



MACH7 Performance

“The SS7 Signaling Blade”

Overview

As the Global network is undergoing immense changes and the Next-Generation Intelligent network is emerging and becoming a reality, the need for cost-effective intelligence in communications modules increases. New technologies, lower costs and the ability to rapidly deploy enhanced services have sparked the need for effective means to support converged networks. Hence the need for high density and high performance access for these converging intelligent network systems becomes critical.

The MACH7-Performance from MACH7™ product family of teleSys Software, Inc, addresses these needs by providing telecom OEMs and integrators a high density, highly advanced connectivity subsystem for SS7 and SIGTRAN signaling on a Single Computing Board. It sets the standard for high-performance and functionality as the industry's most advanced T1/E1/J1 controller for cPCI-based computer telephony solution.



Service Provider Applications

Signaling System #7 (SS7) application, also known as C7, is the carrier signaling protocol of the telecom network for all circuit-switched voice related service as well as for intelligent and advanced intelligent network services. All network applications that require interaction with SS7 or IN can be supported by the MACH7-Performance solution. Services include wide varieties of call related services like, IVR (Interactive Voice Response) system, VMS (Voice Mail System), Prepaid service etc., along with enhanced services for both wireline and wireless network e.g. Toll Free/Free Phone service, Virtual Private Network, SMS (Short Messaging Service), Unified Messaging and Location based services. SIGTRAN signaling allows SS7 Applications to be deployed over an IP network with assurance that Quality of service (QoS) and latency requirements inherent in SS7 network will be met. For IP telephony, this solution is also often used as the signaling protocol for Voice over IP gateway applications, within the signaling gateways and Media Gateways. Network equipment providers, system integrators, application developers, and service providers will appreciate the benefits of this solution.

Hardware Features

The architecture of the MACH7-Performance capitalizes on the Single Board Computers powered by a 650-MHz UltraSPARC® Iii processor with Motorola's MPC8264A (PowerQUICC II) on-board for layer 1/2 interface. The advanced feature set with four (4) software selectable T1/E1/J1 interfaces accessible at the rear access via passive Rear Transition. Critical to any telecom system is the ability to "hot swap" its board level components. The MACH7-Performance fully complies with Basic, full, and HA hot-swap support through PICMG 2.1, Rev 2 HA Hot-Swap compliance.

The board also supports two 10/100-Mbps BaseT auto-sensing Ethernet ports and one serial (mini-DB-9) port.

Software and High-Availability Features

The MACH7-Performance hosts entire SS7 protocol stack (MTP, ISUP, SCCP and TCAP) and SIGTRAN layers (SUA, M3UA, M2PA, M2UA and SCTP) on-board to both minimize host loading and increase system scalability. APIs are supported for all layers of the stack to integrate customer applications. The product requires the runtime license for appropriate SS7 and SIGTRAN layer and comes with API libraries to support multiple operating environments.

A highly-available solution is also available with multiple computing elements, which guarantees no single point of failure with full synchronization of calls and transactions in All-Active mode.

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Technical Specifications

Software:

SS7 Protocol Layer:

- MTP - AIN , INAP
- SCCP - MAP (GSM & IS41)
- ISUP - CAP, WIN
- TCAP

SIGTRAN Protocol Layers:

- SUA - M2UA
- M3UA - SCTP
- M2PA

SS7 Standard compliance:

MTP2: ITU-T, ANSI, TTC/ NTT (Japan).

MTP3: ITU-T, ANSI, TTC/NTT (Japan), China.

SCCP: ITU-T, ANSI.

ISUP: ITU-T, ANSI, TTC/NTT (Japan), and other country variants.

TCAP:ITU-T, ANSI.

SIGTRAN Standard compliance:

M3UA : IETF's RFC 3332

SUA : IETF's RFC 3868

M2PA : IETF's RFC 4165

M2UA : IETF's RFC 3331

SCTP : IETF's RFC 2960

Hardware:

Processor:

- 650-MHz UltraSPARC® Iii processor
- Motorola MPC8264A PowerQUICCII (MPC603e core) - 300 MHz RISC CPU, 570 MIPS for layer 1&2.

Framing Standards:

D4, ESF

Line-code:

AMI, B8ZS, HDB3

SS7 Links:

2 or 16 links per board

Interface:

4 RJ48C interfaces that are individually software selectable T1/E1/J1 interfaces. Each interface is software configurable in Line Termination or Network Termination mode.

Two RS-232C asynchronous (rear panel) ports, one DIN8 (front panel) port.

2 (Two) 10/100 RJ-45 Ethernet Ports.

Monitors: 2 RJ-11 Connectors on Front Panel.

Specification Compliance:

Telecom environment compliance:

Telcordia NEBS Level 3

EMC: FCC Part 15 Class A, ICES 003 Class A, VCCI Class A EMI, EN 55022 & 55024, BSMI Class A

Regulatory: UL 1950, CSA C2.22, EN 60950, TUV.

PICMG 2.0, Rev 3 CompactPCI

CPCI Revision 2.1 Compliant,

PICMG 2.1 Hot Swap Compliant

PICMG 2.9, Rev 1 IPMI System Management

PICMG® 2.16 CompactPCI® Packet Switch Backplane Compliant

MTBF:

160,000 power-on hours (POH).

Power:

25 W typical at 650 MHz (est. includes 1 GB memory).

Input: 3.3, 5, +12, -12 V required

Operating: 5° C to 40° C (41° F to 104° F), 5% to 95% relative humidity.

Non-operating: -40° C to 70° C (-38° F to 158° F), 5% to 95% relative humidity.

Cooling: 300 LFM.

Relative Humidity: 0% to 95% operational, non-condensing.

Altitude (Operating): 60 m (.04 mi.) below sea level to 4000 m (2.5 mi.) above sea level.

Seismic: Meets GR-63-CORE and GR-1089-CORE requirements for earthquake risk Zone 4.

teleSys Software, Inc.

teleSys is the Premier Provider of solutions for the Next Generation Converged Network, delivering open systems software and hardware. The teleSys portfolio of products supports industry standards and all prevalent protocols in Next Generation telecommunication networks.