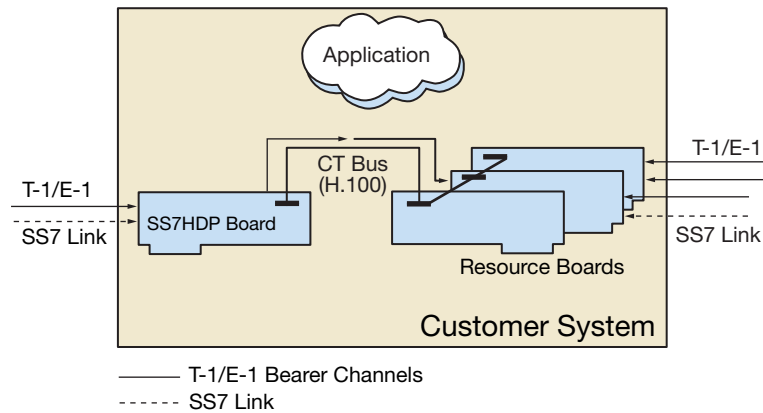
Benefits

Multiple on-board Intel processors based on Intel XScale® technology	Supports up to 64 SS7 links, enabling the creation of powerful, cost-effective, high-density solutions
Capable of high message rates on all 64 SS7 links	Accommodates very demanding, mobile and intelligent networking transaction-intensive applications
Software selectable high impedance interfaces	Supports both monitoring and termination of SS7 links on a single board with software selectable high-impedance interfaces
SS7 link sets can be distributed over multiple boards	Enhances system reliability and removes single points of failure
Common API with existing Intel® NetStructure™ SS7 products	Allows easy migration of applications to a higher performance platform
Compatible with existing SS7 protocol stack products from Intel (MTP, ISUP, TUP, SCCP, TCAP, MAP, IS41, INAP) and software selectable T-1 or E-1 digital network interfaces	Ensures reliable global deployment using protocols that are currently deployed in many networks worldwide
H.100 CT Bus compliant interface	Allows easy integration with other technologies, as well as the ability to transport signaling to other boards in a system or to external hosts



The SS7HDP board offers SS7 performance and density for signaling, call control, wireless messaging, and intelligent network applications. With support for up to 64 SS7 links on a single board, high-density systems can be designed with these boards, and message signaling unit (MSU) throughput ensures high performance for the most demanding non-circuit related applications. Combined with an existing set of SS7 protocols from Intel that includes MTP, ISUP, TUP, SCCP, TCAP, MAP, IS41, and INAP, this board will allow virtually any SS7 application or platform to be built. Additionally, the flexibility to interface with SS7 protocols from MTP through the full SS7 protocol stack lets developers maximize this advanced messaging and signaling platform. A common application programming interface (API) with other Intel NetStructure SS7 products allows easy integration into existing SS7 applications and lets developers utilize the breadth of Intel NetStructure SS7 products to meet their existing and future needs. The published APIs allow integration into any existing system based on Intel SS7 products with maximum reuse of software.

Configuration



Intel NetStructure SS7HDP Board Configuration Diagram

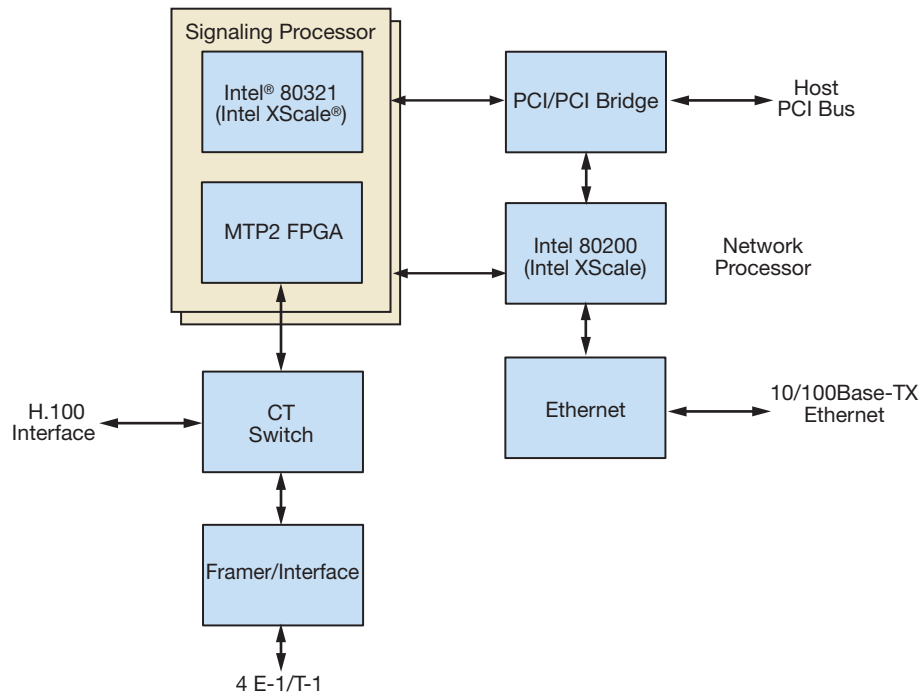
Software Support

Support for the SS7HDP board is provided by the SS7 Software Development Kit (SDK) for Linux*. This provides a native SS7 API that allows full access to the SS7 protocols.

Applications

- Wireless messaging: Short message service (SMS), televoting, short message service centers (SMSC)
- Advanced intelligent networking/Intelligent networking: Local number portability, network access, 800/free-phone services, premium rate numbers, virtual call centers, pre-paid calling, virtual private network (VPN), mobile office, unified messaging
- Service control points (SCPs): Home location registers/Visitor location registers (HLRs/VLRs)
- Location-based services: Weather/Traffic information
- Call control/Call routing: Migration of ISDN-based networks to SS7/packet-based networks
- Passive monitoring for missed call alerts, billing, traffic analysis, SMS welcome messages

Functional Description



Intel NetStructure SS7HDP Board Block Diagram

The SS7HDP board achieves the high density and large signal throughput required of today's telecommunications networks by using the power of Intel XScale technology.

The board contains three processors: the network processor (an Intel 80200 processor based on Intel XScale microarchitecture) and two signaling processors (Intel 80321 I/O processors), which communicate with the

host via a PCI-to-PCI bridge. Four software selectable T-1/E-1 interfaces and the H.100 bus allow signaling to be transported as time division multiplex (TDM) data to other boards in the same system or to remote systems. This product uses an API that is common with other Intel NetStructure SS7 solutions.

Technical Specifications

Capacity

Digital interfaces	Four T-1 or E-1 (software selectable) High impedance selectable
SS7 links	Terminates up to 64 bidirectional links per board or monitors up to 64 unidirectional links per board
SS7 protocols	MTP2 on board (16 link and 64 link options), MTP3, ISUP, TUP, SCCP, TCAP, MAP, IS41, and INAP on the board or host
TDM bus	H.100 CT Bus compliant with ECTF H.100 CT Bus
Processors	
Network	Intel® 80200 processor
Signaling	Dual Intel 80321 I/O processors

Host Interface

Bus compatibility	PCISIG* PCI Local Bus Specification Revision 2.2
Bus speed	66 MHz max.
Bus width	64- or 32-bit
Signaling environment	Universal 5 V/3.3 V
Hot plug	Compliant with PCISIG PCI hot plug specification Rev. 1.0

Line Interface

Standard	Four interfaces, each software configurable as either T-1 or E-1
Pulse mask	
T-1	TIA-968-A, CS-03, and AT&T* TR62411
E-1	ITU-T G.703
Data rate	
T-1	1544 kbits/s ± 50 ppm
E-1	2048 kbits/s ± 50 ppm
Frame format	
T-1	D4, ESF, and ESF-CRC6
E-1	E1 and E1-CRC4
Line codes	HDB3 AMI (ZCS) AMI B8ZS
Connector type	RJ-45

Physical

Power	+ 5 VDC, 5 A max., 3 A typical
Operating temperature	+5°C to +40°C
Storage temperature	-20°C to +40°C
Humidity	5% to 85% non-condensing
Form factor	PCI full length Single-slot width 12.3 in. (30.75 cm) long (without edge retainer) or 13.3 in. (33.25 cm) long (with edge retainer) 0.79 in. (1.975 cm) wide (total envelope) 3.87 in. (9.675 cm) high (excluding edge connector)
Altitude	197 ft (60 m) below sea level to 5905 ft (1800 m) above sea level.
Vibration	0.1 g, 5 Hz to 100 Hz
Shock	Packaged equipment drop test 29.5 in. (75 cm)

Technical Specifications (cont.)

Safety, EMC, and Telecommunications

International	Safety: CB Certificate to IEC 60950-1, EN60950-1 EMC: EN 300 386, EN55022, EN 55024, CISPR 22 Telecommunications: TBR12, TBR13, G.703, G.704, EN 300 248
United States	Safety: UL 60950-1 (UL File Number E219415) EMC: FCC Part 15 Class A Telecommunications: TIA-968-A, US: ICKCNNANSS7HDP
Canada	Safety: CAN/CSA-C22.2 No 60950-1 EMC: ICES-003 Telecommunications: CS-03, IC: 10000-SS7HDP
Declaration of Conformity Country-specific Approvals	See http://developer.intel.com/design/litcentr/ce_docs/index.htm See the Global Product Approvals list at http://resource.intel.com/globalapproval/globalapproval.asp

Reliability/Warranty

MTBF prediction	135,000 hours per Bellcore* Method @ 40°C
Warranty	Intel® Telecom Products Warranty Information at http://www.intel.com/network/csp/products/3144web.htm

Ordering Information

SS7HDPD4TE	SS7 high-density PCI (dual signal processors, four software selectable T-1/E-1 interfaces) supporting up to 64 SS7 links
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System Requirements

- Operating system
 - Red Hat* Linux* 7.2, 7.3, 8.0, 9.0 and Red Hat Enterprise Linux AS 3 (kernel 2.4.21-4.0.1)
 - Windows 2000, 2003, and XP
- PCISIG PCI Local Bus Revision 2.1 or later
- To utilize full performance, Pentium® III, 1.26 GHz or better with a minimum of 256 MB of system memory is recommended
- MTP2 Regular, MTP2 Large, or Monitoring protocol software from Intel

Optional Components

- MTP3, ISUP, TUP, SCCP, TCAP, MAP, IS41, and INAP SS7 protocols from Intel

To learn more, visit our site on the World Wide Web at <http://www.intel.com>.

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