

## GX-5K



- Deliver competitive, complete, best-of-breed media gateway functionality, featuring highest voice quality
- Create Voice over Packet (VoP) networks based on advanced media gateway technology
- Meet the demands of converged wireless, wireline and cable, broadband local loop and fixed-mobile-converged VoIP networks from a single media gateway platform
- Utilize scalable medium-sized media gateway designed for carrier environment. Support up to 8,000 VoIP/LBR/AMR channels
- Accommodate the need for VoIP Trunking, IP Centrex and VoIP Access Gateway markets with a right-sized and cost-effective media gateway
- Deploy globally with a rich offering of PSTN interfaces and signaling
- Integrate 3G and 2G packet-enabled media gateway functionality into end-to-end system solutions
- Meet the demands of both ATM and IP from a single media gateway platform
- React quickly to dynamic market requirements

The **GX-5K** VoIP Media Gateway is a scalable, market-ready, standards-compliant, medium channel density media gateway system for wireline, wireless, cable, broadband access and Fixed-Mobile-Convergence networks. Designed for the carrier environment, the GX-5K is a robust system solution which incorporates the leading Voice over Packet technology. The GX-5K VoIP Gateway System enables Network Equipment Providers (NEPs) and System Integrators (SIs) rapid time-to-market and cost-effective deployment of next-generation networks. The GX-5K is based on the VolPerfect™ architecture, underlying, best-of-breed, core media gateway technology for all of its products.

### Deploy High Availability Solutions

The GX-5K reliability features include redundancy for common equipment, preserving stable calls using N+1 redundant media gateway blades. The compact size of the GX-5K Media Gateway allows for a much smaller footprint in office locations where space is at a premium.

### Create Flexible Products and Services

The GX-5K Media Gateway enables NEPs to immediately address opportunities that utilize a myriad of legacy circuit-switched infrastructure features and functionality. The GX-5K covers all bases when it comes to support for regional PSTN interfaces, voice coder options, Signaling Gateway Interworking and control protocols. The GX-5K can interface with PBXs, PSTN, Radio Access Network, centralized Mobile Switching Center (MSC) servers to enable complete 2G and 3G enterprise solutions. The GX-5K allows superior deployment flexibility for these solutions which include Softswitches, Cable Call Management Systems (CMS), Media Terminal Adaptors (MTAs) PacketCable solutions, Broadband Wireless Local Loop (WLL) Base Stations (WiFi, WiMax). The GX-5K's open platform offers NEPs the option to add one or more Single Board Computer(s) to run complementary applications within the Mediant chassis.

### GX-5K Features

- Meets NEBS Level 3
- Redundant common equipment (Power, Controller, Ethernet Switch)
- Optional N+1 protection of media gateway blades
- Scalable density options
- Field-proven, high voice quality
- Open, scalable architecture
- SIGTRAN (SS7: M2UA/M3UA, PRI: IUA)
- SS7 and TDM peer-to-peer tunneling over IP
- Wide support of PSTN protocol termination
- Packet telephony standards-compliant
- Easy connectivity with emerging VoIP and VOATM networks
- UMTS/GSM-compliant version available
- CDMA-compliant version available
- PacketCable Standards compliant
- Flexible deployment options
- Compact footprint

# GX-5K

## Specifications

### Capabilities

Capacity	Up to 8,064 (6,048 protected) VoIP/GSM/UMTS channels
Voice Coders	<b>VoIP:</b> G.711, G.723.1, G.726/7, G.729A/B • <b>GSM/UMTS:</b> GSM-FR, AMR (8 rates) & VoIP. <b>CDMA:</b> EVRC <sup>1</sup> , QCELP 8k <sup>2</sup> , QCELP 13k <sup>2</sup> & VoIP <b>Cable:</b> G.711, G.726/7, G.723.1, G.728 <sup>1</sup> , G.729E <sup>1</sup> , G.729A/B Independent dynamic vocoder selection per channel (within each group)
Echo Cancellation	G.165 and G.168 compliant
Fax Support	T.38 (IP) compliant Group 3 fax relay and fax bypass (automatic fallback to G.711) support
DTMF	Packet side or PSTN side detection and generation, RFC 2833 compliant
Voice Over Packet Capabilities	Call progress tones, VAD, CNG, Dynamic programmable jitter buffer, DTMF detection and generation

### Signaling

PSTN	ISDN PRI, CAS, MFC-R2, MF-R1 Interworking
SIGTRAN	• ISDN-IUA/SCTP • SS7- M2UA/SCTP, M3UA/SCTP; Broadband SS7 (RANAP) – M3UA/SCTP • SS7 and TDM Tunneling using M2UA over SCTP/IP
ATM Transport	UMTS: I.366.1, I.363.2, Iu-UP, SAAL, Bearer over AAL2 per 3GPP
IP Transport	IETF RFC 3550, RFC 3551 RTP/IP Transport, TCP, UDP <b>CDMA:</b> IETF RFC 2658 and RFC 3558 RTP/UDP/IP <b>UMTS:</b> Nb IP User Plane and IPBCP over Mc per 3GPP.
Media Gateway Control Protocols	MGCP (RFC 3435), MEGACO (H.248, RFC 3015), SIP (RFC 3261) 3GPP: CS Mc - TS 29.232, IMS Mn - TS 29.332
Security	• IPSec (ESP) with IKE pre-shared key for secure Management with EMS NMS/ OSS and Control with MGC • AES - 128 (Rijndael) cipher algorithm, in CBC mode for Media Security (RTP/RTCP) • SSH Protocol Version 2 for secure Telnet and SFTP Server transfers • Firewall – for controlled IP access to Media Gateway Boards

### Maintenance

Management	Element Management System, SNMP v2
Maintainability	All shelf modules are hot swappable, including boards, power supplies, fans
Redundancy Scheme	Shelf Controller and Ethernet Switch blades: 1+1 Power supplies: N+1 Load Shared Media Gateway blades (including PSTN interfaces): N+1 Optical Interfaces (PSTN/ATM): 1+1, APS protected

### Hardware Specifications

Interfaces	<b>PSTN:</b> Up to 3 x OC-3/STM-1 Optical ports, each 1+1 APS protected, or up to 9 x T3 (DS-3) Copper ports or up to 96 x E1/T1/J1 spans <b>IP:</b> Dual Redundant 100/1000 Base-T (aggregated) Ethernet ports <b>ATM:</b> Up to 4xOC-3c/STM-1 optical ports, each 1+1 APS protected
Enclosure	10-slot, 5U cPCI chassis
Dimensions (HxWxD)	222 mm x 483 mm x 311 mm (8.7 in. x 19 in. x 12.3 in.)
Weight	Approx. 27 lbs. (12.3 kgs.), unloaded Approx. 50 lbs. (22.6 kgs.), fully loaded
Mounting	Per EIA Standard RS-310-C in 19-inch rack
Midplane	• PICMG 2.16 cPCI Packet Switching Backplane (cPSB) • PICMG 2.1 cPCI hot swap specification • PICMG 2.0 cPCI specification
Power	1610 system configurations: -48 V DC Dual Feed, with 3 DC Power modules OR 100 - 240 V AC with 3 AC Power modules 6310 system configurations: -48 V DC Feed, with 3 DC Power modules
Cooling	Replaceable fan trays & filters

### Regulatory Compliance

Telecommunication Standards <sup>3</sup>	FCC part 68 TBR4 and TBR13
Safety and EMC Standards	• UL60950 • FCC part 15 Class A • CE Mark (EN55022 Class A, EN60950, EN55024, EN300 386)
Environmental <sup>3</sup>	NEBS Level 3: GR-63-Core, GR-1089-Core, Type 1 & 3, ETS300 019

<sup>1</sup> Reduced channel capacities

<sup>2</sup> Future releases

<sup>3</sup> Designed to meet – formal approval pending

### About Nuera Communications

Nuera Communications, designs, manufactures & sells packet voice gateways to communication service providers worldwide. These products work over any medium (cable, wireless, copper and fiber). Nuera's ORCA (Open Reliable Communications Architecture) product portfolio of VoIP gateways, softswitches, and management systems provide telephony solutions for cable and DSL networks, international long distance networks and enterprise networks. Nuera is a leader in the broadband telephony market.

### Nuera Communications Inc. Asia Pacific / Middle East Office

371 Beach Road, KeyPoint #08-07  
Singapore 199597  
Tel: +65-6391-9030  
Fax: +65-6299-4925

### US Office

9890 Towne Centre Drive, Suite 150  
San Diego, CA 92121, USA  
Tel: +1-858-625-2400  
Fax: +1-858-625-2422

Website: [www.nuera.com](http://www.nuera.com)

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