4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED
Connective Strategies, Inc. (CSI) 4500 Southgate Place, Ste. 100 Chantilly, VA 22021 (703) 802-0023	ISDNAccelerator ™ ISDN PC Card	Voice: One Channel Circuit-Data: Two Channels B Channel Packet: No D Channel Packet: No
NI-1 Date: Now	Price: $1275	Simultaneous active calls: Two
NI-2 Date: 1Q "94	FCC Class: A	Uses 1 DN or 2?: Either

	CIRCUIT DATA	D CHANNEL PACKET
Analog Interface: RJ 11 Data Interface: PC Bus ISDN Interface: Integrated U or S, RJ-45 Power Interface: Bus or External Self-Initializing?: No Stores Calling Number?: Yes	Async • V.120: Yes • Other Synch • V.120 • Other: LAP-D	X.25 Term. Support: No Async PAD Sync PAD Logical Channels **B CHANNEL PACKET** X.25 Term. Support: No
NIIGs: 2-4, 11, 12, 14, 15, 17 NIPGs: 1, 2, 3, 6	56/64 kbps: Yes 112/128 kbps: Yes Bonding?: No	Async PAD Sync PAD Logical Channels
	APIs Supported: Yes	Dialing Modes: PC program control, Keypad, AT

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Additional Features:

- Call Manager for extended voice feature user interface
- Records data about incoming calls even when PC is powered off (if external power supply is used)
- Dual-B data (128 kbps) interruptible for voice
- Supports switched 56 service
- Works with Analog Telephone
- Can be configured as an IP bridge/router

Software/Operating Systems:

- DOS, Windows
- PC compatible COM port for rate adaption
- Supports 3270 Emulation & SNA application software
- TCP/IP, Novell, VT220, and 3270 emulation applications supported
- Software development kit available

ISDNAccelerator is a trademark of Connective Strategies, Inc.

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME		CALLS SUPPORTED	
Connective Strategies, Inc. (CSI) 4500 Southgate Place, Ste. 100 Chantilly, VA 22021 (703) 802-0023		ISDNAccelerator™ Plus ISDN PC Card		Voice	One Channel
				Circuit-Data	Two Channels
				B Channel Packet	No
				D Channel Packet	No
NI-1 Date:	Now	Price:	$1495	Simultaneous active calls	Two
NI-2 Date:	1Q "94	FCC Class:	A	Uses 1 DN or 2?	Supports 1 or 2
		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface	RJ 11	Async • V.120 • Other	Yes	X.25 Term. Support	No
Data Interface	PC Bus			Async PAD	
ISDN Interface	Integrated U or S, RJ45			Sync PAD	
Power Interface	Bus or External			Logical Channels	
Self-Initializing?	No	Synch • V.120 • Other	LAP-D	B CHANNEL PACKET	
Stores Calling Number?	Yes			X.25 Term. Support	No
NIIGs:	2-4, 11, 12, 14, 15, 17	56/64 kbps	Yes	Async PAD	
		112/128 kbps	Yes	Sync PAD	
		Bonding?	No	Logical Channels	
NIPGs:	1, 2, 3, 6	APIs Supported:	Yes	Dialing Modes:	PC program control Keypad, AT

Additional Features:

- Call Manager for extended voice feature user interface
- Records data about incoming calls even when PC is powered off (if external power supply is used)
- Dual-B data (128 kbps) interruptible for voice
- Supports switched 56 service
- Works with Analog Telephone
- On-board digital signal processor
- Can be configured as an IP bridge/router

Software/Operating Systems:

- DOS, Windows
- PC compatible COM port for rate adaption
- Supports 3270 Emulation & SNA application software
- TCP/IP, Novell, VT220, and 3270 emulation applications supported
- Software development kit available

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED
CoSystems, Inc. 3350 Scott Blvd, Bldg. 61-0 Santa Clara, CA 95054 (408) 748-2190 FAX: (408) 988-0785	CoISDN-BRI/SBus ISDN Adapter for Sun Workstation	Voice: Two Channels Circuit-Data: Two Channels B Channel Packet: None D Channel Packet: None
NI-1 Date: 12/31/93	Price:	Simultaneous active calls: 2
NI-2 Date: 07/94 (estimated)	FCC Class: A	Uses 1 DN or 2?: Either

	CIRCUIT DATA	D CHANNEL PACKET
Analog Interface: None Data Interface: Internal SBus ISDN Interface: S/T Power Interface: From Bus Self-Initializing?: No Stores Calling Number?: Yes	Async • V.120: No • Other Synch • V.120: No • Other: HDLC	X.25 Term. Support Async PAD Sync PAD Logical Channels **B CHANNEL PACKET** X.25 Term. Support
NIIGs: NIPGs: 1,2,3,4,5,6	56/64 kbps: Yes 112/128 kbps: Yes Bonding?: No	Async PAD Sync PAD Logical Channels
	APIs Supported: NIUF ASI	Dialing Modes: Keypad dialing

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Additional Features:

- Provides full PPP support
- Complies with Bellcore Conformance Tests (preliminary notification)
- Extra RJ-45 for connection of other S/T bus devices (i.e. ISDN phones, Group IV Fax)
- Voice record, playback & answer functions

Software/Operating Systems:

- Sun Microsystems Solaris 2.x (UNIX)
- Motif GUI

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED	
DGM&S, Inc. 1025 Briggs Rd., Suite100 Mt. Laurel, NJ 08054 (609) 866-1212 (216) 494-7773	ISDN DSP Card (IDC-31) Multimedia Development Card for PC/AT/X86	Voice	Two Channels, One for Modem
		Circuit-Data	Two Channels
		B Channel Packet	Yes
		D Channel Packet	Yes
NI-1 Date: Now	Price: $1,795	Simultaneous active calls	2 B, Multiple X.25
NI-2 Date: 1/94	FCC Class: A	Uses 1 DN or 2?	Either

		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface	Handset RJ-11	Async		X.25 Term. Support	
		• V.120	No		
Data Interface	PC/AT Bus	• Other	V.14, Modem	Async PAD	
ISDN Interface	S/T			Sync PAD	Yes
Power Interface	From Bus			Logical Channels	> 24
		Synch			
Self-Initializing?		• V.120	No	B CHANNEL PACKET	
		• Other	HDLC, X.25 G4 Fax		
Stores Calling Number?	Yes			X.25 Term. Support	
NIIGs:	3, 4, 7, 8, 14-18, 24-28	56/64 kbps	Yes	Async PAD	
		112/128 kbps		Sync PAD	Yes
NIPGs:		Bonding?		Logical Channels	> 24
		APIs Supported:	DGM&S QLibrary	Dialing Modes:	

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Additional Features:

- IDC-31 is a Multimedia Development card that is based on the Texas Instruments TMS320C31 Digital Signal Processor (DSP) and Siemens ISDN components.
- The IDC-31 is ideal for the development of digital ISDN modems, Video Conferencing products, Group 4 fax servers, remote LAN access products, and voice messaging systems. The DSP capability provides backward compatibity with the installed base of analog fax/modems without the need for additional modem hardware.
- This platform supports simultaneous data, voice, and analog modem/fax emulation on a single DSP processor. Initial support is provided for V.22bis modem emulation. Future plans include Group 3 Fax and V.32bis modem support (3/94).
- The product is compatible with DGM&S QSource TM BRI Software Package and QRux real-time kernel operating system. The core hardware technology is available under a manufacturing license agreement or directly from DGM&S.

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED
DigiBoard 6400 Flying Cloud Drive Eden Prairie, MN 55344 Jim Libersky 1-800-344-4273	PC IMAC	Voice: 2 Channels Circuit-Data: 2 Channels B Channel Packet: No D Channel Packet: No
NI-1 Date: Now	Price: $ 995	Simultaneous active calls: 2
NI-2 Date: 1994	FCC Class: B	Uses 1 DN or 2?: Either

			CIRCUIT DATA	D CHANNEL PACKET
Analog Interface	None		Async • V.120 • Other	X.25 Term. Support Async PAD Sync PAD Logical Channels
Data Interface	Ethernet			
ISDN Interface	S/T (RJ-45) 1 RU-45 for ISDN voice			
Power Interface	From Bus		Synch • V.120 • Other	B CHANNEL PACKET
Self-Initializing?	Yes			

Stores Calling Number? Yes		X.25 Term. Support
NIIGs:	56/64 kbps Yes 112/128 kbps Yes Bonding? No	Async PAD Sync PAD Logical Channels
	APIs Supported:	Dialing Modes: Auto, Manual

Additional Features:

- ISDN interface card installs in PC expansion slot provides LAN-to-LAN and telecommuter-to-LAN connections
- Link optimizing software reduces line charges by up to 60%
- Uses both voice and data ISDN lines
- Built in Ethernet address
- Multilevel help screens
- Multipoint
- Supports any CCITT certified switch
- Can inverse multiplex “B” Channels
- Transparent connection management
- ISA/EISA/Microchannel Bus Supported
- Built-in protocol analyzer

Software/Operating Systems:

- TCP/IP, Novell 3.11 or higher (client and server), Windows NT
- Microsoft NDIS Drivers Available 2.0. 2.1, 3.0

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED
Eicon Technology Corporation 2196 32nd Ave. (Lachine) Montreal, Quebec, Canada H8T 3H7 Alex Gostin (514) 631-2592	EiconCard ISDN/PC	Voice: No Circuit-Data: 2 Channels B Channel Packet: 2 Channels D Channel Packet: Yes
NI-1 Date: August '93	Price:	Simultaneous active calls: 2
NI-2 Date:	FCC Class: B	Uses 1 DN or 2?: 3

	CIRCUIT DATA	D CHANNEL PACKET
Analog Interface: None Data Interface: PC Bus ISDN Interface: S/T (RJ-45) Power Interface: From Bus Self-Initializing?: Yes Stores Calling Number?: Yes	Async • V.120: No • Other Synch • V.120: No • Other	X.25 Term. Support: Yes Async PAD Sync PAD Logical Channels: 254 **B CHANNEL PACKET** X.25 Term. Support: Yes Async PAD Sync PAD Logical Channels: 254
NIIGs: 1,3,5,7,9,14,16,19, 24,26,29	56/64 kbps: Yes 112/128 kbps: Future Bonding?: Future	
	APIs Supported: Proprietary	Dialing Modes:

Additional Features:

- Optional data compression daughter board
- Optional high speed interface (HSI) daughter board with RS-232, V.35 and X.21 interface

Software/Operating Systems:

- Operates with DOS, OS/2, Windows, NLM
- Supports NetBIOS, SPX/IPX
- Netware routing over B channel, SNA/SDLC over B channel, QUC/X.25 over B and D channels

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED
EuRoNiS 166 rue Montmartre B.P. Paris Bourse 948 75073 Paris Cedex 02 France Mr. Schraen FAX: +33-142334098	PLANET-ISDN Internal Board for MacIntosh	Voice: Yes Circuit-Data: Yes B Channel Packet: No D Channel Packet: No
NI-1 Date: Now	Price: $1200 - 2000 depending on quantities	Simultaneous active calls: One voice, one Data
NI-2 Date:	FCC Class:	Uses 1 DN or 2?: 2

VOICE AND DISPLAY	CIRCUIT DATA	D CHANNEL PACKET
Analog Interface: Yes Data Interface: Nubus Serial (RS232, RS422) ISDN Interface: S0 (RJ-45) Power Interface: From Bus Self-Initializing? Yes Stores Calling Number? Yes	Async • V.120 • Other: V14 Extended (Rate 57.6) Synch • V.120 • Other: HDLC X25 (Rate 64)	X.25 Term. Support Async PAD Sync PAD Logical Channels **B CHANNEL PACKET** X.25 Term. Support Async PAD Sync PAD Logical Channels
NIIGs: 2,3,11 NIPGs:	56/64 kbps: Yes 112/128 kbps: No Bonding? No	
	APIs Supported: Hayes AT, Apple Com Toolbox, Apple Telephone Manger	Dialing Modes: Auto Answer, Hayes AT,Planet ISDN Connections Tool

Additional Features:

One B channel for data connection for LAN interconnection, files transfer, video conferencing system.
One B channel for voice connections.

Software/Operating Systems:

Hayes-compatible commands using serial port (from 9.6 to 57.6 Kbps)
Apple communications toolbox and telephone manager. Compatible with systems 6 and 7.

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED
Extension Technology Corp. 30 Hollis Street Framingham, MA 01701 Dick Sterry (508) 872-7748	LD - LAN Adapter	Voice: 2 Channels Circuit-Data: 2 Channels B Channel Packet: None D Channel Packet: Yes Simultaneous active calls: 2 Uses 1 DN or 2?: Either
NI-1 Date: Now	Price: $1,495	
NI-2 Date: 1994	FCC Class:	
Analog Interface Data Interface: ISA or EISA Bus ISDN Interface: S/T Power Interface: from Bus Self-Initializing? Yes Stores Calling Number?	CIRCUIT DATA Async: No • V.120 • Other Synch • V.120: Yes, 64 Kbps • Other 56/64 kbps: Yes 112/128 kbps: Yes	D CHANNEL PACKET X.25 Term. Support: Yes, 19.2 Kbps Async PAD: No Sync PAD: No Logical Channels: 15
NIIGs: 2,3,4,6,7,8,10,11,12, 14,15,17,20,21,22,24,25,27	Bonding? No	B CHANNEL PACKET X.25 Term. Support Async PAD Sync PAD Logical Channels
NIPGs: 1,2,3,4,6,7,8	APIs Supported: ODI, Packet Driver, NDIS	Dialing Modes: Automatic

Additional Features:

- Custom AT&T, Custom Northern Telecom, Data over Speech Bearer

Software/Operating Systems:

- DOS 3.0, Windows 3.0, Novell Netware, ODI, NDIS, Packet Drivers

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4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME		CALLS SUPPORTED	
Fujitsu Network Industries, Inc. Soundview Plaza 1266 East Main Street Stamford, CT 06905-3546 Marketing Department (800) 446-4736 (203) 326-2700		Desk Top Conferencing Data, Image, and Voice System		Voice	One Channel
				Circuit-Data	One Channel
				B Channel Packet	No
				D Channel Packet	No
				Simultaneous active calls	Two
NI-1 Date:	Now	Price:	$2195		
NI-2 Date:		FCC Class:		Uses 1 DN or 2?	One
		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface	RJ-11	Async		X.25 Term. Support	
		• V.120	Yes		
Data Interface	AT Bus and microchannel	• Other		Async PAD	
ISDN Interface	RJ-45			Sync PAD	
Power Interface	PC Bus or External			Logical Channels	
		Synch			
Self-Initializing?	Yes	• V.120	Yes	B CHANNEL PACKET	
		• Other			
Stores Calling Number?	Yes			X.25 Term. Support	
NIIGs:	4,8,17,27	56/64 kbps	Yes	Async PAD	
		112/128 kbps		Sync PAD	
NIPGs:		Bonding?		Logical Channels	
		APIs Supported:	Telephony	Dialing Modes:	

Additional Features:

DeskTop Conferencing is a windows-based communications tool that allows the establishment of truly interactive PC to PC links
These links give geographically dispersed users the ability to:
- Share and work together on virtually any on-screen information - documents, charts, images, files, and applications
- Visually, interactively, and in real time - as if they were sitting in the same room.

For people who routinely work together, the variety of uses for DeskTop Conferencing include:
- Day to day review and editing of documents
- Establishing a link to expert advice
- File transfers
- Conducting on-line meetings and presentations
- Distance learning

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED
Fujitsu Network Industries, Inc. Soundview Plaza 1266 East Main Street Stamford, CT 06905-3546 Marketing Department (800) 446-4736 (203) 326-2700	Desk Top Conferencing Data and Image System	Voice: No Circuit-Data: One Channel B Channel Packet: No D Channel Packet: No Simultaneous active calls: One
NI-1 Date: Now	Price: $1995	
NI-2 Date:	FCC Class:	Uses 1 DN or 2? One

	CIRCUIT DATA	D CHANNEL PACKET
Analog Interface	Async • V.120 Yes • Other	X.25 Term. Support
Data Interface: AT Bus and Microchannel		Async PAD
ISDN Interface: S/T or U (RJ-45)		Sync PAD
Power Interface: From Bus or External		Logical Channels
Self-Initializing? Yes	Synch • V.120 • Other	**B CHANNEL PACKET**
Stores Calling Number? Yes		X.25 Term. Support
NIIGs: 3,7,14,24	56/64 kbps Yes 112/128 kbps	Async PAD Sync PAD
NIPGs:	Bonding?	Logical Channels
	APIs Supported:	Dialing Modes:

Additional Features:

DeskTop Conferencing is a windows-based communications tool that allows the establishment of truly interactive PC to PC links
These links give geographically dispersed users the ability to:
- Share and work together on virtually any on-screen information - documents, charts, images, files, and applications
- Visually, interactively, and in real time - as if they were sitting in the same room.

The variety of uses for DeskTop Conferencing include:
- Day to day review and editing of documents
- Establishing a link to expert advice
- File transfers
- Conducting on-line meetings and presentations
- Distance learning

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED	
Hayes Microcomputer Products, Inc. 501 Second St., Ste. 300 San Francisco, CA 94107 (415) 974-5544	ISDN PC Adapter	Voice	One Channel
		Circuit-Data	One Channel
		B Channel Packet	One Channel
		D Channel Packet	Yes
NI-1 Date: Now	Price: $1199	Simultaneous active calls	One Voice, One Circuit Data, 7 D packet, 7 B packet
NI-2 Date:	FCC Class: B	Uses 1 DN or 2?	Either

	CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface: RJ-11 with ring voltage	Async		X.25 Term. Support	
Data Interface: COM Port and dual Port RAM	• V.120 • Other	Yes, 57.6 Kbps through ROM Port, 64 K through ISDNBIOS	Async PAD	Yes, 38.4 Kbps (ROM Port) 16K through ISDNBIOS
ISDN Interface: S/T			Sync PAD	No
Power Interface: from Bus or External	Synch		Logical Channels	8
Self-Initializing?: Yes	• V.120	No	**B CHANNEL PACKET**	
	• Other	No	X.25 Term. Support	
Stores Calling Number?				
NIIGs: 1-9, 11, 12, 13, 16, 17, 21, 23, 26, 27, 28	56/64 kbps	Yes	Async PAD	Yes, 38.4 Kbps (COM Port) 64K through ISDNBIOS
	112/128 kbps	No	Sync PAD	No
NIPGs: 1, 2, 3, 6, 7*, 8*, 9*, 10*	Bonding?		Logical Channels	8
	APIs Supported: Hayes and Hayes ISDNBIOS, Standard AT Command Set for ISDN		Dialing Modes: AT Command Set, DTR toggle and ISDN BIOS	

Additional Features:

* Except Fast Select
Comes with SoftPhone, a DOS-based Voice Call Manager.
Supported features include directory dialing, call logging, supplementary services, message waiting, and Caller-ID, Uses any standard 2500 type analog phone (not included).
Tested for NI-1 conformance.

Software/Operating Systems:

MS DOS, WINDOWS

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED
Hewlett Packard 19410 Cupertino Road Cupertino, CA 95014 HP DIRECT (800) 637-7740	HP ISDN Link 700 HP Apollo 9000 Series 700 ISDN Adapter with TCP/IP client software (J2109A)	Voice: No Circuit-Data: Two Channels B Channel Packet: No D Channel Packet: No
NI-1 Date: Now	Price:	Simultaneous active calls: Two per card, up to 3 cards
NI-2 Date:	FCC Class:	Uses 1 DN or 2?: One

	CIRCUIT DATA	D CHANNEL PACKET
Analog Interface	Async • V.120 • Other	X.25 Term. Support Async PAD Sync PAD Logical Channels
Data Interface: EISA ISDN Interface: S/T Power Interface: From Bus Self-Initializing? Yes Stores Calling Number? Yes	Synch • V.120 • Other	**B CHANNEL PACKET** X.25 Term. Support
NIIGs: 3, 14 NIPGs:	56/64 kbps: Yes 112/128 kbps: Yes Bonding? No	Async PAD Sync PAD Logical Channels
	APIs Supported: BSD Sockets	Dialing Modes:

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Additional Features:

- Supports HP Series 700 to Series 700 as well as Series 700 to HP ISDN Server and ISDN Link/MS-DOS communications using TCP/IP.
- Also supports communications between HP Series 700 and any other workstation connected to a LAN equipped with an HP ISDN Server.
- Supported on the HP Apollo 9000 Series 715, 720, 725, 730, 735, 740, 745, 750, & 755
- Outstanding performances - 13 kbytes effective throughout for file transfer
- Up to three cards (6 B channels) allowed on Series 725, 735, 745i, & 755
- Security based upon calling number
- Compatible with OST BRI Client PC Products

Software/Operating Systems:

- IP routing with addition of J2108A Link-to-router upgrade product
- RFC 1356 compliance
- TCP/IP interface
- HP-UX Versions 8.0 and later

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED	
International Business Machines, Inc. Research Triangle Park NC, 27709 Alan Bentley (507) 253-7294	IBM AS/400 ISDN Basic Rate Interface Adapter Feature #2605	Voice	No
		Circuit-Data	Two Channels
		B Channel Packet	Two Channels
		D Channel Packet	No
NI-1 Date: Not Announced	Price: $1750	Simultaneous active calls	Two
NI-2 Date: Not Announced	FCC Class:	Uses 1 DN or 2?	One

		CIRCUIT DATA	D CHANNEL PACKET	
Analog Interface		Async	X.25 Term. Support	
		• V.120		
Data Interface	AS/400 BUS	• Other	Async PAD	
ISDN Interface	S/T		Sync PAD	
Power Interface	From Bus		Logical Channels	
		Synch		
Self-Initializing?		• V.120	**B CHANNEL PACKET**	
		• Other		
Stores Calling Number?	Yes		X.25 Term. Support	Yes
NIIGs:	3,5,14,16,19	56/64 kbps	Async PAD	
		112/128 kbps	Sync PAD	
NIPGs:		Bonding?	Logical Channels	
		APIs Supported:	Dialing Modes:	

Additional Features:

- Supports the ISDN Data Link Control (IDLC) protocol on the B channel
- B channel Packet Mode supports both X.31 Case A and Case B packet network access
- Up to 2 Adapters may be supported per Communication Controller

Software/Operating Systems:

- The user programming interface is dependent upon and controlled by the host application

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME	CALLS SUPPORTED	
International Business Machines, Inc. Research Triangle Park NC 27709 Mr. Shirral Davis (919) 254-2526		IBM ISDN Interface Coprocessor/2 Model 2 Microchannel Interface card	Voice	No
			Circuit-Data	Two Channels
			B Channel Packet	No
			D Channel Packet	No
NI-1 Date:	Not Announced	Price: $860	Simultaneous active calls	Two
NI-2 Date:	Not Announced	FCC Class:	Uses 1 DN or 2?	One

		CIRCUIT DATA	D CHANNEL PACKET	
Analog Interface		Async	X.25 Term. Support	
		• V.120		
Data Interface	Microchannel	• Other	Async PAD	
ISDN Interface	S/T		Sync PAD	
Power Interface	From Bus	Synch	Logical Channels	
Self-Initializing?		• V.120	B CHANNEL PACKET	
		• Other		
Stores Calling Number?	No		X.25 Term. Support	Yes
NIIGs:	4,14	56/64 kbps	Async PAD	
		112/128 kbps	Sync PAD	
NIPGs:		Bonding?	Logical Channels	
		APIs Supported:	Dialing Modes:	

Additional Features:

- Supports the ISDN Data Link Control (IDLC) and SDLC protocols on the B channel
- A PS/2 equipped with this coprocessor can communicate with similarly equipped ISDN PS/2's.
- A PS/2 equipped with this coprocessor can communicate with an IBM mainframe using SDLC via a terminal adapter attached to a 3745
- A PS/2 equipped with this coprocessor can communicate with an IBM mainframe using IDLC via an IBM 3174
- A PS/2 equipped with this coprocessor can communicate with an IBM AS/400 using IDLC
- Supported under DOS and OS/2
- Application Programming Interface (API) is provided to support application development
- With IBM Personal Communications /3270 PS/2 may be used as a 3270 network station or a LAN gateway for 3270 sessions
- With IBM Communications Manager/2, PC may be used as a 3270 network station or a LAN gateway for 3270 session

Software/Operating Systems:

- The user programming interface is dependent upon and controlled by the host application
- IBM Coprocessor Support Program Version 1.1, 1.2

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME	CALLS SUPPORTED	
International Business Machines, Inc. Research Triangle Park NC 27709 Mr. Shirral Davis (919) 254-2526		IBM ISDN Interface Coprocessor AT Bus Interface card	Voice	No
			Circuit-Data	Two channels
			B Channel Packet	No
			D Channel Packet	No
NI-1 Date:	Not Announced	Price: $865	Simultaneous active calls	Two
NI-2 Date:	Not Announced	FCC Class:	Uses 1 DN or 2?	One

		CIRCUIT DATA	D CHANNEL PACKET	
Analog Interface		Async	X.25 Term. Support	
		• V.120		
Data Interface	PC AT Bus	• Other	Async PAD	
ISDN Interface	S/T		Sync PAD	
Power Interface	From Bus	Synch	Logical Channels	
Self-Initializing?		• V.120	**B CHANNEL PACKET**	
		• Other		
Stores Calling Number?	No		X.25 Term. Support	Yes
NIIGs:	4,14	56/64 kbps	Async PAD	
		112/128 kbps	Sync PAD	
NIPGs:		Bonding?	Logical Channels	
		APIs Supported:	Dialing Modes:	

Additional Features:

- Supports the ISDN Data Link Control (IDLC) and SDLC protocols on the B channel
- A PS/2 equipped with this coprocessor can communicate with similarly equipped ISDN PS/2's.
- A PS/2 equipped with this coprocessor can communicate with an IBM mainframe using SDLC via a terminal adapter attached to a 3745
- A PS/2 equipped with this coprocessor can communicate with an IBM mainframe using IDLC via an IBM 3174
- A PS/2 equipped with this coprocessor can communicate with an IBM AS/400 using IDLC
- Supported under DOS and OS/2
- Application Programming Interface (API) is provided to support application development
- With IBM Personal Communications /3270, PS/2 may be used as a 3270 network station or a LAN gateway for 3270 sessions
- With IBM Communications Manager/2, PC may be used as a 3270 network station or a LAN gateway for 3270 session

Software/Operating Systems:

- The user programming interface is dependent upon and controlled by the host application
- IBM Coprocessor Support Program Version 1.1, 1.2

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME		CALLS SUPPORTED	
International Business Machines, Inc. Research Triangle Park, NC 27709 Mr. Shirral Davis (919) 254-2526		IBM Wave Runner Digital Modem AT Bus Interface card		Voice	One Channel for modem & fax
				Circuit-Data	One Channel
				B Channel Packet	No
				D Channel Packet	No
NI-1 Date:	12/93	Price:	$545	Simultaneous active calls	One
NI-2 Date:	Not Announced	FCC Class:	B	Uses 1 DN or 2?	
		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface		Async		X.25 Term. Support	
		• V.120			
Data Interface	PC AT Bus	• Other	• Modem	Async PAD	
ISDN Interface	S/T	• HDLC -Async C • TCP/IP SLIP to KPC12.4		Sync PAD	
Power Interface	From Bus	Synch		Logical Channels	
Self-Initializing?		• V.120		B CHANNEL PACKET	
		• Other TCP/IP SLIP	to HDLC		
Stores Calling Number?				X.25 Term. Support	
NIIGs:	4	56/64 kbps		Async PAD	
		112/128 kbps		Sync PAD	
NIPGS:		Bonding		Logical Channels	
		APIs Supported:	Hayes AT	Dialing Modes:	

Additional Features:

- IBM WaveRunner Digital Modem is a Digital Signal Processor based adapter technology which allows for communication with ISDN adapters (V.120 encapsulations of async data).
- This adapter is capable of interoperating with existing modems at fastest speed negotiated (V.32bis) and with G 3 fax machines.
- Initial Application Support

  Comm Port (modem) applications:

  IBM OS/2 - HyperACCESS, X Windows System Server, PM terminal

  Windows 3.1 (EM) - Crosstalk, DyansComm, HCL-exceed/W, HyperACCESS PROCOMM PLUG, QModem, Smartcomm, PC Anywhere, TurboCom (included with product).

  IBM LAN Distance family of products

  IBM Person-to-Person

  TCP/IP SLIP:RFC 1294, IP Packets, SLIP

  Trio DataFAX (Trio DataFAX LIte for Windows included with product)
- IBM WaveRunner will be software upgradeable to support:

  2B + D, with B channel BONDING, Voice calls to Headset/Handset, NDIS/OCCI Interface

  V.42 bis compression over V.32 bis modem and V.120

Software/Operating Systems:

- IBM OS/2 2.1
- Microsoft Windows 3.1
- Com Port Type I and Type II serial port emulation permits use of existing PC modem communications software over ISDN.

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED
International Business Machines, Inc. Research Triangle Park, NC 27709 Mr. Shirral Davis (919) 254-2526	IBM Wave Runner Digital Modem Microchannel Interface card	Voice: One Channel for Modem or Fax. Circuit-Data: One Channel B Channel Packet: No D Channel Packet: No Simultaneous active calls: No
NI-1 Date: 12/93	Price: $575	
NI-2 Date: Not Announced	FCC Class: B	Uses 1 DN or 2?
	CIRCUIT DATA	D CHANNEL PACKET
Analog Interface Data Interface: Microchannel ISDN Interface: S/T Power Interface: From Bus Self-Initializing? Stores Calling Number?	Async • V.120 • Other • Modem • HDLC Async converter • TCP/IP, SLIP: RFC 1294 Synch • V.120 • Other TCP/IP SLIP to HDLC converter	X.25 Term. Support Async PAD Sync PAD Logical Channels B CHANNEL PACKET X.25 Term. Support
NIIGs: 4 NIPGs:	56/64 kbps 112/128 kbps Bonding?	Async PAD Sync PAD Logical Channels
	APIs Supported: Hayes AT	Dialing Modes:

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Additional Features:

- IBM WaveRunner Digital Modem is a Digital Signal Processor based adapter technology which allows for communication with ISDN adapters (V.120 encapsulations of async data).
- This adapter is capable of interoperating with existing modems at fastest speed negotiated (V.32bis) and with G3 fax machines.
- Initial Application Support

  Comm Port (modem) applications:

  IBM OS/2 - HyperACCESS, X Windows System Server, PM terminal

  Windows 3.1 (EM) - Crosstalk, DyansComm, HCL-exceed/W, HyperACCESS PROCOMM PLUG, QModem, Smartcomm, PC Anywhere, TurboCom (included with product).

  IBM LAN Distance family of products

  IBM Person-to-Person

  TCP/IP SLIP:RFC 1294, IP Packets, SLIP

  Trio DataFAX (Trio DataFAX LIte for Windows included with product)
- IBM WaveRunner will be software upgradeable to support:

  2B + D, with B channel BONDING, Voice calls to Headset/Handset, NDIS/OCCI Interface

  V.42 bis compression over V.32 bis modem and V.120

Software/Operating Systems:

- IBM OS/2 2.1 • Microsoft Windows 3.1
- Com Port Type I and Type II serial port emulation permits use of existing PC modem communications software over ISDN.

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED	
ISCOM, Inc. 6103 Baltimore Avenue, 205 Riverdale, MD 20737 Phone/FAX: (301) 779 - 1368	Datavoice Express0 for PC	Voice	One Channel
		Circuit-Data	One Channel
		B Channel Packet	One Channel
		D Channel Packet	No
NI-1 Date: Now	Price: $1540	Simultaneous active calls	1 voice, 1 data or 2 data with MVIP interface
NI-2 Date: 1994	FCC Class: A, B	Uses 1 DN or 2?	1

Analog Interface: RJ11	CIRCUIT DATA	D CHANNEL PACKET	
Data Interface: PC Bus	Async • V.120 • Other	X.25 Term. Support	
ISDN Interface: S/T		Async PAD	
Power Interface: PC Bus		Sync PAD	
Self-Initializing?: No	Synch • V.120 • Other	Logical Channels	
Stores Calling Number?: Yes		B CHANNEL PACKET X.25 Term. Support	Yes, 56/64 Kbps
NIIGs: 1-5, 11, 13, 16, 18	56/64 kbps: Yes	Async PAD	No
	112/128 kbps: On demand	Sync PAD	Yes
NIPGs: 1-6, 9-10	Bonding?: No	Logical Channels	1
	APIs Supported: None	Dialing Modes:	Auto answer

Additional Features:

- Connector for MVIP interface.
- International calls

Software/Operating Systems:

- DOS, Windows

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4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED
ISCOM, Inc. 6103 Baltimore Avenue, 205 Riverdale, MD 20737 Phone/FAX: (301) 779 - 1368	Datavoice Express0 for Toshiba	Voice: One Channel Circuit-Data: One Channel B Channel Packet: One Channel D Channel Packet: No Simultaneous active calls: 1 voice, 1 data Uses 1 DN or 2?: 1
NI-1 Date: Now	Price: $1540	
NI-2 Date: 1994	FCC Class: A, B	
Analog Interface: RJ-11 Data Interface: Toshiba Bus ISDN Interface: S/T Power Interface: Toshiba Bus Self-Initializing?: No Stores Calling Number?: Yes	CIRCUIT DATA Async • V.120 • Other Synch • V.120 • Other	D CHANNEL PACKET X.25 Term. Support: Async PAD: Sync PAD: Logical Channels:
NIIGs: 2-5, 11, 13, 16, 18 NIPGs: 1, 6, 9, 10	56/64 kbps: Yes 112/128 kbps: No Bonding?: No	B CHANNEL PACKET X.25 Term. Support: Yes, 56/64 Kbps Async PAD: No Sync PAD: Yes Logical Channels: 1
	APIs Supported: None	Dialing Modes: Auto answer

Additional Features:

- International calls

Software/Operating Systems:

- DOS, Windows

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED	
ISCOM, Inc. 6103 Baltimore Avenue, 205 Riverdale, MD 20737 Phone/FAX: (301) 779 - 1368	Datavoice S0 Mac II	Voice	One Channel
		Circuit-Data	Two Channels
		B Channel Packet	Two Channels
		D Channel Packet	No
NI-1 Date: Now	Price: $1950	Simultaneous active calls	2 data, or 1 voice and 1 data
NI-2 Date: 1994	FCC Class: A, B	Uses 1 DN or 2?	1

		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface	RJ11	Async • V.120 • Other		X.25 Term. Support	
Data Interface	NuBus			Async PAD	
ISDN Interface	S/T			Sync PAD	No
Power Interface	NuBus			Logical Channels	
Self-Initializing?	No	Synch • V.120 • Other		**B CHANNEL PACKET**	
Stores Calling Number?	Yes			X.25 Term. Support	Yes, 128 Kbps
NIIGs:	2-5, 11-16, 18, 19	56/64 kbps 112/128 kbps	Yes Yes	Async PAD Sync PAD	No Yes
NIPGs:	1, 6, 9, 10	Bonding?	No	Logical Channels	2
		APIs Supported:	Hayes AT, Scii	Dialing Modes:	Auto answer

Additional Features:

- This product is also available for the SW56
- International calls

Software/Operating Systems:

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME		CALLS SUPPORTED	
ISCOM, Inc. 6103 Baltimore Avenue, 205 Riverdale, MD 20737 Phone/FAX: (301) 779 - 1368		Datavoice S0 for PC		Voice	One Channel
				Circuit-Data	Two Channels
				B Channel Packet	Two Channels
				D Channel Packet	No
NI-1 Date:	Now	Price:	$1,540	Simultaneous active calls	2 data, or 1 voice and 1 data
NI-2 Date:	1994	FCC Class:	A, B	Uses 1 DN or 2?	1
		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface	RJ11	Async • V.120 • Other		X.25 Term. Support	
Data Interface	ISA Bus			Async PAD	
ISDN Interface	S/T			Sync PAD	No
Power Interface	Bus			Logical Channels	
Self-Initializing?	No	Synch • V.120 • Other		B CHANNEL PACKET	
Stores Calling Number?	Yes			X.25 Term. Support	Yes, 128 Kbps
NIIGs:	2-5, 11-16, 18, 19	56/64 kbps	Yes	Async PAD	No
		112/128 kbps	Yes	Sync PAD	Yes
NIPGs:	1, 6, 9, 10	Bonding?	No	Logical Channels	2
		APIs Supported:	Hayes AT	Dialing Modes:	Auto answer

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Additional Features:

- This product is also available for the SW56
- International calls
- Supports ISDN Server-to-server option for Banyan Vines 5.50

Software/Operating Systems:

DOS, UNIX, Vines

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED
ISDN Systems Corporation 8320 Old Courthouse Road Suite 203 Vienna, Virginia 22182 Jeff Milloy (703) 883-0933 FAX: (703) 883-8043	FX-BRI	Voice: One Channel Circuit-Data: Two Channels B Channel Packet: No D Channel Packet: No Simultaneous active calls: Two
NI-1 Date: Now	Price: S Version - $495 U Version - $649	
NI-2 Date:	FCC Class: B	Uses 1 DN or 2? One

	CIRCUIT DATA	D CHANNEL PACKET
Analog Interface: Yes Data Interface: AT Bus ISDN Interface: S/T or U Power Interface: Self-Initializing? Yes Stores Calling Number? Yes	Async • V.120 • Other Synch • V.120 • Other	X.25 Term. Support Async PAD Sync PAD Logical Channels B CHANNEL PACKET X.25 Term. Support
NIIGs: 2,3,4,11,14,15 NIPGs:	56/64 kbps: Yes 112/128 kbps: Yes Bonding? Yes	Async PAD Sync PAD Logical Channels
	APIs Supported: ASI, NDIS, Packet Driver, ODI	Dialing Modes: Enbloc and Overlap

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Additional Features:

- ISC's FX-BRI high performance, low cost ISDN Basic Rate Interface (BRI) PC Terminal Adapter with superior throughput capabilities
- The FX-BRI is a powerful, cost-effective and reliable way of interconnecting LANs and Remote PCs via the Public ISDN Network
- The FX-BRI provides an NDIS, ASI, ODI (for IPX) or Packet Driver (for TCP/IP)
- The FX-BRI has optional software packages which address the most common network problems
- Dynamic Bandwidth Allocation provides on-demand, dynamic B-channel allocation for various voice and data applications

Software/Operating Systems:

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME		CALLS SUPPORTED	
Link Technology Inc. P.O. Box L-127 Langhorne, PA 19047 Jeff Ramsey (215) 357-3354		IAB-4 ISDN PC Adapter		Voice	Two Channels
				Circuit-Data	Two Channels
				B Channel Packet	None
				D Channel Packet	Yes
NI-1 Date:	Q3 1993	Price:	$350	Simultaneous active calls	2 CSD/CSV plus DPKT
NI-2 Date:	Q2 1994	FCC Class:	A	Uses 1 DN or 2?	Either

		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface	No	Async • V.120 • Other	 No No	X.25 Term. Support	Yes 9.6 kbps
Data Interface	• Infolink API or • IAB-4 on-board connector			Async PAD Sync PAD	No No
ISDN Interface	S/T	Synch • V.120 • Other - HDLC framed - Protocol transparent	 Yes	Logical Channels	Configurable
Power Interface	From PC Bus			**B CHANNEL PACKET**	
Self-Initializing?	Yes			X.25 Term. Support	No
Stores Calling Number?	Yes	56/64 kbps	Yes	Async PAD	
		112/128 kbps	Yes	Sync PAD	
		Bonding?	No	Logical Channels	
NIIGs:	1-4,6,7,8,10-15,17,20,21,22, 24,25,27	APIs Supported:	NIUF ASI Microsoft Telephony API	Dialing Modes:	NIUF ASI, Microsoft Telephony API
NIPGs:	1,6,7,8				

Additional Features:

On-board connector provides access to both B channels for external adapters supporting applications like videotelephony (H.261), inverse multiplexers; voice mail/processing. Supports Custom AT&T ISDN BRI Protocol.

Software/Operating Systems:

Infolink NIUF ASI and Microsoft Telephony API support for Microsoft MS-DOS and Windows 3.X

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4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED	
Mitel Corporation Communicating Objects P.O. Box 13089 360 Leggett Drive Kanata, Ont., Canada K2K 1X3 (613) 592-2122 FAX: (613) 592-4784	S-Access Card (MB89210/11)	Voice	Two Channels
		Circuit-Data	Two Channels
		B Channel Packet	Two Channels
		D Channel Packet	Yes
NI-1 Date:	Price:	Simultaneous active calls	2
NI-2 Date:	FCC Class: B	Uses 1 DN or 2?	

		CIRCUIT DATA	D CHANNEL PACKET	
Analog Interface	Handset and Speaker Phone	Async • V.120	X.25 Term. Support	
Data Interface	Via PC Bus	• Other	Async PAD	
ISDN Interface	S Interface		Sync PAD	
Power Interface	From PC		Logical Channels	
		Synch		
Self-Initializing?	Yes	• V.120 • Other	B CHANNEL PACKET	
Stores Calling Number?	In PC		X.25 Term. Support	
NIIGs:		56/64 kbps	Async PAD	
		112/128 kbps	Sync PAD	
NIPGs:		Bonding?	Logical Channels	
		APIs Supported:	Dialing Modes:	ISDN Layer 2 and 3 on PC

Additional Features:

The MB89010/11 is a low cost terminal adapter card which can turn an existing PC into an ISDN voice and data workstation. It gives access to the Basic Rate S-Interface, providing 2B+D transmission. An onboard digital telephone chip provides an analog handset interface for the user which combined with multiple HDLC resources, provides the capability of using one B channel for voice, the second B channel for circuit switched data, and the D channel for packet switched data. A DTMF receiver is also included to facilitate the use of ISDN features from non-ISDN installations.

The S-Access Card does not utilize a co-processor for handling the ISDN signaling. Instead, it relies on the fact that the ISDN call setup takes a relatively small amount of time, and most modern PCs have sufficient power to accommodate this function with a negligible performance penalty for other applications.

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED	
Mitel Corporation Communicating Objects P.O. Box 13089 360 Leggett Drive Kanata, Ont, Canada K2K 1X3 (613) 592-2122 FAX: (613) 592-4784	S-Line Card (MB89220)	Voice	16 Channels
		Circuit-Data	16 Channels
		B Channel Packet	16 Channels
		D Channel Packet	Yes
NI-1 Date:	Price:	Simultaneous active calls	16 (8 lines)
NI-2 Date:	FCC Class: A	Uses 1 DN or 2?	2

	CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface	Async • V.120		X.25 Term. Support	Yes
Data Interface: Via PC and MVIP Bus			Async PAD	
ISDN Interface: 8S Interfaces			Sync PAD	Yes
Power Interface: From PC	Synch		Logical Channels	
Self-Initializing? Yes	• V.120 • Other		**B CHANNEL PACKET**	
Stores Calling Number? Yes			X.25 Term. Support	Yes
NIIGs:	56/64 kbps	64 Kbps	Async PAD	
	112/128 kbps		Sync PAD	
NIPGs:	Bonding?		Logical Channels	Yes
	APIs Supported:		Dialing Modes:	ISDN Layer 2 and 3 on Embedded Processor

Additional Features:

The 8 station ISDN S-Interface Line Card PLM 66 into an IBM PC/AT or Equipment Signalling is done via an On-Board Processor running ISDN Layer 2 & Layer 3

Software/Operating Systems:

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME		CALLS SUPPORTED	
Motorola UDS 5000 Bradford Drive Huntsville, AL 35805 Dean Sharp (205) 430-8902		PCTA 120		Voice	One Channel
				Circuit-Data	One Channel
				B Channel Packet	No
				D Channel Packet	Yes
NI-1 Date:	Now	Price:	$ 995.00	Simultaneous active calls	Two
NI-2 Date:		FCC Class:	B	Uses 1 DN or 2?	Either
		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface	RJ-11			X.25 Term. Support	No
Data Interface	EISA bus, COM port, synch-up, DMA	Async • V.120 • Other	Yes, 38.4 T-Link, 19.2	Async PAD	Yes
ISDN Interface	S/T			Sync PAD	No
Power Interface	PC Bus or External			Logical Channels	1
Self-Initializing?	Yes	Synch • V.120 • Other	Yes, 38.4 T-Link, 64K	B CHANNEL PACKET	
Stores Calling Number?	Yes			X.25 Term. Support	
NIIGs:	1, 2, 3, 6, 7, 11, 21	56/64 kbps	Yes	Async PAD	
		112/128 kbps	No	Sync PAD	
NIPGs:	3, 7, 6	Bonding?		Logical Channels	
		APIs Supported:		Dialing Modes:	AT, V.25 bis, Sync-up

Additional Features:

- Remote configuration

Software/Operating Systems:

- Call Manager software for PC

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4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME		CALLS SUPPORTED	
MPR Teltech Ltd 8999 Nelson Way Burnaby, BC Canada V5A 4B5 PH: (604) 293-6047 FAX: (604) 293-5787		MI 300/310 ISDN Audio and Data Card		Voice	2 channels
				Circuit-Data	2 channels
				B Channel Packet	2 channels
				D Channel Packet	Yes
NI-1 Date:	Oct. 93	Price:		Simultaneous active calls	2
NI-2 Date:	TBD	FCC Class:	A	Uses 1 DN or 2?	Either
		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface	stereo in/out	Async • V.120	No	X.25 Term. Support	No
Data Interface	2 x V.35 1 x RS-232	• Other	No	Async PAD	No
ISDN Interface	S/T			Sync PAD	No
Power Interface	From BUS			Logical Channels	
Self-Initializing?	Yes	Synch • V.120	No	B CHANNEL PACKET	
Stores Calling Number?	No	• Other	No	X.25 Term. Support	Yes 64 Kbps
NIIGs:	2-5, 10-17, 18	56/64 kbps	Yes	Async PAD	
		112/128 kbps	Yes (H.221)	Sync PAD	
NIPGs:	9, 10	Bonding?	No	Logical Channels	
		APIs Supported:	NDIS UNIX STREAMS	Dialing Modes:	auto answer & original keypad dialing

Additional Features:

- 2 SW56 interfaces with V.25 BIS dialing
- On board DSP for high quality audio encoding accoustic echo canceling, G.722, MPEG etc.
- ISA or MCA bus interface

Software/Operating Systems:

- DOS network NDIS driver/simple driver
- UNIX network streams driver/simple driver
- Windows 3.1

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME		CALLS SUPPORTED	
NCR Network Products Division 2700 Snelling Ave. N. St. Paul, MN 55113 Steve Schultz (612) 638-7685		StarWAN ISDN PC* Terminal Adapter PCTA - ISA Bus PCTA/MC - Micro Channel Bus		Voice	Two Channels
				Circuit-Data	Two Channels
				B Channel Packet	One Channel
				D Channel Packet	Yes
NI-1 Date:	1Q94	Price:	$1,695**	Simultaneous active calls	Two
NI-2 Date:	Not Announced	FCC Class:	B	Uses 1 DN or 2?	Two
		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface	RJ-11	Async		X.25 Term. Support	Yes
		• V.120	Yes		
Data Interface	ISA or Micro channel Bus	• Other	V.110 X.25	Async PAD	Yes
ISDN Interface	S/T (RJ-45)			Sync PAD	No
Power Interface	PC Bus	Synch		Logical Channels	16
Self-Initializing?	No	• V.120	Yes	B CHANNEL PACKET	
		• Other	V.110 HDLC X.25		
Stores Calling Number?	Yes			X.25 Term. Support	Yes
NIIGs:	1-8; 10-18; 20-22; 24,25,27			Async PAD	Yes
		56/64 kbps	Yes		
		112/128 kbps	No	Sync PAD	No
NIPGs:	1 through 10	Bonding?	No	Logical Channels	16
APIs Supported: DOS Driver, OS/2 Driver, COM Port; NetBIOS (DOS/MS-Windows) UNIX V.4 Driver Available				Dialing Modes:	Keypad, AT, X.28, plus APIs

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Additional Features:

- Digital Signal Processor for speech digitization/audio recording
- StarWAN Voice Data Manager (VDM) icon-based voice/data integration management application available for OS/2 (Presentation Manager); includes Caller ID, phone book, dialing, multiple call appearances, dBase III file format
- COM port provides support for applications using Hayes AT or X.28 command set
- X.25 and V.110/V.120 rate adaption supports async speeds to 19.2 kbps for OS/2, 38.4 kbps for DOS, and 19.2 kbps for MS-Windows; PAD functions
- Synchronous throughput to 56/64 kbps

Software/Operating Systems:

- DOS Version 3.3 and above; OS/2 Version 1.3 and above
- DOS and OS/2 device drivers provide standard API for 3rd party development; UNIX V.4 device driver available
- API for PMD (X.25); API for CMD (V.110, V.120, or HDLC)
- Net BIOS interface available for DOS or MS-Windows platform
- NDIS interface available 1Q94

Note:* PCTA for ISA bus - Model #7400-K250
PCTA/MC for Micro Channel bus - Model #7400-K368
** Suggested Manufacturers Retail Price/Quantity discounts available

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME		CALLS SUPPORTED	
NCR Network Products Division 2700 Snelling Ave. N. St. Paul, MN 55113 Steve Schultz (612) 638-7685		StarWAN ISDN Data* Terminal Adapter DTA for ISA Bus and DTA/M Micro Channel Bus		Voice	No
				Circuit-Data	Two Channels
				B Channel Packet	One Channel
				D Channel Packet	Yes
NI-1 Date:	1Q94	Price:	$1,150**	Simultaneous active calls	Two
NI-2 Date:	Not Announced	FCC Class:	B	Uses 1 DN or 2?	Two
		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface	No	Async		X.25 Term. Support	Yes
		• V.120	Yes		
Data Interface	ISA or Micro channel Bus	• Other	V.110 X.25	Async PAD	Yes
ISDN Interface	S/T (RJ-45)			Sync PAD	No
Power Interface	PC Bus	Synch		Logical Channels	16
Self-Initializing?	No	• V.120	Yes	B CHANNEL PACKET	
		• Other	V.110 HDLC,X.25		
Stores Calling Number?	Yes			X.25 Term. Support	Yes
NIIGs:	1,3,5,7,14,16,24	56/64 kbps	Yes	Async PAD	Yes
		112/128 kbps	No	Sync PAD	No
NIPGs:	7 through 10	Bonding?	No	Logical Channels	16
APIs Supported: DOS Driver, OS/2 Driver, COM Port; NetBIOS (DOS/MS-Windows) UNIX V.4 Driver Available				Dialing Modes:	Keypad, AT, X.28, plus APIs

This information is subject to change without notice.
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Additional Features:

- COM port provides support for applications using Hayes AT or X.28 command set
- X.25 and V.110/V.120 rate adaption supports async speeds to 19.2 kbps for OS/2, 38.4 kbps for DOS, and 19.2 kbps for MS-Windows; PAD functions
- Synchronous throughput to 56/64 kbps

Software/Operating Systems:

- DOS Version 3.3 and above; OS/2 Version 1.3 and above
- DOS and OS/2 device drivers provide standard API for 3rd party development; UNIX V.4 device driver available
- API for PMD (X.25); API for CMD (V.110, V.120, or HDLC)
- NetBIOS interface available for DOS or MS-Windows platform
- NDIS interface available 1Q94

* Note: DTA for ISA bus - Model #7400-K366
DTA/MC for Micro Channel bus - Model #7400-K367

** Suggested Manufacturers Retail Price/Quantity discounts available

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED
OST, Inc. 14225 Sullyfield Circle Chantilly, Virginia 22021 Jean-Noel Berre (403) 817-0400 FAX: (703) 817-0402	PCSNET ISDN BRI Adapter Card for PC/AT and Compatibles	Voice: One Channels Circuit-Data: Two Channels B Channel Packet: No D Channel Packet: No
NI-1 Date: Now	Price: $1,095	Simultaneous active calls: Two
NI-2 Date:	FCC Class:	Uses 1 DN or 2? Either
	CIRCUIT DATA	D CHANNEL PACKET
Analog Interface: Handset RJ-11 Data Interface: PC Bus RS-232, TDM Private Bus ISDN Interface: S (RJ-45) Power Interface: PC Self-Initializing? Yes Stores Calling Number? Application Level	Async • V.120 • Other: B PAD - X.25 Synch • V.120 • Other: X.25 HDLC	X.25 Term. Support: N/A Async PAD Sync PAD Logical Channels B CHANNEL PACKET X.25 Term. Support Async PAD Sync PAD Logical Channels
NIIGs: 2-4,11,12,14,15,17 NIPGs:	56/64 kbps: Yes 112/128 kbps: Yes Bonding? No	
	APIs Supported: X.25 HDLC Full transparent N BIT & 103	Dialing Modes: AT Command set with COM 1 emulation Proprietary API

Additional Features:

- Up to 7 cards in the same PC
- COM 1 Emulation
- RS-232 connector for asynchronous communication through Integrated PAD
- Signaling available for 14 countries
- File transfer with B channels aggregation and Data Compression

Software/Operating Systems:

- DOS
- UNIX
- OS/2
- Application Development Toolkit - X.25 API, Transparent (HDLC) API, Voice applications
- Turn key applications:
  - LAN connectivity : LANSPAND products *
  - NetBIOS emulation : BIOSNET/BIOS OSI *
  - File transfer*

* see Software and Services from OST

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME		CALLS SUPPORTED	
OST, Inc. 14225 Sullyfield Circle Chantilly, Virginia 22021 Jean-Noel Berre (403) 817-0400 FAX: (703) 817-0402		PSSNET ISDN BRI Adapter Card for MCA bus AIX machines		Voice	One Channel
				Circuit-Data	Two Channels
				B Channel Packet	No
				D Channel Packet	No
NI-1 Date:		Price:		Simultaneous active calls	Two
NI-2 Date:		FCC Class:		Uses 1 DN or 2?	Either
		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface		Async		X.25 Term. Support	N/A
		• V.120	No		
Data Interface		• Other	PAD X.25	Async PAD	
ISDN Interface	S(RJ-45)			Sync PAD	
Power Interface	PC	Synch		Logical Channels	
Self-Initializing?	Yes	• V.120		B CHANNEL PACKET	
		• Other	X.25 HDLC	X.25 Term. Support	N/A
Stores Calling Number?	Application Level				
		56/64 kbps	Yes	Async PAD	
NIIGs:		112/128 kbps	Yes		
NIPGs:				Sync PAD	
		Bonding?	No	Logical Channels	
		APIs Supported: X.25 Transparent HDLC		Dialing Modes:	Proprietary API

Additional Features:

- Signaling suppported for France, UK, Japan and EURO-ISDN

Software/Operating Systems:

- AIX RS/6000
- Fully compatible with existing applications designed to run on the IBM X.25 card for RS/6000 (X..25 coprocessor 2)

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME		CALLS SUPPORTED	
OST, Inc. 14225 Sullyfield Circle Chantilly, Virginia 22021 Jean-Noel Berre (403) 817-0400 FAX: (703) 817-0402		MacSneT ISDN BRI Adapter Card for Macintosh Nu Bus Systems		Voice	One Channel
				Circuit-Data	Two Channels
				B Channel Packet	No
				D Channel Packet	No
NI-1 Date:	Now	Price:	$1,095	Simultaneous active calls	Two
NI-2 Date:		FCC Class:		Uses 1 DN or 2?	Either
		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface	Handset RJ-11	Async		X.25 Term. Support	N/A
		• V.120	No		
Data Interface	Mac Bus RS-232 TDM Private Bus	• Other	PAD X.25	Async PAD	
ISDN Interface	S-RJ-45			Sync PAD	
Power Interface	Macintosh Bus	Synch		Logical Channels	
Self-Initializing?	Yes	• V.120	X.25	B CHANNEL PACKET	
		• Other	HDLC	X.25 Term. Support	N/A
Stores Calling Number?	Application Level				
		56/64 kbps	Yes	Async PAD	
NIIGs:	2-4,11,12,14,15,17	112/128 kbps	Yes	Sync PAD	
NIPGs:		Bonding?	No	Logical Channels	
		APIs Supported:	X.25 Transparent HDLC	Dialing Modes:	Proprietary API

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Additional Features:

- Up to 5 cards in the same Macintosh
- Also available for France, UK, Japan, Euro-ISDN

Software/Operating Systems:

- Mac System 6 and System 7.X
- Macintosh Communication Toolbox Support
- Modem Port redirector
- Application Development Tool kit
- Apple Talk ISDN Router : MacSnet Link*
- File transfer, Numeritel *

* see Software and Services (Section 4.2.13)

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME		PRODUCT NAME			CALLS SUPPORTED		
Primary Rate Incorporated 5 Manor Parkway Salem, NH 03079 (603) 898 - 1800 Sales 1- 800 - 950 - ISDN (4736)		PRI-2 ™ Basic Rate ISDN VME Controller			Voice	2 Channels	
					Circuit-Data	2 Channels	
					B Channel Packet	2 Channels	
					D Channel Packet	16 Circuits	
NI-1 Date:	07/01/93	Price:	$3495		Simultaneous active calls	Two - Any combination	
NI-2 Date:	07/01/93	FCC Class:	Class B		Uses 1 DN or 2?	Either	
		CIRCUIT DATA			D CHANNEL PACKET		
Analog Interface	No	Async			X.25 Term. Support	No	
		• V.120	Yes	64			
Data Interface		• Other	Yes	64	Async PAD	Yes	64 Kbps
					Sync PAD	Yes	64 Kbps
ISDN Interface					Logical Channels	16	
Power Interface					B CHANNEL PACKET		
		Synch					
Self-Initializing?	No	• V.120	Yes	64	X.25 Term. Support	Yes	64 Kbps
		• Other	Yes	64			
Stores Calling Number?	No				Async PAD	Yes	64 Kbps
		56/64 kbps	Yes				
		112/128 kbps	Yes		Sync PAD	Yes	64 Kbps
NIIGs:	All						
NIPGs:	1-10	Bonding?	Yes	Mode 0,1	Logical Channels	256	
		APIs Supported:	PRI's SMI		Dialing Modes:	Through host drivers and API	

Additional Features:

Software/Operating Systems: UNIX, VRTX, VXWorks, 0S9, VME Exec, PSOS

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4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED
Silicon Graphics 2011 W. Shoreline Blvd. P.O. Box 7311 Mountain View, CA 94039 Michael Wang (415) 390-2522 FAX: (415) 390-6159	INDY Work Station	Voice: No Circuit Data: Two Channels B Channel Packet: No D Channel Packet: No Simultaneous active calls: Two
NI-1 Date: 3/94	Price: Starts @ $4,995	Uses 1 DN or 2? Either
NI-2 Date:	FCC Class: B	

	CIRCUIT DATA	D CHANNEL PACKET
Analog Interface: No	Async • V.120 • Other	X.25 Term. Support
Data Interface: On motherboard		Async PAD
ISDN Interface: RJ-45		Sync PAD
Power Interface: Local power		Logical Channels
Self-Initializing? Yes	Synch • V.120: PPP • Other	**B CHANNEL PACKET**
Stores Calling Number? Yes		X.25 Term. Support
NIIGs: 3,4,7,11,12	56/64 kbps: Yes	Async PAD
	112/128 kbps	Sync PAD
NIPGs:	Bonding?	Logical Channels
	APIs Supported: PPP/TCP ASI and/or CAPI	Dialing Modes: PPP (cu style interface)

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Additional Features:

Built-in ISDN on motherboard, supports DMS-100, 5ESS, PPP, SL-100, 1TR6, NET3, NTT, VN3, other switches to follow

Software/Operating Systems:

UNIX Operating System

4.2.2 Basic rate interface cards for personal computers, workstations & minicomputers

COMPANY NAME	PRODUCT NAME	CALLS SUPPORTED	
Sun Microsystems Computer Corporation 2550 Garcia Avenue Mountain View, CA 94043 Tony Lee PH: (415) 3364433 FAX: (415) 336-4433	1. Sun ISDN-BRI/SBI Expansion Kit 2. SunLink ISDN-BRI Enabling Kit 3. SPARCstation 10 4. SPARCstation LX	Voice	Two channels (via attached ISDN telephone)
		Circuit-Data	Two channels
		B Channel Packet	No
NI-1 Date: 1994	Price: 1. $ 595 2. $ 95 3. & 4. vary	D Channel Packet	No
		Simultaneous active calls	Two
NI-2 Date: 1995	FCC Class: A & B	Uses 1 DN or 2?	One

		CIRCUIT DATA		D CHANNEL PACKET	
Analog Interface	No	Async • V.120 • Other	No	X.25 Term. Support	No
Data Interface	No			Async PAD	
ISDN Interface	S/T			Sync PAD	
Power Interface	From Bus			Logical Channels	
		Synch		B CHANNEL PACKET	
Self-Initializing?	Yes	• V.120 • Other	No	X.25 Term. Support	No
Stores Calling Number?	No				
NIIGs:	2-4,10-12,14,14,17	56/64 kbps	Yes	Async PAD	
		112/128 kbps	No	Sync PAD	
NIPGs:		Bonding?	No	Logical Channels	
		APIs Supported:	Proprietary	Dialing Modes:	Auto Answer & Originate

Additional Features:

- The Expansion kit includes an ISDN-BRI add-on card and software
- The Enabling kit contains the software only (for systems with built-in ISDN)
- The ISDN software supports transparent TCP/IP, UDP/IP connectivity over ISDN

Software/Operating Systems:

- Solaris 2.1 or higher