

# AP2620 E&M VoIP Gateway for RoIP PTT Application



E&M Gateway RoIP Interworking  
Overview

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for Third Party PTT Server
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# Product Overview

- Standard E&M VoIP Gateway for RoIP LMR Service
- High Performance RISC & Programmable DSP Architecture
- Two(2) 10/100Mbps Fast Ethernet (IP Share ,etc)
- High Performance LAN-to-LAN Routing Capability
- Two(2) Module Slots for Analog VoIP Interface (E&M, etc)
- VoIP Codec : G.711/G.726/G.729A/G.723.1, VAD, etc
- Powerful Network Protocols (PPPoE, DHCP, Static Routing, etc)
- IPv4/IPv6 Dual Stack Support
- SIP/H.323 Dual Concurrent Signaling Protocols
- Firmware Upgradeable Architecture
- Advanced Voice QoS Mechanism
- Web based Management Support
- RS232C Port Support for Command Line Interface

# Hardware Specification

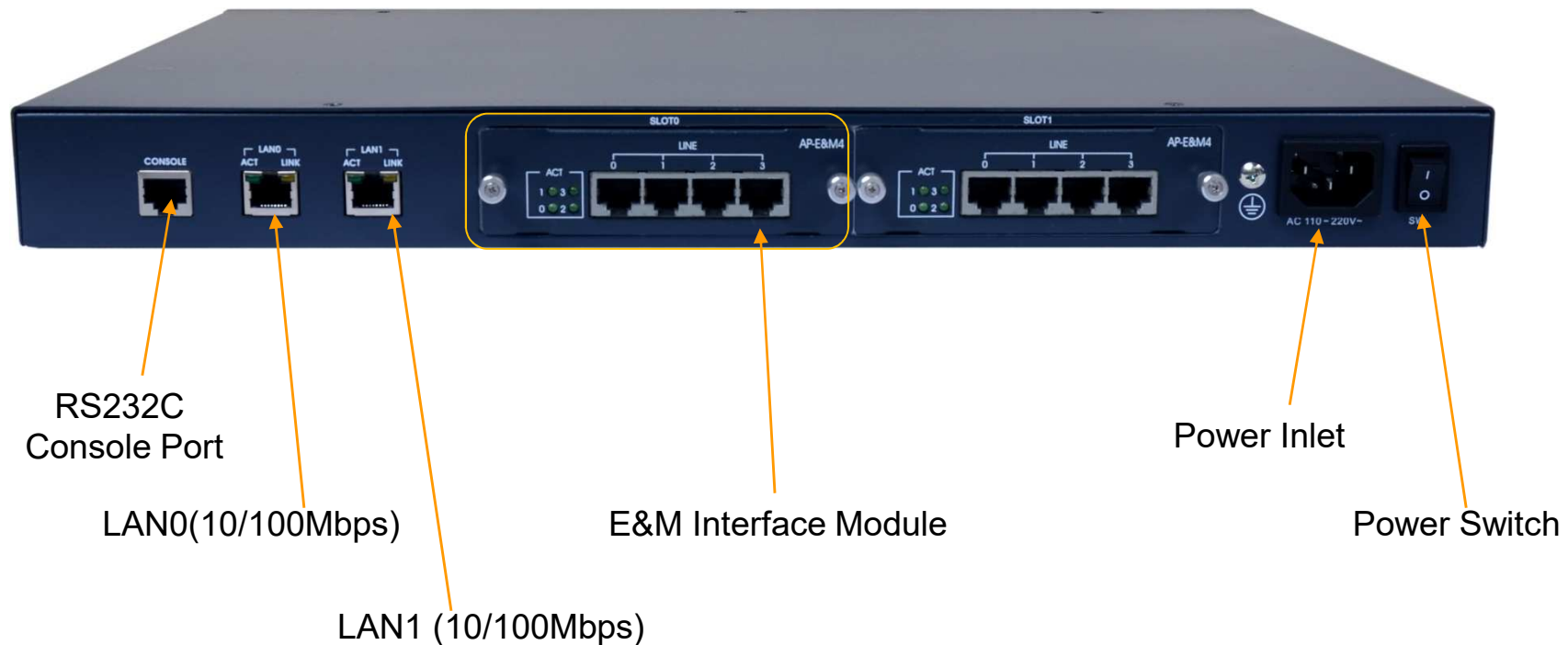
RISC  
CPU

High-end  
DSP

- RISC Microprocessor Computing Power
- Main Chassis
  - Network Interface
    - Two(2) 10/100Mbps Fast Ethernet
    - One(1) RS-232C Console (RJ45)
  - Two(2) Module Slots for E&M, etc
  - Internal Power Supply

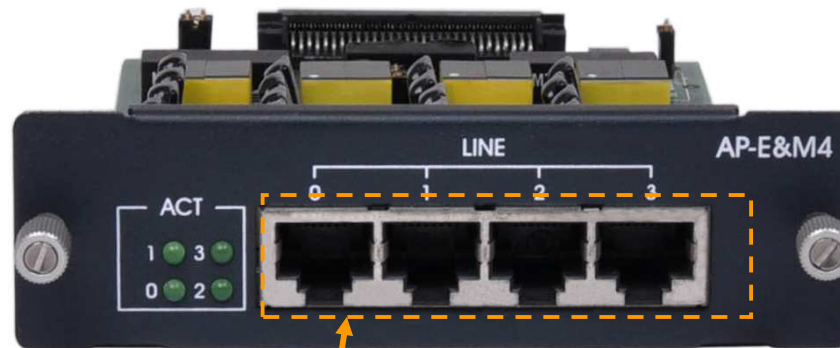
# Hardware Specification

## Back Side



# Hardware Specification

Example : AP-E&M4 E&M Interface Module for Radio Interworking



4-Port E&M Interface (4 x RJ45)

# Hardware Specification

## Example : E&M Interface for Radio Interworking

Lead Name	Pin	Description
E (Ear or Earth)	Pin 7	Signal wire asserted by the router toward the connected device. Typically mapped to the push-to-talk (PTT) lead on the radio.
M (Mouth or Magnet)	Pin 2	Signal wire asserted by the router toward the connected device. Typically mapped to the push-to-talk (PTT) lead on the radio.
SG (Signal Ground)	Pin 8	Used on E&M signaling Types II, III, and IV.
SB (Signal Battery)	Pin 1	Used on E&M signaling Types II, III, and IV.
<b>Two-Wire Mode</b>		
T1/R1 (Tip-1/Ring-1)	Pin 4,5	In two-wire operation, the T1/R1 leads carry the full-duplex audio path.
<b>Four-Wire Mode</b>		
T/R (Tip/Ring)	Pin6,3	In a four-wire operation configuration, this pair of leads carries the audio in from the radio to the router and would typically be connected to the line out or speaker of the radio.
T1/R1 (Tip-1/Ring-1)	Pin5,4	In a four-wire operation configuration, this pair of leads carries the audio out from the router to the radio and would normally be connected to the line in or microphone on the radio

# LMR Service

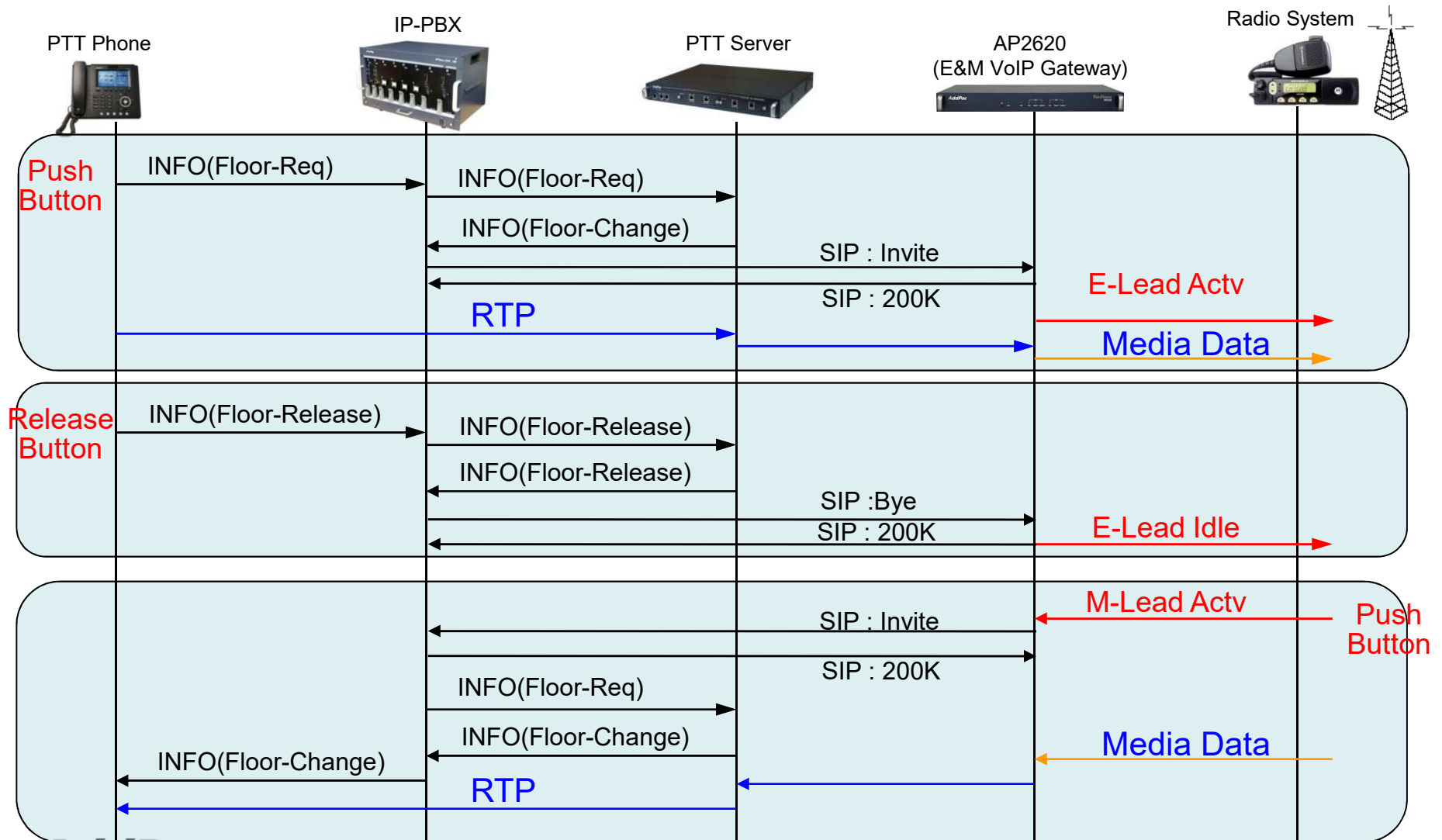
- LMR system overview
  - A LMR(Land Mobile Radio) system is a collection of portable and stationary radio units designed to communicate with each other.
  - LMR is deployed wherever organizations need to have instant communication between geographically dispersed and mobile personnel.
  - Typical LMR system users are public safety organizations (ex: police departments, fire departments, etc).
  - The systems are extended the range of communications by repeaters.
  - The systems are required interoperability with IP network.



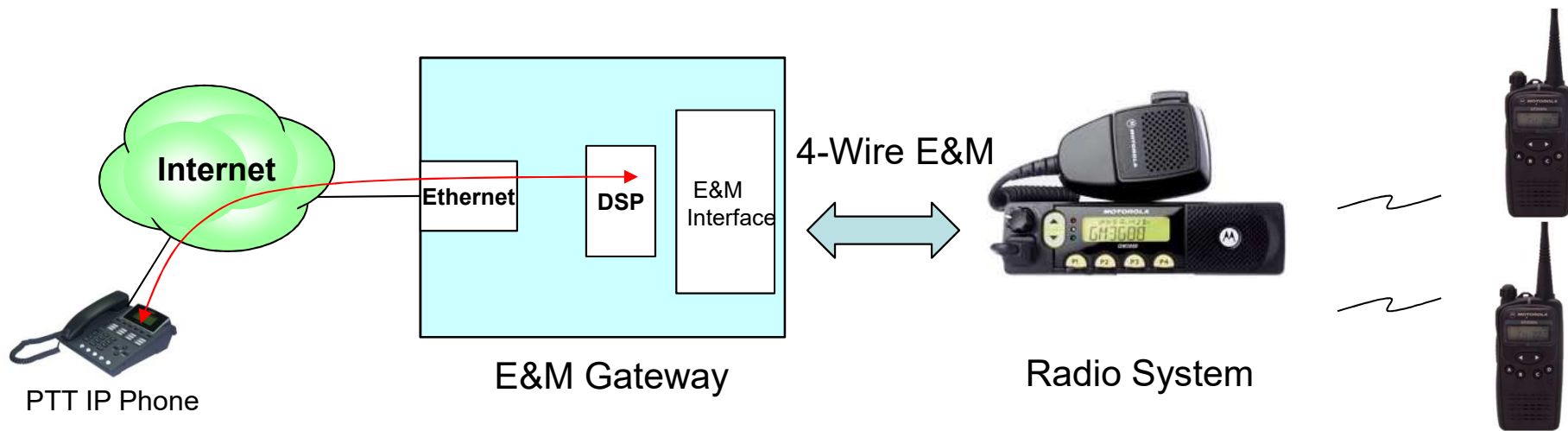
# LMR Service

- E&M Gateway Solution
  - AP2620 E&M Gateway joins the LMR systems to the IP network through open SIP standard and RTP.
  - The radios are connected to E&M gateway through AddPac radio interface
  - AP2620 E&M SIP VoIP Gateway Solution for Third Party PTT Solution
  - Option : Some of radio system doesn't support E&M Interface. Custom radio interface HW design is required for PTT RoIP Service.

# RoIP System Message Flow (Example)



# System Interface between E&M Gateway and Radio





# Thank you!

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