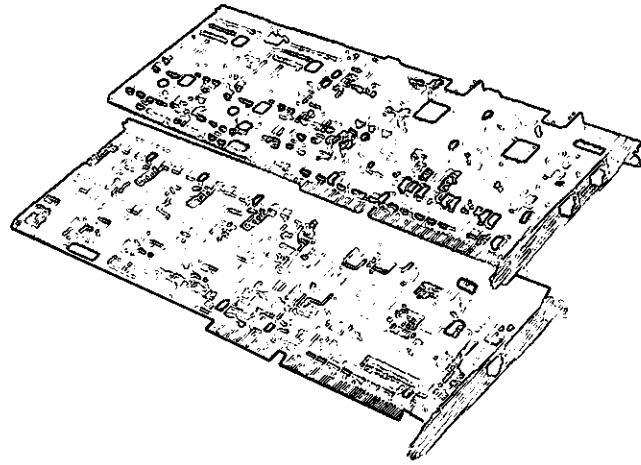


V/IP Phone/Fax IP Gateway

Voice Interface Cards and PC Software

V/IP Voice Interface Cards connect corporate PBXs and key telephone systems to the corporate IP network; intra-company voice and fax ride for free.



V/IP leverages the IP network you're already paying for, cutting intra-company phone call costs by 70-80%

Features

- V/IP creates a voice/fax overlay network that rides on top of any IP network, saving thousands of dollars each year in intra-company phone and fax calls
- V/IP uses a company's current LANs, routers, and WANs - no change required
- Works with existing phones, fax machines, PBXs and key telephone systems-no user retraining
- Easily integrates into a server or desktop PC running NetWare, DOS or Windows; only one shared PC is required at each location
- Scales from two to thousands of IP-interconnected sites; new sites are automatically added to the V/IP phone directory database
- MICOM's ClearVoice™ International Telecommunications Union (ITU) G.729 technology provides toll quality voice and Group 3 fax support
- V/IP connections average under 3% of a 56/64K WAN link
- Analog ISA Voice Interface Cards (VICs) available with FXS, E&M and FXO interfaces to PBX, key telephone systems, Centrex and CO trunks
- Digital VIC ISA card-sets with T1 and E1 interfaces to PBX systems; expandable from 4 to 24 channels for T1, to 30 channels for E1
- Specialized Forward Error Correction (FEC) protects against any IP packet loss
- Full SNMP support for centralized management

V / IP Overview

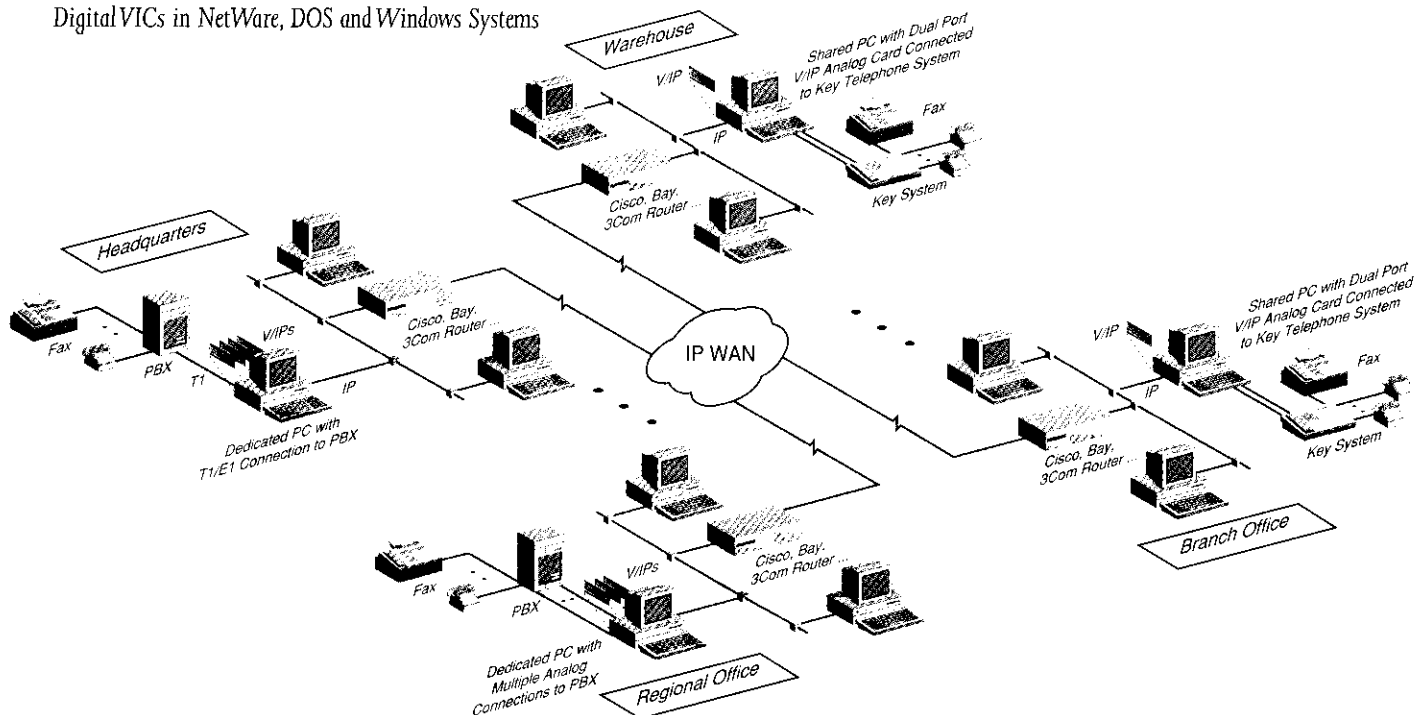
MICOM's V/IP (Voice over IP) product family allows companies to digitize, compress and route intra-company voice and fax traffic over their enterprise IP networks. V/IP connects to PBX and key telephone systems via a comprehensive line of analog (E&M, FXS, FXO) and digital (TI and EI) Voice Interface Cards (VICs). V/IP installs in any shared 486, Pentium, or similar PC with NetWare, MS-DOS, Windows 95, and Windows NT. V/IP uses very little PC processing power, allowing the PC to be used for other tasks.

V/IP uses MICOM's ClearVoice technology with ITU standard G.729 voice compression, silence suppression, background noise regeneration, echo cancellation, and robust voice switching. ClearVoice runs on the VIC's 40 MIPS Digital Signal Processors (DSPs) providing toll-quality voice with low bandwidth requirements.

When a caller dials the number of a remote company extension, the V/IP analog or digital VIC receives that number from the PBX or key telephone system. V/IP uses its Phone Directory Database to map this number to the IP address of the appropriate remote V/IP gateway. V/IP then automatically creates a connection to the remote phone extension.

V/IP has been designed to allow companies to easily upgrade their IP networks to add voice and fax traffic without requiring changes to their existing LAN, WAN, router or phone equipment.

Enterprise V/IP Application with Analog and Digital VICs in NetWare, DOS and Windows Systems



Product Summary

System

Software release for NetWare 3.12, 4.x
Software release for DOS 6.x (32-bit DOS extender included)
Software release for Windows 95¹
Software release for Windows NT²
Supports up to 8 V/IP VICs in a single PC
User Interface Module for configuration and management

Voice / Fax

G.729 voice digitizing (8 Kbps)
Dynamic and static jitter buffer
Input level gain and output level attenuation control
Automatic gain control option
Ability to restrict channels for either inbound or outbound calls only
Autocall control from a channel to any specified remote channel
Hunt group assignment of channels (multiple hunt groups supported)
Ringing frequency selection for FXS interface
Disconnect supervision for FXO interface
Supports both 2-wire and 4-wire E&M interface
Group 3 Fax automatic selection between fax and voice

Call-control

Call-control Module establishes, authenticates and manages call requests
V/IP Server Database identifies servers distributed over TCP/IP network
Forward Error Correction (FEC)
Country-specific signaling
DTMF and Pulse Tone signaling formats
Diagnostic testing and channel-level control parameters

Network

Support for NetWare and Windows TCP/IP
TCP/IP protocols for DOS release included
Support for Ethernet and Token Ring¹ NICs (DOS - Intel, 3Com, SMC)
RSVP support for Quality of Service (QoS)
SNMP agent support (Gets, Traps, Sets)

Warranty

All V/IP cards carry MICOM's standard three-year hardware and one year software warranty

Specifications

ANALOG SPECIFICATIONS

TELEPHONE INTERFACE SUMMARY

PBX Tie Trunk:
E&M types I, II/IV and V, 2-wire or 4-wire

PBX Station or Central Office/PSTN:
FXO loop start, 2-wire

Key Telephone Systems, Telephone Set,
or PBX Central Office Trunk:
FXS loop start, 2-wire

Interface Connectors:
One RJ1CX modular jack per channel,
all interface types

FXS SIGNALING

Signaling Formats:
AC: DTMF
DC: Pulsed

Ringing Tone:
25 Hz (default) or 50 Hz

Ringing Voltage:
With AC load of 2 ringers (4000 Ω)
and zero line
25 Hz tone: ≥ 54 Vrms
50 Hz tone: ≥ 50 Vrms

FXO SIGNALING

Signaling Formats:
AC: DTMF
DC: Pulsed

Disconnect Supervision:
Tone: Voice/fax transmission will be
disconnected in response to a call
progress tone of less than 600 Hz.

Power Interrupt:
Voice/fax transmission will be
disconnected in response to a pulse
of 600 milliseconds minimum

E&M SIGNALING

E-Lead Current Limit: <25 milliamperes
M-Lead Sensitivity: 48 V in series with
1400 Ω DC
Pulse Distortion: $<3\%$ at 10 pps

Signaling Formats:
AC: DTMF
DC: Pulsed

Signaling Types:
I, II/IV and V, as strapped

DIGITAL SPECIFICATIONS

T1 - DSX-1 (1.544 Mbps) INTERFACE CARD

Physical Interface: RJ-48C
Framing: D4 or ESF
Line Code: AML or B8ZS
Soft Line Buildout
Receiver Range = 660 feet
TX and RX Line Monitor Jacks
DSO Assignment User-selectable
Transmit Timing External (DS-1) or internal

T1 SIGNALING SPECIFICATIONS

Bit Robbing using A/B signaling bits for all network topologies
Tie Trunk Emulation
Clear Channel

E1 (2.048 Mbps) INTERFACE CARD

Physical Interface: 75 ohm coaxial and
120 ohm balanced-pair RJ-48C
Framing: G.703
Line Code: HDB3
Receiver Sensitivity: 10dB
Channel Assignment: User-selectable

E1 SIGNALING SPECIFICATIONS

Channel associated stuffing
Digital E&M
DC5B

V / I P O v e r v i e w

During conversation or fax transmission, the voice or fax signal is digitized and compressed into IP packets. V/IP uses the PC's network interface card (NIC) to send IP packets over the LAN to a router. The router then sends the voice and fax traffic over the IP WAN where the reverse process occurs. At the receiving side, a router takes the IP packets off the WAN and sends them over the LAN to the destination V/IP gateway. IP packets are then transformed back into a voice or fax signal that is transferred by a PBX or key telephone system to the called party or fax machine.

P r o d u c t S u m m a r y

V/IP Analog VICs

- | | |
|-------------------------------------|------------------|
| • FXS / E&M Single-Channel ISA Card | VIP-2001-ISA-FXE |
| • FXS / E&M Dual-Channel ISA Card | VIP-2002-ISA-FXE |
| • FXO Single-Channel ISA Card | VIP-2001-ISA-FXO |
| • FXO Dual-Channel ISA Card | VIP-2002-ISA-FXO |

Digital VICs ¹

- | | |
|-----------------------------------|-----------------|
| • T1 Quad-Channel ISA Card | VIP-4004-ISA-T1 |
| • E1 Quad-Channel ISA Card | VIP-4004-ISA-E1 |
| • Quad-Channel Expansion ISA Card | VIP-4004-ISA-DX |
| • Dual-Channel Expansion ISA Card | VIP-4002-ISA-DX |

All Models Include

- Software (3.5" disk)
- Cabling
- Documentation

Specifications

GENERAL CARD SPECIFICATIONS

PC Interface: ISA-compatible

Size: Full length ISA-bus

Temperature:

Operating: 32°F to 122°F (0°C to 50°C)

Storage: -4°F to 149°F (-20°C to 65°C)

Humidity:

95% maximum, noncondensing

Certification:

FCC: Part 15, Subpart J, Class A

Part 68

CSA: Pending

EU Declaration of Conformity

VOICE/FAX INTERFACE SPECIFICATIONS

Signals Supported:

Analog voice and Group 3 facsimile (fax)

Fax Signal Types:

V.27 ter 2400, V.27 ter 4800, V.29 7200,
and V.29 9600

SYSTEM REQUIREMENTS FOR VIC

PC system with full length ISA-compatible bus slot, with one available IRQ, I/O Base Address and Shared RAM Address per card:

IRQ: 3, 4, 5, 7, 9, 10, 11, 15

I/O Base Address: 200, 220, 240, 260,
280, 2A0, 2C0, 2E0, 300, 320, 340, 360,
380, 3A0, 3C0, 3E0

Shared RAM Address: One 4K block
in 0A000 to 0EF000 memory range

Minimum hardware configuration:

486 CPU, 4 MB RAM, 20 MB available
disk space, or configuration as required
by operating system.

One of the following operating systems:

Novell NetWare 3.12, 4.0 or later

DOS 6.0 or later

Windows 95

Windows NT 3.5 or later

One of the following Network Interface Cards (NIC):

Novell NetWare, MS Windows 95, Windows NT:

any OS supported Ethernet NICs

DOS: NE2000, Intel, 3Com and SMC Ethernet NICs



MICOM Communications Corp.


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