

Fax over IP

T.38

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VOCAL Technologies ITU Fax over IP software libraries include a complete range of ITU compliant modulations, optimized for execution on ANSI C and DSP architectures from leading silicon suppliers (ADI, ARM, DSP Group, LSI Logic ZSP, MIPS and TI). This software is modular and can be executed as a single task under a variety of operating systems or it can execute standalone with its own kernel.

VOCAL Technologies facsimile software libraries include components for proprietary and industry standard facsimile over public or private IP (internet protocol) networks. This module can be combined with VOCAL's V/IP module to obtain seamless voice/facsimile relay operation from call startup to disconnect.

This fax over IP system is compatible with VOCAL's H.323 multimedia system. Complete facsimile server call control is available and can be combined with VOCAL's Group 3 facsimile store and forward module. Also available are data modem (V.90/V.42bis, etc), Voice-over-IP (G.723,G.729, etc) and telephony (DTMF, call progress) subsystems. These can all be combined to implement a fully featured server system

Alternatively, when integrated with VOCAL's H.323/T.30 modules and a TCP/IP stack, a standalone internet-ready facsimile end terminal can be realized. Since in this configuration, the facsimile modulation layer is unnecessary, interoperability with V.34fax based facsimile terminals can be achieved without the need of digital signal processing. The software is modular and can be executed as a single task under a variety of operating systems; or it can execute standalone with its own microkernel.

Fax over IP Features:

- Fully integrated Group 3 facsimile processing system
- Configurable to support both TCP/IP and/or UDP/IP modes of data transmission
- Configurable type/amount of redundant information for UDP/IP service
- Configurable to support UDPTL forward error correction messages
- Configurable high speed training mechanism - Local TCF generation or TCF transmitted between end-terminals
- Multi-tasking environment compatible.

T.38 Facsimile Modulations:

- V.34fax data channel - full and half duplex modulation for data rates in the range of 2400 bps to 33600 bps.
- V.34fax control channel - 1200/2400 bps modulation for use with V.34fax half duplex procedures
- V.17 - 7200, 9600, 12,000 and 14,400 bps trellis coded modulation
- V.29 - 7200 and 9600 bps modulation
- V.27ter - 2400 and 4800 bps modulation
- V.21 channel 2 - 300 bps modulation
- Configurations:
- H.323 system available for industry standard and proprietary Facsimile-over-IP networks
- Controls for interoperability at call control and facsimile level with facsimile capable H.323 terminals
- Facsimile/Voice Distinction available for seamless facsimile/voice system operation.
- Direct interface to 8.0 kHz PCM data stream (A-law or -law), run-time time-slot selection.
- Analog DAA interface using linear codec at 8.0 kHz sample rate.
- North American/International Telephony supports DTMF generation, dialing procedures, call progress, Caller ID, etc.
- Group 3 Facsimile store-and-forward features available
- Group 3 Facsimile End Terminal operation with direct fax over IP interface available.
- Complete voice over IP systems available (speech codecs, DTMF tokens, silence tokens, etc).
- Voice over IP speech codecs support includes G.723, G.729, G.729A, GSM, G.728, G.726/G.721
- Complete data modem systems available (through V.90/V.42bis and V.34fax/T.30)
- Multiple ports can be executed on a single DSP

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Fax over IP-0004A

Example Resource Requirements (ADSP-2181):

- Single Port fax over IP Facsimile Relay System - Single executable image supports T.38 through UDP packet handoff for high speed facsimile modulations through V.17; includes DTMF/MF/call progress detection/generation based call control.
- Single Port Voice/Fax over IP Facsimile Relay System - Supports T.38/Voice through UDP packet handoff for high speed facsimile modulations through V.34fax, G.723/G.729/G.729A/G.728 speech codecs; includes DTMF/MF/call progress detection/generation based call control. Requires host support for servicing overlay requests.
- Double Port T.38 Facsimile Relay System - Supports T.38 through UDP packet handoff for high speed facsimile modulations through V.17; includes DTMF/MF/call progress detection/generation based call control. Requires host support for servicing overlay requests.

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