



Datasheet
Telecom and Compute Products

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.

The SS7HDP board offers SS7 performance and density for signaling, call control, wireless messaging, and intelligent network applications. With support for up to 64 low-speed or 2 high-speed 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

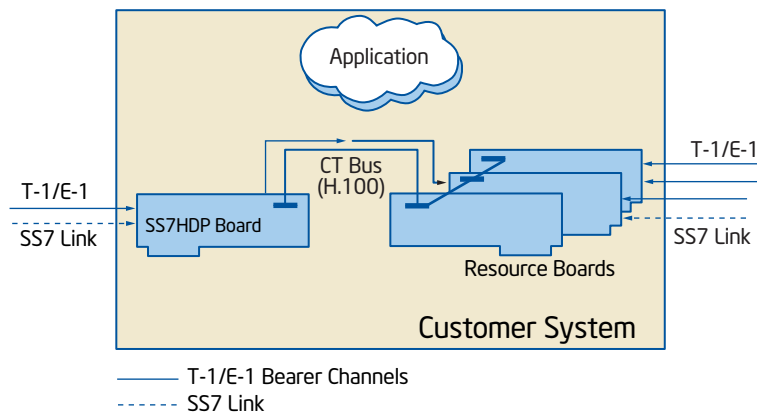


includes MTP, ISUP, TUP, SCCP, TCAP, MAP, IS41, and INAP, this board will allow virtually any SS7 application or platform to be built. Additionally, the flexibility to interface with SS7 protocols from MTP through the full SS7 protocol stack lets developers maximize this advanced messaging and signaling platform. A common application programming interface (API) allows easy integration into existing systems based on SS7 products from Intel, permitting maximum reuse of software. This lets developers use SS7 products from Intel to meet their existing and future needs.

Features	Benefits
Multiple onboard Intel® processors based on Intel XScale® technology	Supports up to 64 low-speed or 2 high-speed SS7 links, enabling the creation of powerful, cost-effective, high-density solutions
Capable of high message rates on all 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

Configurations

Figure 1. Intel NetStructure SS7HDP Board Configuration Diagram



Software Support

The Intel NetStructure SS7HDP board is supported by the SS7 Software Development Kit (SDK) for Linux*, Solaris*, and Windows*. See the application note at <http://www.intel.com/design/telecom/applnotes/9861.htm> for details about the operating systems currently supported.

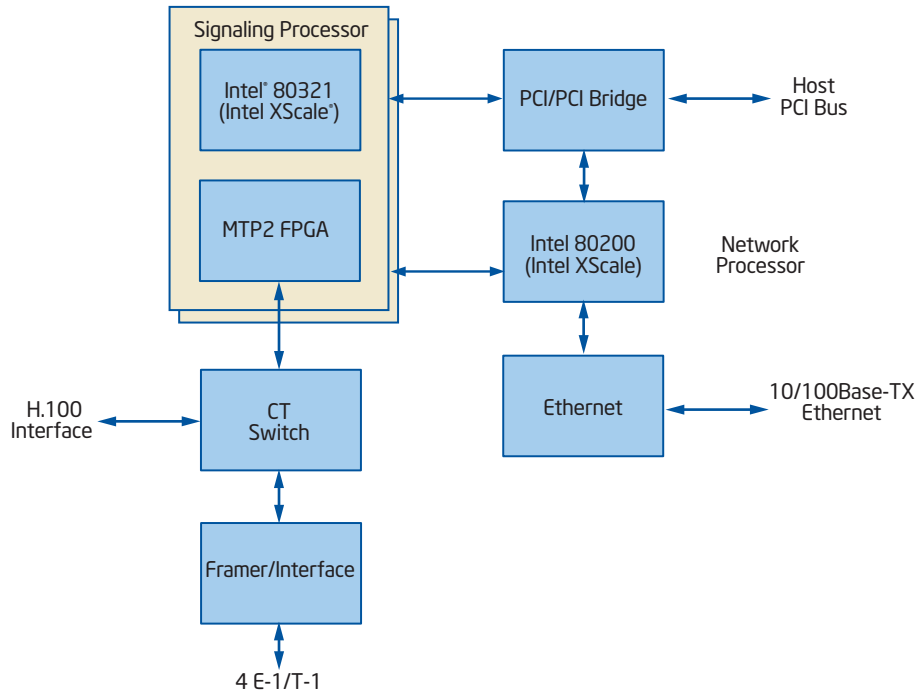
The SDKs contain all the documentation, demonstration code, and tools necessary for developing complex multichannel applications, including a native SS7 API that allows full access to the SS7 protocols.

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

Figure 2. 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)
- 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 CT 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 (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 5V/3.3V
Hot plug	Compliant with PCISIG PCI Hot Plug Specification Revision 1.0

Line Interfaces

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	+5VDC, 5A max., 3A 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)

Technical Specifications (cont.)

Physical (cont.)

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)

Approvals

<i>Safety</i>	
International	CB Certificate to IEC 60950-1, EN60950-1
United States	UL 60950-1 (UL File Number E219415)
Canada	CAN/CSA-C22.2 No 60950-1
<i>EMC</i>	
International	EN 300 386, EN55022, EN 55024, CISPR 22
United States	FCC Part 15 Class A
Canada	ICES-003
<i>Telecommunications</i>	
International	TBR12, TBR13, G.703, G.704, EN 300 248
United States	TIA-968-A, US: ICKCANNANSS7HDP
Canada	CS-03, IC: 10000-SS7HDP
Country-specific Approvals	See the Global Product Approvals list at http://resource.intel.com/globalapproval/globalapproval.asp
Declaration of Conformity	See http://developer.intel.com/design/litcentr/ce_docs/index.htm

Reliability/Warranty

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

Software System Requirements

- 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) operating system
- Solaris*
- Windows* 2000, 2003, and XP
- PCISIG PCI Local Bus Revision 2.1 or later

Hardware System Requirements

- To utilize full performance, Pentium® III, 1.26 GHz or better with a minimum of 256 MB of system memory is recommended
- In order to use the SS7HDP board in a different mode than the DTI mode, a license button must be installed on the board. The minimum license button required is either the monitoring or the MTP2 license button.

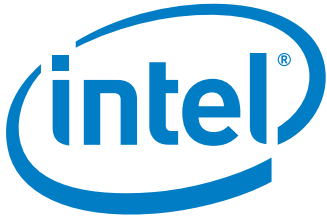
Additional Components

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

Note: These protocols may run either on the board or on the host.

Ordering Information

Product (Item Market Name)	Description
Board	
SS7HDPD4TE	SS7 high-density PCI (two signal processors, four software-selectable T-1/E-1 interfaces) supporting 16 or 64 low-speed or 2 high-speed SS7 links
License Buttons	
SS7SBHDFBA	Monitoring for both low- and high-speed links
SS7SBHDFBC	MTP2/3 supporting up to 8 SS7 links per signaling processor
SS7SBHDFBD	MTP2/3 supporting up to 32 SS7 links per signaling processor + ISUP/TUP/SCCP/TCAP regular + high-speed link mode
SS7SBHDFBE	MTP2/3 supporting up to 32 SS7 links per signaling processor + ISUP/TUP/TCAP large + MAP/IS41/INAP regular + high-speed link mode
SS7SBHDFBF	MTP2/3 supporting up to 32 SS7 links per signaling processor + MAP/IS41/INAP large + high-speed link mode + other combined run modes
Host Software	
SS7SBHSTINAP	SS7 INAP software
SS7SBHSTIS41	SS7 IS41 (TIA-41, ANSI-41) software
SS7SBHSTISUP	SS7 ISUP software
SS7SBHSTMAP	SS7 MAP software
SS7SBHSTMTP3	SS7 MTP3 software
SS7SBHSTSCCPCO	SS7 SCCP connection-oriented software
SS7SBHSTSCCCL	SS7 SCCP connectionless software
SS7SBHSTTCAP	SS7 TCAP software
SS7SBHSTTUP	SS7 TUP software



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