AC490xx Voice over Packet Processor Family

- Independent multi-channel operation
- Toll quality voice compression
- Robust bandwidth-saving fax relay
- RTP/RTCP Packetization inside
- Low per-channel cost, power and footprint
- Proprietary evaluation & development tools
- Lead-free device available

The **AC490xx** family of DSPs is an ideal solution for medium density, Voice over IP (VoIP) gateways. Featuring low power consumption and small footprint, the AC490xx provides an excellent building block for VoIP gateways. Field-proven, feature rich software and reference design, enables the rapid development and fast time-to-market of the complete solution. The AC490xx is based on VoIPerfect™ architecture, AudioCodes' underlying, best-of-breed, core media gateway technology for all of its products.

Deliver Feature-Rich Solutions

The AC490xx Voice over Packet Processor (VoPP) combines up to 12 channels of toll quality low bit rate voice compression or up to 24 G.711 channels, which are processed with an improved G.168-2002 compliant echo canceller (configurable tail length of up to 128 msec). Other voice quality enhancers include Adaptive Voice Activity Detection, Comfort Noise Generation and Adaptive Jitter Buffer.

Field-proven G3 Fax Relay, compliant with the T.38 ASN.1 standard, is a major enhancement to the AC490xx offering. The Fax Relay can withstand delays of up to 10 seconds in the network. It has passed several interoperability tests with major OEMs worldwide and also was tested with numerous fax machines. The Fax Relay functionality does not alter the channel density.

Packetization & Encryption

The AC490xx also provides RTP/RTCP Packetization and DTMF relay. This feature offloads the Packet Processor from these tasks. RTP Packets may be optionally encrypted according to state of the art encryption algorithm AES.

The AC490xx also offers a new set of media processing technologies, such as fast/slow voice playback, automatic gain control, energy detector, and packet to packet Transcoding (full duplex Low Bit Rate to PCM packets in one channel). These features enable developers of Media Server Platforms to exploit AudioCodes' vast experience in the voice over packet market for significantly shortening their time-to-market.

New DSP Technology

The new AC490xx DSP is based on state of the art DSP technology, which offers low power per port and high density per mm^2. The AC490xx offers host port interface for both media and control/status packet exchange. Suitable drivers are supplied with the AC490xx for fast software integration.

AC490xx Features

- Wireline, wireless & cable low bit rate Voice Coders
- G.168-2002 compliant Echo Canceller
- T.38 compliant Fax Relay (does not reduce LBR density)
- In-Band Signaling, international caller ID support
- IPmedia™ features
- PacketCable media encryption (AES)
- Adaptive Jitter Buffer
- RTP/RTCP/SRTP Packetization inside

AudioCodes

AudioCodes Enabling Technology Products

AC490xx

Software Specifications*

	AC490-CB	AC49008-CB
Channel Density		
Uncompressed Voice	Up to 20	Up to 16
Compressed Voice	Up to 12	Up to 8
Voice Functions		
Voice Coders	• G.711 PCM (A/μ-law) at 64 kbps • G.726 ADPCM at 16-40 kbps • G.727 E-ADPCM at 16-40 kbps • G.729AB CS-ACELP at 8 kbps • G.723.1 MP-MLQ at 6.3 kbps	• G.723.1 ACELP at 5.3 kbps • GSM 6.10 Full Rate at 13.2 kbps • G.729E at 11.8 kbps • AMR at 4.75-12.2 kbps • iLBC at 13.33 & 15.2 kbps
Other Voice Coders* (upon request)	• NetCoder® at 6.4-9.6 kbps • G.728 LD-CELP 16 kbps • EVRC Up to 8.55 kbps	• QCELP 8 Up to 8.55 kbps • QCELP 13 Up to 13.3 kbps • G.722.2 WB-AMR
Echo Canceller	G.168-2002 compliant with programmable echo tail of up to 128 msec	
3 Way Conferencing	Conferencing of 3 participants from PSTN or IP	
Quality Enhancement	• Voice Activity Detection (VAD) • Comfort Noise Generation (CNG) • Packet Loss Concealment (PLC) • Adaptive Jitter Buffer (up to 300 msec)	
IPmedia™ Features	• Fast/slow voice playback and announcements* • Automatic Gain Control • Energy and Answer detectors* • Packet to Packet Transcoding	
Data Functions		
Voice/Fax/Data	Automatic detection and switching	
Fax Support	T.38 compliant G3 Fax Relay, 2.4-14.4 kbps or PCM bypass	
Modem Support	Automatic switch to PCM for up to V.92 rates	
Signaling		
In-band Signaling Detection and Generation	• DTMF TIA 464B • MF R1, R2 • User Defined and Call Progress tones	
Out-of-band Signaling	CAS ABCD (From Standard Framers)	
Caller ID Detection and Generation	• Telcordia (Bellcore) On Hook and Off Hook Service (Type 1 & 2) • ETSI On Hook and Off Hook Service (Type 1 & 2) • NTT Number Display (Type 1), Name Display	
Packetization		
RTP/RTCP	Per RFC 3550 (formerly 1889), 3551 (formerly 1890), 2198	
DTMF Relay	Per RFC 2833	
Encryption		
SRTP	Per RFC 3711, 128 bit AES, Authentication: HMAC SHA1, MMH	
Host Services		
HDLC Framing	For CCS signaling (ISDN, V5.2)*	
Software Functionalities		
System Features	• Selection of vocoders on the fly for each channel • Dynamic packet size programming	

Hardware Specifications

PCM Interface	2.048 up to 8.192 Mbps, A/μ-Law
Host Post Interface (media, control and status)	16 bit non multiplexed
Power Supply	+1.6V (core), +3.3V (I/O)
Power Consumption	200 mW (typ)
Operational Case Temperature Range	0^{o} C - 85^{o} C (commercial); -40^{o} C - 85^{o} C (industrial)
Package	240 pin BGA, 15x15 mm, 0.8 mil pitch

** Please contact AudioCodes representative for specific software availability*

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Applications

- Voice over IP Gateways
- Wireless and Cable Gateway Applications
- IP PBXs
- Multi Service Access Platforms

About AudioCodes

AudioCodes Ltd. (NASDAQ: AUDC), Your Gateway to VoIP, provides innovative, reliable and cost-effective Voice over Packet (VOP) technology, Voice Network products, and applications to OEMs, Network Equipment Providers, Service Providers and System Integrators worldwide. AudioCodes provides a diverse range of flexible, comprehensive media gateway and media processing technologies (based on VoIPerfect™ - AudioCodes' underlying, best-of-breed, core media gateway architecture) and Session Border Controllers (SBCs). The company is a market leader in product development, focused on VoIP Media Gateway, Media Server and SBC technologies and network products. AudioCodes has deployed tens of millions of media gateway and media server channels globally over the past few years and is a key originator of the ITU G.723.1 standard for the emerging Voice over IP market. The Company is a VoIP technology leader focused on quality, having recently received a number one ranking from ETSI for outstanding voice quality in its media gateways and media servers. AudioCodes voice network products feature media gateway and media server platforms for packet-based applications in the converged, wireline, wireless, broadband access, enhanced voice services and video markets. AudioCodes enabling technology products include VoIP and CTI communication blades, VoIP media gateway processors and modules, and CPE devices. AudioCodes' headquarters and R&D facilities are located in Israel with an R&D extension in the U.S. Other AudioCodes' offices are located in Europe, the Far East, and Latin America.

International Headquarters
1 Hayarden Street, Airport City
Lod, Israel 70151
Tel: +972-3-976-4000
Fax: +972-3-976-4040

US Headquarters
2099 Gateway Place, Suite 500
San Jose, CA 95110
Tel: +1-408-441-1175
Fax: +1-408-451-9520

Contact us: www.audiocodes.com/info
Website: www.audiocodes.com

Your Gateway to VoIP