

TMG7800 VoIP Gateway - 512 to 32,768 channels



The TelcoBridges Tmedia TMG7800 is our high-capacity VoIP gateway and is defined by the highest scalability in the entire Tmedia family.

Our scalable building blocks approach offers carriers a VoIP gateway from 16 to 1024 T1/E1, or 1 to 48 DS3 or 1 to 16 OC3/STM-1. The TMG7800 also provides high availability and redundancy, which is a requirement for carrier-grade networks.

Product Characteristics:

- ✓ 4U to 38U VoIP gateway
- ✓ 512 to 32,768 VoIP channels
- ✓ 16 to 1024 T1/E1 or 1 to 48 DS3, or 1 to 16 OC3/STM-1
- ✓ SIP, SIGTRAN, SS7 ISUP, ISDN PRI, E1 CAS R2, T1 CAS R1, H.248
- ✓ Redundant AC or DC power supplies
- ✓ Tmedia N+1 support option

Tmedia™

TMG7800

VoIP Gateway

Ordering information

<i>Part #</i>	<i>Description</i>
TMG7800-CTRL	Media Controller
TMG7800-TE16	16 x T1/E1
TMG7800-TE32	32 x T1/E1
TMG7800-TE48	48 x T1/E1
TMG7800-TE64	64 x T1/E1
TMG7800-DS31	1 x DS3
TMG7800-DS32	2 x DS3
TMG7800-DS33	3 x DS3
TMG7800-STM1	1 x OC3/STM-1

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TMG7800 System

TMG7800 solution components:

- 2 TMG7800-CTRL
- 1 to 16 TMG7800 telecom units (TE, DS3, OC3/STM-1)
- 2 TMG7800-TMS (optional)
- 2 TMG7800-STM1-N+1 patch panel (optional)

TMG7800-CTRL

Manages all components in the system
Performs call control on all components
Supports active/standby redundancy

TMG7800 telecom unit

Runs signaling stacks
Provides TDM and VoIP network interfaces
Hardware accelerated media processing and transcoding
Each additional unit adds more capacity to the system

TMG7800-TMS (optional)

Non-blocking universal media switched fabric across all telecom units
Manage and propagate the system TDM clock
TMG7800-TMS are needed for a system of 2 or more telecom units
2nd TMG7800-TMS enables redundancy

N+1 Patch Panel (optional)

TDM facility protection (OC3/STM-1 only) of the entire system
1st patch panel protects the main fiber
2nd patch panel protects APS/MSP fiber

Capacity and Voice Processing

512 to 32,768 VoIP channels (hardware and software upgrade)

PSTN interfaces

16 to 1024 T1/E1 (hardware and software upgradable), or
1 to 48 DS3 (hardware and software upgradable), or
1 to 16 OC3/STM-1 (with APS/MSP)
Dual RJ48C for BITS or T1/E1 for signalling on each DS3 & OC3/STM-1 unit

VoIP interfaces

2 to 32 Ethernet ports 100/1000Base-T (2 per telecom units)
RJ45 connectors (rear of unit)
Up to 256 IP addresses (maximum of 16 per telecom unit)
Ethernet port bonding and 802.1q VLAN support

Vocoding

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

Fax/Modem/Data

T.38 fax relay (V.17 and V.34)
Automatic G.711 fallback, modem and data pass-through, NSE, VBD
Clear mode (RFC 4040)

DTMF relay

RFC 2833, 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 (optional)

Up to 32,768 optional channels (Maximum 2048 per telecom unit)

Management interfaces

TMG7800-CTRL

4 Ethernet ports 100/1000Base-T for OAMP+T (2 per CTRL unit)
Ethernet port bonding support
VGA for monitor access
4 USB ports keyboard access
1 DB9 serial port (RS-232)

Other TMG7800 component

1 RJ45 serial port with RS-232C adapter

High Availability & Redundancy

Power supplies redundancy for each component
IP ports redundancy
Fault-tolerant software
Seamless upgrades
Configuration database redundancy
MTP2/MTP3/ISUP redundancy

Tmedia N+1 solution (Optional)

The Tmedia N+1 solution extends the high availability and redundancy features of the TMG7800.

VoIP gateway redundancy
Full capacity protection (OC3/STM-1)
Protects up to 15 OC3/STM-1 units with 1 standby unit

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, 5806
SIP-I/SIP-T
Header manipulation

SS7

Up to 512 MTP2 links (56, 64, n x 56/64 kbps, HSL)
Multiple redundant MTP2 links
Up to 64 MTP3 originating point codes
Up to 256 linksets
ISUP variants: ITU 92, ITU 97, ANSI 88, ANSI 92, ANSI 95, Q.767, Telcordia 97, ETSIv2, ETSIv3, China, Singapore, UK, Brazil, SPIROU, Japan NTT
SCCP routing and global title transition

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 20 M3UA peer server processes

ISDN PRI

Q.931 ISDN PRI (user/network side)
NI-2, 4ESS, 5ESS, DMS-100, DMS-250, Euro ISDN, ETSI, NET5 (France, Germany, UK, China, Hong Kong, Korea), NTT (Japan), Australia

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

TMG-CONTROL (call control)

Embedded Call Control

Call routing based on: trunk group, calling/called numbers, digit manipulation, call cause code mapping
Advanced call routing: Priority, load sharing, route retry, Nature of Address (NOA) manipulation
Programmable call routing: Access and manipulation of call parameters
RADIUS AAA (supports multiple RADIUS servers)
NPA-NXX routing (over 5 million table entries)

H.248 (MEGACO) Call Control

ITU-T H.248 versions 1 and 2
UDP, SCTP, IPSec transport
DTMF and fax tone 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 AAA and/or csv files)
Integrated lawful intercept (ETSI ES 201 671 v.2.1.1)

OAMP+T (Web-based Interface)

Operation & Administration

Configuration, management and status GUI
Configuration change audit logging
Access and user management
SNMP V2, V3 GET, TRAPs

Maintenance

GUI system upgrade
System backup, restore and copy
Extensive system status display

Provisioning

Non-service affective configuration change
Offline configuration validation
Multiple configuration archive

TB Analytics (Troubleshooting)

Call Trace with protocol information
Test Call with playback and recording
TB Sigtrace – Signaling Capture
Targeted call recording (scriptable)

Electrical characteristics (Power Input)

TMG7800 System

90 to 260 VAC, 47 to 63 Hz, -40 to -60 VDC
Redundant power supplies (for each component)
From 1045 to 3014W power consumption (depending on configuration)

TMG7800-CTRL

90 to 260 VAC, 47 to 63 Hz
Hot swap redundant power supplies
Maximum 460W power consumption

TMG7800 telecom units

90 to 260 VAC, 47 to 63 Hz, -40 to -60 VDC
Hot swap redundant power supply
Maximum 125W power consumption

TMG7800-TMS

90 to 260 VAC, 47 to 63 Hz, -40 to -60 VDC
Hot swap redundant power supply
Maximum 72W power consumption

TMG7800-STM1-N+1 patch panel

90 to 260 VAC, 47 to 63 Hz, -40 to -60 VDC
Redundant power supply with dual power inputs
Maximum 20W power consumption

Physical characteristics (Dimensions & Weight)

TMG7800 System

4U to 38U depending on configuration
19" rack mount
Height: 7" (178mm) to 66.5" (1691mm)
Width: 17.4" (442mm)
Depth: 22" (559mm)
Weight: 66lbs (29.9kg) to 424.4lbs (192.5 KG)

Information per component

TMG7800-CTRL

1U, 19" rack mount
 1.75" (44.5mm) H x 16.9" (429mm) W x 22" (559mm) D
 23lbs (10.4kg)

TMG7800 telecom units

2U, 19" rack mount
 3.5" (88.9mm) H x 16.9" (429mm) W x 16" (406mm) D
 20lbs (9.1kg)

TMG7800-TMS

1U, 19" rack mount
 1.75" (44.5mm) H x 16.9" (429mm) W x 16" (406mm) D
 17lbs (7.71kg)

TMG7800-STM1-N+1 patch panel

1U, 19" rack mount
 1.75" (44.5mm) H x 16.9" (429mm) W x 16" (406mm) D
 12.2lbs (5.6kg)

Regulatory compliance (UL/CSA 60950, CSA C22.2)

EMC

FCC Part 15:2009, Subpart B, CE Mark (EN55022:2006, Class A, EM60950, EN61000, ETS 300 386)

Environmental

Operating temperature: 10 to +35 °C, 80% rel. hum. non-condensing

Storage temperature: -10 to +60 °C, 80% rel. hum. non-condensing

RoHS compliant

TMG7800-CTRL specification

IBM 5458 System x3250 M5 Express Model
 Xeon E3-1231 v3 3.4GHz 1600MHz 4C processor
 8MB cache, 16 GB memory
 40 GB RAID 1 SSD



"Tmedia TMG7800-CTRL, front view"



"Tmedia TMG7800-CTRL, rear view"



"Tmedia TMG7800 telecom unit, front view"



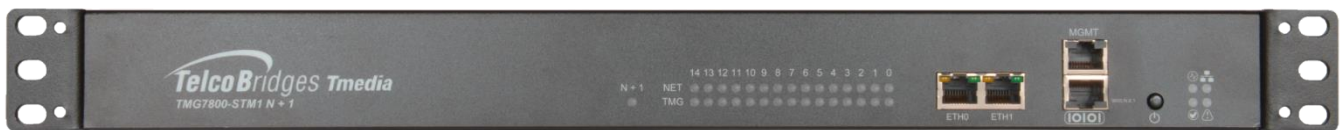
“Tmedia TMG7800-TE telecom unit, rear view”



“Tmedia TMG7800-DS3 telecom unit, rear view”



“Tmedia TMG7800-STM1 telecom unit, rear view”



“Tmedia TMG7800-STM1-N+1 unit, front view”



“Tmedia TMG7800-STM1-N+1 unit, rear view”