

The TelcoBridges™ Tmedia TMG3200 is a **carrier-grade** media gateway that meets the needs of service providers, solution developers, and system integrators looking to cost-effectively expand their network footprint and deploy enhanced value-added services. With the ability to easily add additional hardware capacity and functionality with field-upgradable modular hardware components, and perform software license upgrades without rebooting the system, the 1U form factor TMG3200 media gateway provides the **reliability** and **responsiveness** that leading-edge service providers require to deliver on their aggressive growth plans. A single TMG3200 media gateway unit provides **capacity** of 2,048 voice ports and the **flexibility** to mix and match TDM and IP across T1/E1/J1, DS-3 and STM-1 interfaces.

Whether sitting at the network core or the edge, the TMG3200 provides essential media gateway functionality allowing it to bridge TDM and IP networks, intermediate between various wireless, PSTN and IP voice protocols, and deliver hosted IP-PBX, Fax over IP, SIP trunking and other advanced services. Leveraging the TelcoBridges Toolpack™ media gateway software, on-board application server, and built-in storage (compact flash drive or SATA disk), the TMG3200 media gateway provides a low footprint approach to developing and provisioning unique subscriber-specific services and value-added applications such as unified communications, ring-back tones, and prepaid / postpaid services. With separate chipsets for signalling, voice processing and interactive voice response (IVR), the TMG3200 media gateway provides true full channel availability.

Offering the industry-leading highest port **density** and the lowest operating cost for a media gateway in a 1U form factor, the TMG3200 media gateway easily scales as service uptake increases, with expansion cards for IVR, VoIP and TDM. With an average 2/3rds less power consumption than competing products of similar capacity, the TMG3200 media gateway supports the drive by service providers to reduce the environmental impact of their network footprint and increase their **green** credentials.

FEATURES & BENEFITS

Carrier-grade: Architected to exacting industry standards such as NEBS level 3, the TMG3200 is designed to meet the need for five 9s reliability that service providers and their customers demand. The TMG3200 media gateway offers an optional hot-swappable power supply redundancy* and the ability to scale from 96 to 2,048 ports.

Flexibility: A network agnostic platform, the TMG3200 media gateway supports multiple 'any-to-any' switching across multiple network interfaces and protocols from different carriers as well as transcoding support for all major wireline, wireless and internet codec.

Density: Supporting up to 64 T1/E1/J1, 3 DS-3 or 1 STM-1 interfaces in a single-unit, the TMG3200 offers significant density in a 1U form factor. The TMG3200 media gateway provides up to 2,048 IP voice ports at an industry-leading lowest cost per port.

> Tmedia TMG3200



For more information on how the Tmedia TMG3200 media gateway can help transform your offerings, visit www.pulsewan.com.

* Requires 2U form factor.

TMG3200 SPECIFICATIONS

NETWORK INTERFACES

Telephony

4 to 64 T1/E1/J1 TDM ports (hardware & software upgradeable)
 1 to 3 DS3 + 2 T1/E1/BITS (software upgradeable)
 1 OC3/STM-1 (with Automatic Protection Switching (APS)) + 2 T1/E1/BITS

Capacity

TDM: 96 to 2048 channels

VoIP: 96 to 2,048 universal ports per device; even more using less complex codecs such as G.711; up to 32,768 universal channels across 16 units

WAN IP

Dual 100/1000 Base-T for VoIP traffic

LAN

100/1000 Base-T access to internal Linux host

MEDIA PROCESSING

PCM Coding	A-law to μ -law encoding conversion
Universal Codecs	G.711, G723.1, G.726, G.729ab, T.38 (2048 channels)
Other Wireline Codecs	G.728, G729eg
Internet Codecs	iLBC
Wireless Codecs	AMR, GSM-FR/GSM-EFR, EVRC/QCELP Independent dynamic codec selection per channel
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

DEVELOPMENT ENVIRONMENT

Toolpack Application Development Tools
 > Pre-developed C++ classes (call bridging, call routing, IVR, embedded web-based GUI, voicemail, ODBC database access/RADIUS for CDRs, etc.)
 > On-board Linux host based on Fedora core 8

MANAGEMENT & CONTROL

TelcoBridges Element Management System

> Live configuration and software upgrades via HTTP
 > Monitoring via HTTP
 > Configuration of multiple TMG3200 appliances in the same system with a single interface
 > SNMP v2 GET of individual TMG3200 limited configuration and stats
 > RADIUS accounting CDR support

REGULATORY COMPLIANCE

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

* 32 to 64 trunks via external 1U patch panels

SIGNALING

PSTN

SS7 (20+ variants) MTP2, MTP3, SS7/C7 TCAP and ISUP
 SIGTRAN (currently in development)
 Up to 64 SS7 links, up to 2,048 CICs, HSL, 1+1 SS7, single or multiple point codes
 ISDN PRI (14+ variants), National ISDN-2, Euro ISDN, DMS100, DMS250, 4ESS, 5ESS, JATE/Japan INS-NET1500

IP

SIP: RFC 3261 User Agent, SIP Authentication

QUALITY OF SERVICE (VoIP)

Dynamic jitter buffer (adaptive and fixed), Packet loss concealment, DiffServ/Tos, Silence Suppression; Denial of Service (DoS) protection for VoIP media

IVR FEATURES

DSP-based plug-in modules with options of 128 to 512, 1024, 1536 and 2048 channels
 > Play and record
 > Conferencing: up to 132 active participants
 > DTMF detection, generation, suppression
 > AGC (Automatic Gain Control), Voice Activity Detection (VAD), Comfort Noise Generation (CNG)

CALL ROUTING FEATURES

> Fully scriptable call routing engine
 > CLI (ANI)-based routing and translation
 > DDI (DNIS)-based routing and translation
 > Least cost routing (with time of day/week/year scheduling and other criteria)
 > Routing based on Nature of Address
 > Pre-and post-routing digit translation
 > TDM-to-TDM, IP-to-TDM, IP-to-IP switching

MANAGEMENT INTERFACES

1 RJ45F serial console port with RS-232C adapter
 1 100/1000base-T management interface

HARDWARE SPECIFICATIONS

Physical Interfaces

PSTN: 4 to 64 T1/E1/J1 via RJ45*, 1 to 3 dual BNC DS3, 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: On-board host running Linux OS (Fedora 8)
 Freescale 400MHz CPU, 512 MB RAM, 4GB Flash disk or 80GB SATA hard drive

Dimensions

1U with single power supply
 > 1.75" H (44.5 mm) x 17.4" W (442 mm) x 16" D (406 mm)
 2U with dual power supply
 > 3.5" H (88.9 mm) x 17.4" W (442 mm) x 16" D (406 mm)
 Weight: 20 lb (9.1 kg)

AC Power: 90 to 260 Volts AC, 47/63 Hz

DC Power: -40 to -60 Volts DC

Power Consumption: 138 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