

## 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
- ✓ Performance option for higher CPS rate and support for SIP Registration Forwarding functionality

### 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

## Tmedia™ TMG3200 Data Sheet

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### Call Handling Performance

	Standard	Performance Option
	CCPS/CAPS	CCPS/CAPS
SS7-SIP	90/230	140/300
ISDN-SIP	65/195	120/300
SIP-SIP	60/175	180/275

CCPS = Completed Call per Second

CAPS = Call Attempts Per Second

Contact us for other protocol combinations

## 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  
SIP registration Forwarding<sup>1</sup>

### 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

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<sup>1</sup> Requires Performance option

## 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)

## Tctrl (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: 3000  
Maximum transcoding sessions: 2744  
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-TE 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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