The TelcoBridges Tdev™ TMP5900 is a high-performance computer telephony (CTI) development platform that meets the needs of service providers looking to expand their value-added services (VAS) offerings, positioning them for rapid uptake while providing a single unified device with simplified OAM&P requirements and high density.

While also delivering seamless voice interoperability across TDM and IP networks, the TMP5900 provides an advanced application platform for delivering ring-back tones, unified communications, pre-paid/post-paid calling, conferencing, Fax over IP (T.38), voicemail, and other enhanced services to subscribers, irrespective of access protocol or device. Leveraging TelcoBridges' Toolpack™ software toolkit, the TMP5900 provides the ability to rapidly develop and deploy applications that tie together real-time communications from the network with stored external data sources to provide unique subscriber-specific services.

Offering a full-featured quad-core Intel Xeon$^{©}$-based host with 500GB of RAID-1 storage, the TMP5900 can run additional applications such as softswitches and session border controllers locally, further answering the need for device consolidation and convergence. With separate chipsets for media processing and interactive voice response (IVR), and signaling performed in hardware, the TMP5900 computer telephony platform provides full non-blocking capability of up to 2048 channels per device.

FEATURES & BENEFITS

Density: Supporting up to 64 T1/E1/J1, 3 DS-3 or 1 STM-1 interfaces in a single unit, the TMP5900 offers the highest port density in a 2U form factor. The TMP5900 enables consolidation of multiple signaling and connectivity devices into a single device, while providing up to 2,048 IP voice ports at an industry-leading lowest cost per port.

Carrier-grade: NEBS Level 3-compliant, the TMP5900 is designed to meet the need for reliability that service providers and their customers demand. The TMP5900 offers hot-swappable power supply redundancy and the ability to scale from 192 to 2,048 ports via hardware and software upgrades while providing full availability of call channels and other system resources (IVR, VOIP).

Flexibility: The TMP5900 supports multiple 'any-to-any' switching across multiple network interfaces and signaling protocols (SS7, ISDN, CAS R2, SIGTRAN, SIP and H.248) in the same device. With separate chipsets for signalling, transcoding and interactive voice response (IVR), the TMP6400 provides true full channel availability.

High availability: The TMP5900 computer telephony platform features full redundancy with fault-tolerant hardware and software components.

For more information on how the Tmedia TMP5900 can help transform your offerings, please visit www.telcobridges.com

> Tdev **TMP5900**

TMP5900 SPECIFICATIONS

NETWORK INTERFACES
Telephony
8 to 64 T1/E1/J1 TDM ports (hardware & software upgradeable); or
1 to 3 DS-3 (software upgradeable) + 2 T1/E1/J1 for SS7 signaling or BITS synchronization; or
1 OC3/STM-1 (with Automatic Protection Switching (APS)) + 2 T1/E1/J1 for SS7 signaling or BITS synchronization

Capacity
TDM: 192 to 2048 channels

VoIP: 192 to 2,048 universal ports per device; even more using less complex codecs such as G.711

WAN IP
Dual 100/1000 Base-T for VoIP traffic

LAN
100/1000 Base-T access for OAM&P

MEDIA PROCESSING

PCM Coding	A-law to µ-law encoding and conversion
Universal Codecs	G.711, G723.1, G.726, G.729ab, T.38 (2048 channels)
DTMF Relay	RFC2833, SIP INFO method, in-band
Echo Cancellation	G.168 – 128ms tail length on all channels simultaneously
Fax Support	T.38 fax relay, Group 3, Fax/modem bypass, G.711 fax fallback
Optional Codecs*	AMR, AMR-WB (G.722.2), GSM-FR/GSM-EFR, EVRC/QCELP, G.728, G729eg, iLBC

> Independent dynamic codec selection per channel

APPLICATION AND DEVELOPMENT SOFTWARE
TB Media Gateway™ application (w/source code)
> TDM-to-TDM switching, TDM-to-IP-to-TDM gateway, IP-to-IP hairpinning
> Transcoding, trunking, call routing, fax relay and other functions
> Call Detail Records (CDR): user-definable text files and RADIUS
>Call routing engine
>> Fully scriptable (based on Ruby scripting language)
>>CLI (ANI)-based routing and translation
>>DID (DNIS)-based routing and translation
>>Least cost routing (with time of day/week/year scheduling and other criteria)
>> Routing based on Nature of Address (NOA), Numbering Plan Indicator (NPI), and others
>>Pre-and post-routing digit translation
> High availability

Toolpack Application Development Environment
> Pre-developed C++ classes (call bridging, call routing, IVR, embedded web-based GUI, voicemail, ODBC database access/RADIUS for CDRs, etc.)
> Linux, Intel/SPARC Solaris, Windows OS environments

REGULATORY COMPLIANCE

EMC	FCC Part 15, EN55022, EN61000, ENV50204
NEBS	Designed to meet Level 3
Safety	CE, UL60950, CSA C22.2 No.60950-1-03

SIGNALING
ISDN PRI (14+ variants), National ISDN-2, Euro ISDN, DMS100, DMS250, 4ESS, 5ESS, Japan INS-NET1500
SIP: RFC 3261 User Agent, SIP Authentication
CAS R2: scriptable state machine enables user-generated variants

_SS7*:_ (20+ variants) MTP2, MTP3, SCCP, TCAP and ISUP
> Up to 64 SS7 links, up to 2048 CICs, HSL, redundant SS7, single or multiple point codes per device
SIGTRAN*: SCTP, M2PA, M2UA, M3UA
_H.248_: ITU-T H.248.1

Additional licenses required.

QUALITY OF SERVICE (VoIP)
Dynamic jitter buffer (adaptive and fixed), Packet loss concealment, Silence Suppression; Denial of Service (DoS) protection for VoIP media

IVR FEATURES
DSP-based plug-in modules; base configuration of 512 channels; field upgradeable to 1024, 1536 and 2048 channels
> Play and record
> DTMF detection, generation, suppression
> Voice Activity Detection (VAD), Comfort Noise Generation (CNG), Automatic Gain Control (AGC)

MANAGEMENT INTERFACES
1 DB-9 serial console port with RS-232C adapter
1 100/1000base-T management interface

MANAGEMENT & CONTROL
> SNMP v2 GET of individual appliance configuration and statistics
>TelcoBridges Element Management System (Toolpack)
>> Live configuration and software upgrades via HTTP
>> Monitoring via HTTP
>> Configuration of multiple devices in the same system with a single interface

HARDWARE SPECIFICATIONS
Physical Interfaces
PSTN: 8 to 64 T1/E1/J1 via RJ-48, 1 to 3 dual BNC DS-3, 1 STM-1 optical or electrical link (with APS). Interface or BITS synchronization
_IP_: Dual 100/1000 Base-T Ethernet VoIP ports
OAM & Control: 100/1000 Base-T Ethernet port

CPU
> Intel Xeon quad-core X3470 CPU @ 2.93Ghz, 8 GB RAM, 2 x 500GB SATA HDD configured for RAID-1; Intel 3400 series motherboard
>Supported operating systems: CentOS, Debian, Fedora Core, Windows, Solaris

Dimensions
2U with dual power supplies
> 3.5" H (88.9 mm) x 17.4" W (442 mm) x 16" D (406 mm)
Weight: 2U model @ 58 lbs (26.4 kg)

Environmentals
AC Power: 90 to 260 Volts AC, 47/63 Hz
DC Power: -40 to -60 Volts DC
Power Consumption: 391 W fully loaded
Operating temperature range: 0 to +55 °C, 95% rel. hum. non-condensing
Storage temperature range: -10 to +75 °C, 95% rel. hum. non-condensing