TMP6400 TDM/VoIP Development platform - T1/E1 or DS3 or OC3/STM-1

The TelcoBridges™ Tdev TMP6400 is a high-density telecom development platform that meets the needs of service providers looking to expand their value-added services (VAS), providing a cost-effective foundation for introducing new offerings while rapidly scaling to meet the needs of a growing subscriber base.

The TMP6400 provides capacity of up to 64 T1/E1 or up to 3 DS3 or 1 OC3/STM-11 interfaces, and up to 2048 universal VoIP channels.

Whether deployed on a wireline, wireless or VoIP network, the TMP6400 delivers seamless voice interoperability across TDM and IP networks. In addition, the TMP6400 builds on those capabilities with 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 regardless of access protocol or device.

Leveraging TelcoBridges Toolpack™ software environment, and a choice of host deployment platforms, the TMP6400 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.

Features & Benefits:

- Customisable
- Carrier grade
- Flexibility
- High-density
- High availability
- Stackable up to 16 units in a non-blocking switching system

TDev™ **TMP6400 Data Sheet**

TelcoBridges TMP6400 is a highly customisable telecom development platform. You can customise your TMP6400 unit based on the following options:

- Type of **Power** (redundant AC or DC)
- **SS7** (# links from 1 to 64)
- **SIGTRAN** (None, Relay or Termination)
- **IVR** (128 to 2048 channels)
- **TDM Interface** (T1/E1, DS3, OC3/STM-1)
- **Control options** (Internal or none)
- **VoIP** (none, or up to 4 mezzanines)
- **SIP** (Signalling Stack or none)
- **Toolpack** (software or none)
- **ISDN** (ISDN variants or none)

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Capacity and Voice Processing

PSTN interfaces
16 to 64 T1/E1 or
1 to 3 DS3 or
1 OC3/STM-1 with APS
Independently configurable per port
2 BITS interfaces on DS3/OC3/STM-1 units

VoIP interfaces
Up to 4 Ethernet ports 100/1000Base-T
RJ45 connectors on rear of unit
Up to 16 different IP addresses
Ethernet port bonding and 802.1q VLAN support

Vocoding
512 to 2048 VoIP channels with universal codecs
Universal codecs: G.711, G.723.1, G.726, G.729ab,
    T.38 V.17, clear mode (RFC 4040)
Other codecs: G.722, G.722.2 (AMR-WB), G.728,
    G.729eg, iLBC, AMR, EVRC, GSM
    FR/EFR, QCELP, T.38 V.34

Fax/modem/data
T.38 fax relay (V.17 and V.34)
Automatic G.711 fallback
Modem and data passthrough, NSE, VBD support
Clear mode (RFC 4040)

DTMF relay
RFC 2833/4733, SIP INFO method, in-band

Echo cancellation
G.168 echo cancellation
128 ms echo tail on all channels simultaneously

Voice processing
Adaptive and programmable jitter buffer (20 to 200 ms)
Voice activity detection (VAD)
Comfort noise generation (CNG)

Voice recording and announcement playback
Up to 2048 channels (using optional IVR mezzanine or
    specially licensed VoIP channels)

High Availability & Redundancy
Power supply redundancy
IP port redundancy
Self-recovery software
Seamless software upgrade
Fault tolerant software
MTP2/SS7 links redundancy
M3UA/MTP3/ISUP redundancy
Configuration database redundancy

1+1 solution (optional)
The 1+1 solution extends the high-availability
    and redundancy features of the TMP6400

VoIP gateway redundancy (active/standby)
Full capacity protection (TDM and IP)

1+1 solution consists of:
    1 active unit and 1 standby unit

1+1 Patch Panels are passive (no power required)

N+1 solution (optional)
The N+1 solution extends the high-availability
    and redundancy features of the TMP6400

VoIP gateway redundancy (active/standby)
Full capacity protection (TDM and IP)

N+1 solution consists of:
    N active unit and 1 standby unit (with
    same hardware options)

N+1 Patch Panels have passive pass-through in case
of power-outage

Signaling

Simultaneously supports any combination or all of the following signaling protocols:

SIP

Supported RFCs: 2327, 2833, 2976, 3204, 3261, 3262, 3263, 3264, 3311, 3323, 3325, 3326, 3372, 3389, 3398, 3515, 3551, 3555, 3578, 3581, 3665, 3666, 3764, 3891, 4028, 4694, 4733, 5806

SIP-I/SIP-T

Extensive SIP header manipulation

SS7

Up to 64 MTP2 links (56, 64, n x 56/64 kbps) or 2 x HSL

Multiple redundant MTP2 links

Up to 64 originating point codes and 256 linksets

Up to 256 destination point codes

ISUP variants: ITU 92, ITU 97, ANSI 88, ANSI 92, ANSI 95, Q.767, Telcordia 97, ETSI v3, China, Singapore, UK, SPIROU, Japan NTT, Russia

SIGTRAN

M2PA, M2UA, M3UA (IPSP, ASP, SG), IUA

SCTP (raw IP and UDP)

SS7 termination and/or relay supported

Up to 64 M2UA / M2PA links

Up to 64 M3UA peer server processes

ISDN PRI

Q.931 ISDN PRI (user and network side)

ISDN variants: NI-2, 4ESS, 5ESS, DMS-100, DMS-250, Euro ISDN ETSI NET5 (France, Germany, UK, China, Hong Kong, Korea), Euro Numeris (VN6), NTT (Japan), Australia

ISDN NFAS with D-channel backup

CAS

MF R1 (including E&M, loop start, ground start)

MF R2 (including standard ITU, Brazil, Mexico, Venezuela)

Customizable script files to implement any CAS variant

*T*ctrl (Call Control)

Toolpack framework call control

Call routing based on: trunk group, calling/called numbers (with digit manipulation) and/or various other protocol information/headers.

Customizable routing including priority-based, load-balancing, black listing, call limiting, route retries, etc.

Customizable call cause code mapping

Programmable call routing: Access and manipulation of call parameters (SIP, SS7 and ISDN), including Nature of Address (NOA)

RADIUS authentication and authorization (supports multiple RADIUS servers)

NPA-NXX routing (over 5 million records)

SIP-based local number portability and CNAM lookup

H.248 (MEGACO) call control

ITU-T H.248 versions 1 and 2

UDP, SCTP, IPSec transport

DTMF and fax detection

Call progress, DTMF and COT tone generation

Call quality and inactivity alerts

H.248 control port redundancy (supports virtual IP)

Session management and billing

SIP peer availability polling

RTP inactivity monitoring, RTCP

CDR generation (RADIUS and/or csv files)

Integrated lawful intercept (ETSI ES 201 671 v.2.1.1)

OAMP+T

Operations & Administration

Provisioning, management and status GUI

CLI and configuration file machine-to-machine interface (RESTful)

Configuration change audit logging

Access, user and privilege management

SNMP V2, V3 GET, TRAPs (alarms)

Extensive SNMP call statistics MIBs

Management

2 Ethernet control ports 100/1000Base-T
1 USB Type B serial port
1 RJ45 RS232 serial port
GUI-based and CLI system upgrade
GUI-based configuration copy, backup and restore
Storage for multiple software versions
Storage for multiple configuration files
Extensive system status display

Provisioning

Non-service affecting configuration changes
Offline configuration validation
Multiple configuration files archive
Northbound API (RESTful) for automated provisioning

Network Analytics (*TB* Analytics)

Live call trace with protocol information and ladder
    diagrams
Live test call with media playback and recording
TB Sigtrace – Protocol signaling capture into pcap files
Media call recording (scriptable for calling and called
numbers)

Maintenance

Replaceable fan filters

Dimensions & Weight

1U, 19" rackmount
1.75" (44.5 mm)H x 16.9" (429 mm)W x 16" (406 mm)D
14.25 lbs (6.5 kg)

Electrical Characteristics

90 to 260 VAC, 47 to 63 Hz or -36 to -72 VDC
Hot-swap redundant power supply (AC or DC)
Maximum 131W power consumption

Regulatory Compliance

Safety
CAN.CSA C22.2
EN 60950-1:2005
EN 60950-1:2006

EMC
FCC Part 15:2013, Subpart B,
CE Mark (EN55022:2010, Class A, EN61000, ETSI
    EN 300 386)

Environmental

Operating temperature:
    0 to +70 °C, 95% rel. hum. non-condensing
Storage temperature:
    -10 to +85 °C, 95% rel. hum. non-condensing
Designed to meet NEBS Level 3
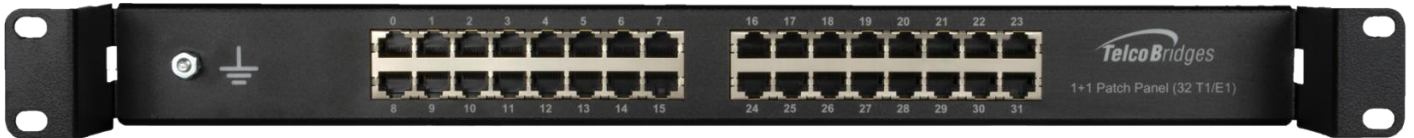RoHS compliant

*T*dev TMP6400 (front view)

*T*dev TMP6400-TE AC (rear view)

*T*dev TMP6400-DS3 AC (rear view)

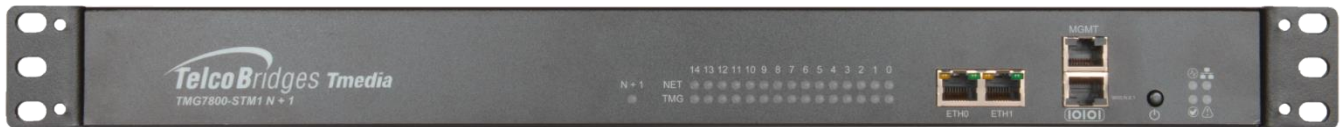*T*dev TMP6400-STM1 AC (rear view)

*T*media/*T*dev TMP6400-TE 1+1, Patch Panel (front view)

*T*media/*T*dev TMP6400-DS3 1+1, Patch Panel (front view)

*T*media/*T*dev TMP6400-STM1 1+1, Patch Panel (front view)

*T*media/*T*dev TMP6400/7800-STM1-N+1 unit (front view)

*T*media/*T*dev TMP6400/7800-STM1-N+1 AC (rear view)