

TMG3200 VoIP Gateway – T1/E1 or DS3 or OC3/STM-1



The TelcoBridges **Tmedia TMG3200** is our medium density carrier-grade VoIP gateway. Recognised for its high performance, the TMG3200 can be ordered to support up to 64 T1/E1 or up to 3 DS3 or 1 OC3/STM-1 into a single box (1U) solution for service providers.

Product Characteristics:

- ✓ 1U VoIP gateway
- ✓ 512 to 2048 VoIP channels with universal codecs
- ✓ TDM interface (ordering option)
 - 16 to 64 T1/E1 or
 - 1 to 3 DS3 or
 - 1 OC3/STM-1 with APS
- ✓ SIP, SIGTRAN, SS7 ISUP, ISDN PRI, E1 CAS R2, T1 CAS R1, H.248
- ✓ Hot-swap redundant power supplies (AC or DC)
- ✓ Optional Tmedia 1+1 solution
- ✓ Software upgradable into a session border controller (SBC) with TDM fallback capabilities
- ✓ Hybrid mode with simultaneous SBC and media gateway functions

Tmedia™ TMG3200 Data Sheet

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Tmedia 1+1 Protection Characteristics:

- ✓ Supports all TDM interface types: T1/E1, DS3 or OC3/STM-1
- ✓ Passive solution (no power required)
- ✓ Enables full facility protection (TDM and IP)
- ✓ Active/Standby architecture with two TMG3200 units
- ✓ No single point of failure
- ✓ Five nine's redundancy

Capacity and Voice Processing

PSTN interfaces

16 to 64 T1/E1 or
1 to 3 DS3 or
1 OC3/STM-1 with APS
Framing 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)

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

High Availability & Redundancy

- Power supply redundancy
- IP port redundancy
- Self-recovery software
- Fault tolerant software
- MTP2/SS7 links redundancy

Tmedia 1+1 solution (optional)

The Tmedia 1+1 solution extends the high-availability and redundancy features of the TMG3200

- VoIP gateway redundancy (active/standby)
- Full capacity protection (TDM and IP)
- Configuration database redundancy
- Seamless software upgrade
- M3UA/MTP3/ISUP redundancy

Tmedia 1+1 solution consists of:

- 1 active unit and 1 standby unit
- Up to 2 units 1+1 Patch Panel(s)

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

TMG-CONTROL (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)

Software upgradable to SBC

- Back-to-back user agent (B2BUA)
- Maximum signaling/media sessions: 2300
- Maximum transcoding sessions: 2300
- Topology hiding
- Line-rate DOS/DDOS protection (64 bytes packets)
- Rogue RTP detection
- Dynamic blacklisting
- Access control list
- Session admission control
- Session bandwidth control
- TDM fallback capabilities

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

- 1 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

TMG3200

- 1U, 19" rackmount
- 1.75" (44.5 mm)H x 16.9" (429 mm)W x 16" (406 mm)D
- 14.5 lbs (6.6 kg)

TMG3200 1+1 patch panels

- 1U, 19" rackmount
- 1.75"(44.5 mm)H x 16.9"(429 mm)W x 5.25"(133 mm)D
- 3.4 lbs (1.6 kg)

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)

Electrical Characteristics

- 90 to 260 VAC, 47 to 63 Hz or -36 to -72 VDC
- Hot-swap redundant power supply (AC or DC)
- Maximum 138W power consumption

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



Tmedia TMG3200 (front view)



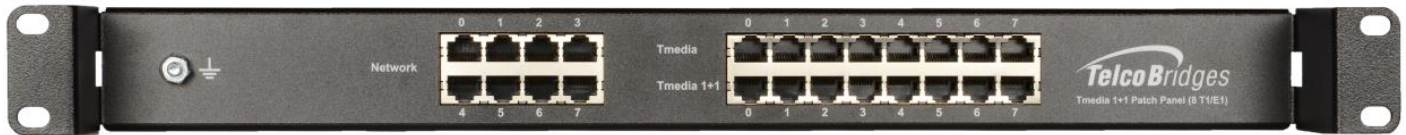
Tmedia TMG3200-TE AC (rear view)



Tmedia TMG3200-DS3 AC (rear view)



Tmedia TMG3200-STM1 AC (rear view)



Tmedia TMG3200-RJ 1+1, Patch Panel (front view)



Tmedia TMG3200-DS3 1+1, Patch Panel (front view)



Tmedia TMG3200-STM1 1+1, Patch Panel (front view)

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