

INTRODUCTION

SS7 has become a global standard for interconnection of telecommunications network facilities, providing fast call setup times, physical link redundancy and adding transaction capabilities to the network.

Voiceboard's MediaPro Signaling System 7 (MediaPro SS7) product is a single board embedded hardware and software SS7 signaling solution.

MediaPro SS7 offers new levels of performance, reliability and time-to-market for OEM's developing systems for Carrier Class applications.

MediaPro SS7 cost effectively implements SS7 Advanced Intelligent Network features. These include 800 call routing, number portability, cellular and wireless, advanced messaging, SS7 Gateway, translation to IP and intelligent call routing.

PRODUCT DESCRIPTION

MediaPro SS7 is an embedded hardware and software solution implementing MTP1/2, ISUP, TUP, TCAP and MAP SS7 stack layers running on a high availability architecture.

MediaPro SuperSpan and MediaPro Access embedded cPCI and VME hardware offers T1/E1/J1 and T3/E3 network access options. Sufficient processing power is included to run up to 128 SS7 links and the SS7 stack at full wireline speeds.

API's and drivers are provided for host application servers running on an embedded cPCI or VME bus host, or remotely connected via an Ethernet connection.

MEDIAPro SS7 ADVANTAGES

The MediaPro embedded SS7 solutions product:

- Reduces time-to-market by integrating the com-

plete SS7 stack, eliminating months of development time to port upper SS7 stack layers to a host processor.

- Runs 100% on a real time OS, providing high performance and capacity.
- Client-server configuration achieves extraordinary high availability by eliminating the host CPU and system bus as single points of failure.
- Faults are detected at the MediaPro board level, allowing rapid failover switching without dropping calls.
- Voiceboard SS7 software licensing program minimizes up-front investment and on-going production costs.
- Allows tight integration of SS7 signaling stacks with emerging convergent network protocols.

EXTREME AVAILABILITY

Unique load sharing client-server configuration achieves extraordinary HA performance by eliminating single points of failure, link switch-over and system reboot downtime.

PRODUCT ARCHITECTURE

MediaPro embedded SS7 is deployed in the form of a downloadable protocol stack, protecting equipment investment against obsolescence as technology changes. Feature enhancements and newly developed protocols may be added at any time via software downloads.

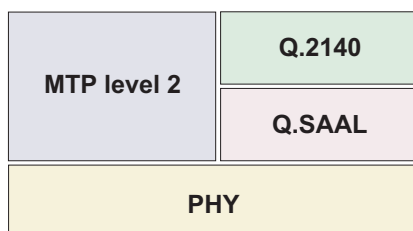
The MediaPro product architecture supports remote distributed applications processing via Ethernet networks to provide high availability configurations, eliminating single points of failure.

APPLICATIONS

MediaPro SS7 may be used to implement the following SS7 network elements:

- **Service Control Point (SCP)**
A signaling point that has the logic and data to implement the routing of calls to provide services, such as Intelligent Network services.
- **Signaling Transfer Point (STP)**
A signaling point that can transfer signaling messages between SS7 links
- **Service Switching Point (SSP)**
A signaling point capable of recognizing calls that contain service information and is responsible for routing such calls under SCP control.
- **Intelligent Peripheral (IP)**
A resource manager for devices, such as voice response units, voice announcers and caller-activated services.
- **Mobile Switching Center (MSC)**
A wireless switching system that identifies calls associated with network services and initiates dialogues with an SCP, in which the logic for the service resides.
- **Signaling Gateway (SG)**
A network element that terminates SS7 signaling and transports it over the IP network to the MGC, for call processing.

SS7 LOWER LAYER ARCHITECTURE



SS7 Lower Layer Stack Architecture
(narrowband and broadband)

MediaPro SS7 includes the following lower layer options:

MTP2:

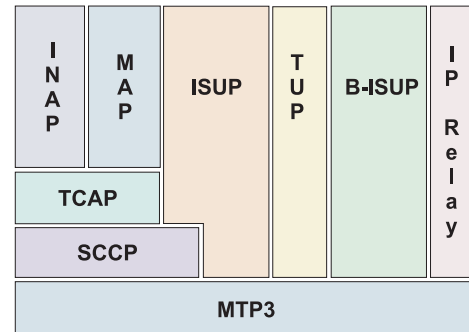
- Reliable transfer of signaling messages over signaling links

Q.2140:

- Convergence functions necessary to map the SS7 MTP Level 3 protocol to the ATM Q.SAAL protocol
- ITU-T-Q.2140, B-ISDN - ATM Adaption Layer - SSCF at NNI and Q.2110, B-ISDN - ATM Adaption Layer - SSCP

SS7 UPPER LAYER ARCHITECTURE

MediaPro SS7 includes the following upper layer options:



SS7 Stack Architecture
(narrowband and broadband)

MTP3:

- Broadband and narrowband signaling traffic management, signaling link and route management
- Functionality as an SSP or STP

SCCP:

- Connection-oriented and/or connectionless services (Class 0, 1, 2, and 3) for transferring data across an SS7 network

ISUP:

- The signaling protocol to establish, maintain, and release circuit-switched network connections across an SS7 network. It can act as originating, destination, or intermediate exchange

TUP:

- Establishing, maintaining, and releasing circuit-switched network connections across an SS7 network. It can act as the originating, destination, or intermediate exchange

TCAP:

- End-to-end, connectionless network service protocol between transaction capability users, across an SS7 network

- An ASN.1 encoding engine to encode/decode all operation codes and dialog parameters

MAP supports:

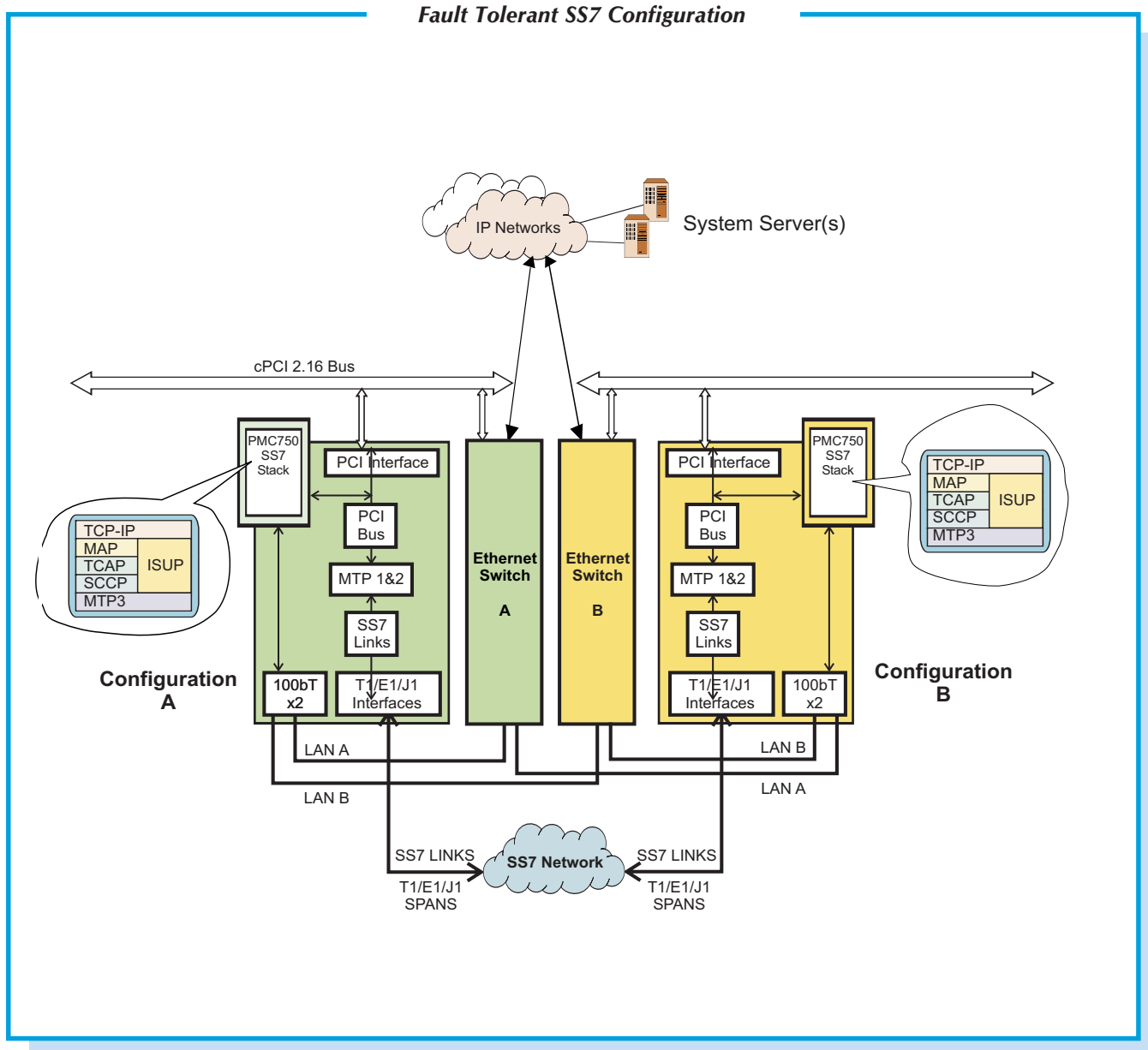
- MAP and Short Messaging System (SMS) capabilities for IS-41 Rev. C, Rev. D, and GSM networks
- Acting as the VLR, HLR, and MSC
- MAP-GSM acting as the VLR, HLR, MSC, and SGSN/GGSN
- Implementing GSM Phase 1, Phase 2, and Phase 2+. It also supports MAP-GSM extensions for GPRS and CAMEL

INAP supports:

- Capability Set 1 (CS1), as defined by the ITU, ETSI, and the Generic Requirement (GR) standards of the Bellcore Advanced Intelligent Network (AIN)
- The interaction between the SSF, SCF, Specialized Resource Function (SRF), and the Service Data Function (SDF)

B-ISUP supports:

- Establishing, maintaining, and releasing broadband-switched network connections across an SS7/ATM network. It can act as the originating, destination, or intermediate exchange



SS7 MODULES AVAILABLE

Message Transfer Protocol Layer 1 (MTP1)

VBMP1/E1	2048 kb/s
VBMP1/DS1	1544 kb/s

Message Transfer Protocol Layer 2 (MTP2)

VBMP2	ITU-T (CCITT 88&92)
VBMP2/ANSI	ANSI 88&92
VBMP2/PRC	People's Republic of China variant

Message Transfer Protocol Layer 3 (MTP3)

VBMP3	ITU-T (CCITT 88&92)
VBMP3/ANSI	ANSI 88&92
VBMP3/PRC	People's Republic of China variant
VBMP3/SING	Singapore variant
VBMP3/B-ICI	B-ICI (Inter-carrier for ATM)

Telephone User Part (TUP)

VTUP	ITU-T (CCITT 88&92)
VTUP/PRC	People's Republic of China variant

Signaling Connection Control Part (SCCP)

VBSCCP/CLESS	ITU-T (CCITT 88&92) Connectionless
VBSCCP/CONN	ITU-T (CCITT 88&92) Connection oriented services
VBSCCP/ANSI	ANSI 88&92

Transaction Capabilities Application Part (TCAP)

VBTCAP	ITU-T (CCITT 88&92)
VBTCAP/ANSI	ANSI 88&92

ISDN User Part (ISUP)

VBISUP	ITU-T (CCITT 88 & 92)
VBISUP/ANSI	ANSI 88&92
VBISUP/Q767	ITU-T (CCITT Q.767) ETSI compatible
VBISUP/SING	Singapore variant
VBISUP/ITAL	Italian variant CCITT Q.767
VBISUP/ETSI	European Telecommunications Standards Institute variant
VBISUP/FTZ	FTZ German variant

Mobile Applications Part (MAP) GSM

VBMAP/GSM-MSC	Mobile Switching Center only
VBMAP/GSM-VLR	Visitor Locator Register only
VBMAP/GSM-HLR	Home Locator Register only
VBMAP/GSM-VH	Visitor and Home Locator Registers
VBMAP/GSM-VHM	Visitor and Home Locator Registers with Mobile Switching Center

Mobile Applications Part (MAP) IS-41

VBMAP/IS41-MSC	Mobile Switching Center only
VBMAP/IS41-VLR	Visitor Locator Register only
VBMAP/IS41-HLR	Home Locator Register only
VBMAP/IS41-VH	Visitor and Home Locator Registers
VBMAP/IS41-VHM	Visitor and Home Locator Registers with Mobile Switching Center

Intelligent Network Applications Part (INAP)

VBINAP	ITU-T (CCITT 88&92)
VBINAP/ANSI	ANSI 88&92

INTERNATIONAL STANDARDS

Q.700-Q.709	MTPx	Q.771-Q.775	TCAP
Q.711-Q.716	SCCP	Q.791-Q.795	Monitoring, Operations, and Maintenance
Q.721-Q.725	TUP	Q.780-Q.783	Test Specifications
Q.761-Q.766	ISUP		

Represented by:

