



Personal Computer-to-Mainframe Communications Products

This product survey identifies software, hardware, and combination products which are intended to aid in the exchange of information between personal computers used in corporate applications and the minicomputers or mainframes of the corporate data center. Products were selected for the survey on the basis of features which, in some way, make them useful for this type of data communication. The features of the products, and therefore their utility in the micro/mainframe environment, differ significantly from product to product.

This edition of the PC/Mainframe survey presents information on 100 products from 64 vendors. Part One of the

survey is a Dot Chart Summary Index which lists key features and characteristics of each product. An explanation of these key features and characteristics and a description of their impact on the evaluation and selection of micro/mainframe products appears below. Following this description is the Dot Chart Index which lists the vendors in alphabetical order.

Part Two of the survey follows the Dot Chart Summary Index and is a Technical Features Summary of each vendor's product. This section provides more detail on the features of each product. The preface to Part Two explains the terms used in that section.

PERSONAL COMPUTER-TO-MAINFRAME COMMUNICATIONS PRODUCTS OUTLINE

PACKAGE TYPE

There are three basic architectures for PC communication products which are intended to support mainframe communication.

Basic Transmission Support • provides simple, asynchronous terminal emulation with no special terminal features; these products may be adapted to many different types of host systems, but lack specific terminal emulation features which would make them compatible with existing host software; products of this type may require custom programming at the host connection for interfacing.

Terminal Emulator Packages • expand the simple communication capability of the basic packages with the ability to EMULATE, or duplicate, the function of one or more terminals; host computers which normally interact with the terminal emulated can normally communicate with terminal emulators with no software changes.

Integrated Application Software • newest development in the area of personal computer-to-mainframe communication; such packages actually consist of two software elements; one for the personal computer and one for the mini or mainframe; normally, these packages operate in conjunction with some popular application software, such as a database system • using integrated software, the personal computer user interacts with what APPEARS to be local computing resources, and the integrated software either handles the interaction within the PC or makes requests via a communication link for data or computer power from the host system.

TARGET HOST

Most of the packages surveyed were designed or marketed to serve particular types of host systems. Although the package MAY also be useful on other systems, the host interaction for which the package is designed and marketed is most likely to be supported by the vendor. NOTE THAT THE TYPE OF TERMINAL EMULATED IS PROBABLY THE MOST SIGNIFICANT INDICATION OF HOST COMPATIBILITY FOR TERMINAL EMULATOR PACKAGES. The specification of one or more target hosts should not be considered an indication that the package is not suitable for other products as well.

IBM 30XX or 43XX Hosts, or the Older IBM 360 or 370 Computers • represent the classical IBM mainframes; most packages which target this host market will emulate popular IBM

synchronous terminals; other packages may be able to communicate with the IBM mainframes, but the terminal types emulated may restrict functionality • IF AN IBM MAINFRAME IS THE TARGET HOST, USERS SHOULD BE SURE TO CONFIRM SOFTWARE COMPATIBILITY WITH THE TERMINAL TYPE EMULATED.

IBM 34/36/38 Systems • represent a totally different hardware architecture from the previous mainframe types; these hosts can operate with specialized 5250 series terminals; attachment to the 30 series processors is normally via synchronous port, but may be via a twinax cable loop; some products will emulate this loop attachment mechanism; addition of a synchronous data port to these processors to attach remote devices is at extra cost.

DEC Hosts • normally interface with asynchronous terminals, often DEC's own VT52 or VT100 devices; other asynchronous terminal emulators MAY be usable on the DEC hosts, but adjustments to the software may be required and functional or application restrictions may exist • DEC hosts can also be interfaced via Ethernet connection if the DEC equipment has Ethernet support.

Other Computer Vendors • Burroughs, Data General, Hewlett-Packard and Honeywell, among others, normally have custom terminal devices and also support some popular terminal types of other vendors; since these vendors do not represent as large a market as IBM and DEC, packages for them are less common and more care must be exercised in selection to assure software and hardware compatibility.

BASIC CHARACTERISTICS

Micro Product • indicates that the package contains a component which runs on the personal computer; the component may be software, hardware, or both.

Mini/Mainframe Product • specifies that there is an element of the package which runs on the mini or mainframe system; this may be a part of an integrated application or a special utility program to facilitate types of file transfer.

Software • indicates that the product has a software component.

Vendor-Supplied Hardware • states that some hardware device, such as a circuit board or a modem, is also supplied as part of the package.

Other Hardware • indicates that the vendor software will operate with hardware NOT supplied with the package; normally this will



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indicate that the computer manufacturer supplies a communication interface which the package expects to use.

Modem Included • indicates that a modem is included with the package; this modem is normally a 300-bps, Bell 103-compatible modem, or a 1200-bps Bell 212-compatible modem • the modem may be separate, in which case it will require a serial port on the computer, or integral, a circuit board plugging directly into the computer; integral products will operate over phone connections but may not be suitable for direct connection to a computer unless an additional serial (RS-232) port is provided.

RS-232 Interface • refers to products with the standard 25-pin serial data connection, suitable for direct attachment to a host computer or to a modem; there may be restrictions on the type of modem supported; some products with integral modems will also have RS-232 ports for direct connection; software-only products will normally require an RS-232 interface.

IBM 3270 Coaxial Interface • may be available on 3270 terminal emulator products, indicating that the product MUST attach to a 3270 cluster controller and not directly to a computer.

Other Interface • indicates that support may be available from special products; examples of this are the Ethernet local area network interfaces, RS-449 high-speed serial interfaces, IEEE-488 bus interfaces, or vendor-custom interfaces • use of any specialized interface requires careful attention to hardware and software compatibility.

PROTOCOL

A Protocol is a set of rules which governs the communication between devices, and every communication dialog must agree on one. The mainframe normally establishes the protocol by the type of terminals it can support.

Asynchronous Protocols • normally associated with DEC terminals and hosts, and other minicomputers; the IBM 3101 ASCII terminal, which can be used on IBM's large mainframes, is also asynchronous.

Bisync 3270 Protocols • used for communication to nearly any IBM mainframe; the use of the protocol does not always imply that the functions of the 3270 terminal are emulated, however; this is a synchronous protocol, so special modems and connection considerations will probably apply.

Bisync Batch Protocols • used for file transfer, since they support combination card reader/printer terminals such as IBM's 3780 and 2780; IBM operating systems usually employ such terminals for remote job entry (RJE) • a popular job scheduling package called HASP is sometimes associated with these stations giving them the name "HASP workstation"; like the 3270 protocol, these protocols are synchronous.

SNA 3270 • sometimes called SDLC 3270; the protocol currently preferred by IBM for data communication on their large mainframes; conversion to SNA, however, is sometimes expensive and many users have been reluctant to make the switch • if SNA is not already in use in a data center, purchase of a device which requires SNA support with the intention of converting or adapting to that device would probably be unwise • SNA is a synchronous protocol.

X.25 • a standard computer protocol defined by an international standards group, the CCITT; nearly every minicomputer and microcomputer can support X.25, but only a small portion actually do so now • X.25 is normally used as a high-speed file transfer protocol, but it is suitable for interactive communication as well • there is no specific X.25 interactive terminal type, so most mini and mainframe support of X.25 assumes file transfer mode.

TERMINAL EMULATION

Most products for personal computer-to-mainframe communication will emulate the operation of some form of terminal device which could ordinarily be used with the target host. This simplifies the software required on the host system to support the communication. The type of terminal emulated determines the host computers which can communicate with the product and the ease with which that communication path can be provided. Most terminal emula-

tors will place some restrictions on the type of data which can be transferred to and from the host system, because the emulators assume human operators will view the results. Binary files such as programs will often NOT transfer with interactive terminal emulators such as the DEC and IBM 3270 emulators.

3270 Emulation • indicates that the package emulates the functions of the 3270 terminal, an interactive CRT; the 3270 is a complex terminal, having such features as protected fields, modified/unmodified data status, and video attributes; most IBM mainframes can be made to communicate with 3270 devices, and many other vendors will support such an interface as well; the 3270 is probably the most common terminal type on large computer systems • new versions of the 3270, such as the color version (the 3279) may not be emulated; if you need support for a specific model you should check the detail specifications of the candidate products; 3270 emulators are suitable for text file transfer, but probably will not serve to transfer binary data such as programs.

3780 Emulation • provides PCs with the ability to transmit and receive files as though they were batch Remote Job Entry devices such as the IBM 2780 or 3780; there are several different forms of 3780 emulation, and the device may not support them all; some products will not support the transfer of binary files.

DEC Emulation • will normally indicate that the package emulates the popular DEC asynchronous terminal line, such as the VT52 or VT100; some devices may also emulate teleprinter terminals such as the LA36; DEC terminals will obviously be supported by DEC hosts, but will also generally interface with other popular minicomputers; IBM systems are less likely to support DEC devices.

Hewlett-Packard Terminal Emulators • may be used with the HP computer line, or on other computer systems which use the graphics features of some of the HP terminals; they are unlikely to be supported on IBM systems.

Data General Terminal Devices • may be emulated for attachment to Data General computer systems, but are not likely to be useful in other applications.

Tektronix Terminal Emulators • may be used on computers with high-resolution graphics requirements; because the Tektronix terminals have very sophisticated features and high screen resolution, some aspects of their operation may NOT BE EMULATED, even by packages which claim to be Tektronix emulators; check the features of such products carefully.

Other Batch Terminal Emulation • indicates a custom device for computer-to-computer transfer, such as an X.25 emulator.

Other Interactive Terminal Emulation • specifies that the product emulates the operation of a terminal product of a company such as Honeywell, CDC, Burroughs, NCR, etc.; emulators of terminals such as these will be useful primarily with that vendor's own host computers.

FILE EXCHANGE SUPPORT

Some form of file transfer capability is necessary in a PC-to-mainframe product. Nearly every product is capable of supporting data input to the host computer; all that is required is the terminal function needed to invoke a terminal-to-disk copy program or a simple line editor. File transfer to the host requires the ability to send a disk file which was produced in local mode on the PC. File reception from the host requires the ability to save received data into such a file. Where file transfer is associated with interactive terminal emulators, some program action at the host end may be required to set up an application screen suitable for the data being sent. Batch terminal emulators can generally send files in both directions with no special action at the PC or at the host.

File Transfer To Host • indicates that the package can send data from a disk file to the host system; the data may require special formatting on the PC, and special application support to receive the data may also be required.

File Transfer From Host • indicates that the package can store received data to disk; if that data contains terminal control or prompt information, it is normally stored as well.



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Integrated Host/Micro Application • denotes that the product has a software component at both ends of the connection which cooperate to exchange data, making explicit user file transfer unnecessary or a part of the integrated operation.

PC/OPERATING SYSTEMS SUPPORTED

Products which contain only software elements may be suitable, with some user or vendor modification, for execution on ANY hardware which supports the operating system for which they were designed. Products which have a hardware component will normally be designed for a specific PC. In all cases, check the configuration requirements for the product to insure that it will execute properly.

IBM PC • indicates that the product will operate on the IBM Personal Computer or PC/XT; it may also operate on the various PC-compatible systems.

Apple • indicates that the product will operate on one of the Apple computers, such as the II, the IIe, the III, or the Lisa; specific models supported should be verified, and the type of non-vendor hardware, if any, should be checked carefully. Many Apple models have no "standard" communication support.

TRS-80 • indicates that the product operates with one of Tandy's TRS-80 products.

CP/M • states that the product is designed to work with the CP/M operating system, either its 8-bit or 16-bit form; most such products

will be designed for CP/M-80, the 8-bit version • since CP/M is used on many different computer types, products for CP/M will probably not address each possible system without special hardware or even some user-developed program changes; see what SPECIFIC hardware is supported for these systems.

MS-DOS • indicates that the product will operate with Microsoft's MS-DOS, which IBM calls PC-DOS; there may be a version sensitivity to these products, since DOS 2.0, the current release from IBM, is significantly enhanced in its operating system functions; check the vendor for information on the latest versions supported.

Other • denotes a personal computer/operating system combination not covered previously; this support may be in addition to support of systems already described; since most computer products are either IBM, Apple, MS-DOS, CP/M, or TRS-80, this may indicate that the product is specialized for a narrow market.

DATA TRANSFER RATE

This indicates the range of data rates which the product can support—from zero to over 9600 bps. If a modem is to be used for connection of the product to the host system, the modem speed may limit the data rate to some lower value. If the product is directly connected to the host through a serial port, it will probably be capable of higher speed operation than if connected through a modem. Host communication port or software considerations may also limit the maximum speed.



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COMPANY	PRODUCT	PACKAGE TYPE		TARGET HOST	
		Basic Transmission Support	Terminal Emulator		
		IBM 30XX, 43XX	IBM 34/36/38	D/C	Other
1	American High-Tech Industries	SuperSmart 212A	— • —	— • —	1
2	Applied Data Research	ADR/PC Empire	— • —	• — — —	2
3	Applied Microsystems	Intelecom	• — —	— — — —	3
4	Applied Microsystems	PCDI	— • —	• — — —	4
5	Applied Microsystems	PC-PROFS	— • •	• — — —	5
6	Avatar	PA1000	— • —	• — • —	6
7	Avatar	TC3278 Systems	— • —	• — • —	7
8	Avcom, Inc	PM-300	• — —	— — — —	8
9	Barr Systems, Inc	BARR/HASP	• — —	• — — •	9
10	Cleo	Cleo 3270	— • —	• — — —	10
11	Cleo	Cleo 3780	— • —	• — — —	11
12	Communications Research Group	BLAST	— • —	— • • •	12
13	Communications Research Group	BLAST/BOX	— • —	• • • •	13
14	Compal Computer Systems	Bi-Sync Communications	— • —	• — — —	14
15	Compal Computer Systems	Teletype Terminal	— • —	— • • •	15
16	Cullinet	Cullinet PC Software	— • •	• — — —	16
17	Cygnnet Technologies, Inc	CoSystem	— • —	— — — —	17
18	Digital Equipment Corp	PRO/Communications	— • —	— — • —	18
19	Digital Marketing Corp	The Micro Link	• — —	— — — —	19
20	Dynamic Microprocessor Assoc	ASCOM	• — —	— — — —	20
21	Frontier Technologies Corp	AD COM Board	— • —	• — • •	21
22	Gateway Communications, Inc	G-NET	— • —	• • • •	22
23	Gateway Microsystems, Inc	Microgate, Microgate II	— • —	• — — —	23
24	General Micro Systems	PC100/102	— • —	— • — —	24
25	General Micro Systems	PC102-SVBD	— • —	— • — —	25
26	General Micro Systems	PC4010	— • —	— — — •	26
27	Hawkeye Graphix	COMMX	• — —	— — — —	27
28	Hayes Microcomputer Products	Micromodem IIe/Smartcom I	• — —	— — — —	28
29	Hayes Microcomputer Products	Smartmodem 1200B/Smartcom II	• — —	— — — —	29
30	IBM	Asynchronous Communications	— • —	• — — —	30
31	IBM	3101 Emulation	— • —	• — — —	31
32	IBM	3270 Bi-Sync Emulation	— • —	• — — —	32
33	IBM	3270 PC	— • —	• — — —	33
34	IBM	3270 PC/3279 Attach	— • —	• — — —	34
35	IBM	3270/3770 SNA Emulator	— • —	• — — —	35
36	IBM	3278/3279 Emulation	— • —	• — — —	36
37	IBM	5251 Emulation	— • —	— • — —	37
38	IBM	XT/370	— • •	— — — —	38
39	Informatics General	VisiAnswer	— • •	• — — —	39
40	Information Builders, Inc	PC/Focus	— • •	• — — —	40
41	Information Technologies, Inc	LINKUP	— • —	• • • •	41
42	Inner Loop Software	VDTE 2	— • —	— • • •	42
43	Interactive Systems Corp	Intext II Emulator	— • —	— • • •	43
44	Intercomputer Communications Corp	Intercom 101	— • —	— — • •	44
45	Intercomputer Communications Corp	Intercom 300	— • —	— — — •	45
46	Lantech Systems, Inc	uNETix	— • —	• — — —	46
47	Link Systems	DataLink	• — —	— — — —	47
48	Masterlink	Handshake	— • —	— — — •	48
49	Masterlink	Handshake/Plus	— • —	— — — •	49
50	McCormack & Dodge	PC Link	— • •	• — — —	50



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COMPANY	PRODUCT	PACKAGE TYPE		TARGET HOST	
		Basic Transmission Support	Terminal Emulator		
		Integrated Appl. Software		IBM 30XX, 43XX	
				DEC	Other
1	MicroCom, Inc	3270 Protocol Converter	— ● —	● — — —	1
2	Microplot Systems	PC-PLOT-I	— ● —	— — — ●	2
3	Microplot Systems	PC-PLOT-II	— ● —	— — — ●	3
4	Microplot Systems	PC-PLOT-III	— ● —	— — ● ●	4
5	Microstar	Videotext Interpreter	— ● —	— — — ●	5
6	Microstuf, Inc	CROSSTALK	— ● —	● — ● ●	6
7	MSA, Inc	Executive Peachpak II	— — ●	● — — —	7
8	National Instruments	NET488	— ● —	— — ● —	8
9	Newport Group	Express Data Exchange	● — —	— — — —	9
10	Office Software Automation, Inc	Intern	— ● —	● — ● ●	10
11	Omnar Corp	PC Interface	— — ●	— — — ●	11
12	On-Line Business Systems, Inc	OBS FTP	● — —	— — — —	12
13	On-Line Software International	OMNILINK/OMNIMICRO	— — ●	● — — —	13
14	Pathway Design, Inc	BSC-3270/3770 Emulator	— ● —	● — — —	14
15	Pathway Design, Inc	SNA-3270/3770 Emulator	— ● —	● — — —	15
16	Pathway Design, Inc	2780/3780 Emulator	— ● —	● — — —	16
17	Perfect Software, Inc	PerfectLink	— ● —	● — ● ●	17
18	Persoft, Inc	TE100/TE125-FT	— ● —	— — ● —	18
19	Persoft, Inc	TE400-FT	— ● —	— — — ●	19
20	Persoft, Inc	TE950-FT	— ● —	— — — —	20
21	Persyst	PC/HASP	— ● —	● — — —	21
22	Polygon Associates, Inc	Poly-XFR	— ● —	— — ● —	22
23	Protocol Computers, Inc	PCI 1051	— ● —	— ● — —	23
24	Protocol Computers, Inc	PCI 1071	— ● —	● — — —	24
25	Protocol Computers, Inc	PCI 1076	— ● —	● — — —	25
26	Racal-Telesystems, Inc	Protocol & Code translators	— ● —	● — — ●	26
27	Rixon Inc	PC212A/PC Comm 1	● — —	— — — —	27
28	Shared Systems Technologies	ACE	— ● —	— — — —	28
29	Shared Systems Technologies	ACE NEC APC	— ● —	— — ● —	29
30	Simware, Inc	SIM3278/AZPC 2	— — ●	● — — —	30
31	Software Dynamics, Inc	SDI-3274-51C	— ● —	● — — —	31
32	Software Dynamics, Inc	SDI-3780	— ● —	● — — —	32
33	Southeastern Software	Data Capture	● — —	— — — —	33
34	SSM Microcomputer Products, Inc	Transend	● — —	— — — —	34
35	SSM Microcomputer Products, Inc	Transmodem 1200	● — —	— — — —	35
36	SSM Microcomputer Products, Inc	Transpack PC/PC+	● — —	— — — —	36
37	Techland Systems, Inc	Blue Lynx 3276 SDLC	— ● —	● — — —	37
38	Techland Systems, Inc	Blue Lynx 3276/S BSC	— ● —	● — — —	38
39	Techland Systems, Inc	Blue Lynx 5251	— ● —	— ● — —	39
40	Technical Analysis Corp	IRMA	— ● —	● — — —	40
41	Technical Analysis Corp	IRMALINE	— ● —	● — — —	41
42	Tecmar, Inc	ELAN	— ● —	— — ● —	42
43	Televideo Systems, Inc	TeleAsync	— ● —	— — ● ●	43
44	Televideo Systems, Inc	Tele3270	— ● —	● — — —	44
45	Televideo Systems, Inc	Tele3780	— ● —	● — — —	45
46	Tominy, Inc	Data Base-Plus	— — ●	● — — —	46
47	Ven-Tel, Inc	PC Modem Plus	— ● —	● — ● —	47
48	VM Personal Computing	RELAY	— — ●	● — — —	48
49	XCOM	SA-3212	— ● —	● — ● ●	49
50	ZIPCO Mailing Service	Zipcom/Ze-com	● — —	— — — —	50



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PERSONAL COMPUTER-TO-MAINFRAME COMMUNICATIONS PRODUCTS FEATURES

Product • This describes the name or model of the mainframe communication product.

Personal Computers/Operating Systems • The personal computers and operating systems which support the product. Most mainframe communication software marketed today is designed for the IBM Personal computer and PC/XT, but some will run on the Apple (II, IIe, III, or Lisa), the TRS-80 (Model II, III, 12, or 16), or on CP/M computer systems. The IBM PC runs with IBM's PC-DOS operating system, a version of the MS-DOS operating system provided by Microsoft. IBM PC-compatible computers such as Compaq, Corona, or Columbia will normally execute SOFTWARE communication products designed for the IBM PC, and most circuit boards or integral modems will also work with these systems. Systems such as the DEC Rainbow or TI Professional MAY run the software but will probably not operate with circuit boards or integral modems designed for the IBM PC.

If a computer is specifically mentioned in this section, the communication product vendor has represented that the communication product identified will operate with that computer. Users with any doubts on computer compatibility should check with the communication software vendor directly before purchasing, rather than rely on the representations of the retailer.

Application • The use for which the communication product was designed, or its primary market. The packages supporting general communication connection to services or computers through emulation of simple asynchronous terminals are normally inexpensive products designed to support the widest range of host communication interactions, but lacking in specific terminal emulation features which may be required by some mainframe and minicomputer applications. Cursor control for displaying prompts is an example of a specific terminal feature not supported by these general packages.

Terminal emulator packages which emulate the operation of IBM, DEC, or other computer terminals are more expensive, more sophisticated, and able to interact with host systems which normally support the terminal type with more flexibility. Terminal emulators are usually "targeted" for a particular host computer, often a system made by the manufacturer of the terminal being emulated, and the target vendor will be identified for these products. Special application limits may be noted for some products. For example, products which emulate terminals can transfer files, but may be limited to the text subset which can be displayed on the device emulated. If special file transfer support is provided, that fact will be noted here.

Integrated application software will provide very flexible support for micro-to-data-center communication, but limited to the application program or programs supported.

Components • This section will identify the specific parts of the product—software and hardware. If the product consists only of a computer program (supplied on floppy disk unless otherwise stated), this section will indicate a "software product". Products which are primarily software-based, but for which the vendor makes hardware available, may be listed as "software product with optional supporting hardware". Products which are primarily hardware products are listed as such, and supporting software is noted.

Characteristics • The technical characteristics of a mainframe communication product are complex and vary according to the application of the product. The following areas may be covered in the CHARACTERISTICS section:

- **Interface.** In general, the communication interface will be defined as a serial (RS-232) port, modem, or other special interface such as coaxial cable or computer bus attachment.

- **Speed.** Data speeds will be shown, both for modem attachment and for direct attachment via a serial port. If the product does not include a modem, the speed of operation over a modem/phone circuit will be limited by the line and modem combination used. Most communication over dial phone lines operates at 1200 bps, but modems are available up to 4800 bps. Leased line operation would permit phone attachments at 9600 bps.

- **Protocol and Terminal Emulated.** If the product is a terminal emulator, the type of terminal emulated will be shown, and any major restrictions on operation noted. The communication protocol will also be identified; asynchronous, bisync, SNA/SDLC, etc.

- **Special Features.** If the product has any special operating or functional features, they will be noted. Examples of this are automatic dialing and log-on, file transfer capability, menus or operating aids, or companion host software packages to improve functionality.

- **Other Characteristics.** Special products such as integrated application packages will often have unique characteristics, such as the application programs supported. These will be outlined where provided by the vendor.

Pricing • The retail, quantity-one price for the product will be noted. If the product contains or consists of software, this will represent a one-time license fee. If the vendor has announced volume discount policies, that fact will be noted. Mainframe software, if optional, will be separately priced. If the product has optional components, they will be priced separately also. Some products may not show prices if the vendor has not yet announced them.

PERSONAL COMPUTER-TO-MAINFRAME COMMUNICATIONS PRODUCTS LISTINGS

■ AMERICAN HIGH-TECH INDUSTRIES, INC

11111 Wilcrest Green-201, Houston, TX 77042 • 713-952-7332

□ SuperSmart 212A Model with Turbo-Comm Software

Personal Computers/Operating Systems • IBM Personal Computer or PC/XT with PC-DOS or compatible system with Microsoft MS-DOS

Application • terminal emulation of DEC VT100, DG 605X series, ACT-5a, or ADM-5 terminal for attachment to DEC computers or other computers supporting simple asynchronous terminals

Components • multifunction board; integral modem, clock-calendar, autodialer optional, parallel and serial ports, memory optional to 512K bytes; Turbo-Comm software on floppy disk

Characteristics • an interrupt-driven terminal emulator product; data rates to 1200 bps via modem or to 19.2K bps through serial port; RS-232 interface on serial port, RJ-11C on integral modem

Pricing • \$595 for basic unit with software; \$695 with serial and parallel ports; \$1,195 with 64K-byte RAM, serial and parallel ports, spooler and RAM-disk emulator

■ APPLIED DATA RESEARCH (ADR)

206 & Orchard Road, CN-8, Princeton, NJ 08549 • 201-874-9000

□ ADR/PC Empire

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible personal computer with MS-DOS

Application • provides a link between an IBM PC and ADR application programs running on IBM mainframe; this presently includes ADR/EMPIRE and a database system as well as some development tools

Components • software product

Characteristics • ADR/PC links to a 3270 cluster controller via a



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coaxial cable and accesses partner ADR products; the product generally emulates a 3278 terminal; data can be downloaded to the PC from ADR/Datacom/DB or ADR/EMPIRE; presently, upload to the mainframe is available only for ADR/EMPIRE; a PC-based database package compatible with Datacom/DB is available; a 3278 emulator board is required for the PC

Pricing • software costs are expected to range from \$500 to \$1,500 depending on the package selections, but prices have not yet been finalized

■ APPLIED MICROSYSTEMS

P.O. Box 832, Roswell, GA 30077 • 404-371-0832

Intelcom Communication Program

Personal Computers/Operating Systems • IBM PC or PC/XT using PC-DOS, compatible personal computer using MS-DOS.

Application • a basic asynchronous terminal emulator for use in communicating with commercial timesharing systems or mainframes which will accept a simple asynchronous protocol

Components • software product

Characteristics • asynchronous transmission and reception of data as a simple ASCII terminal via modem to 1200 bps or direct connect at rates to 9600 bps; flow control via XON-XOFF; RS-232 interface required for direct connect—IBM Asynchronous Communication Adapter or equivalent • modem required is Hayes Smartmodem or equivalent

Pricing • \$99.95

PCDI

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, compatible personal computer with MS-DOS

Application • communication with IBM mainframe computer systems for exchange of data and translation of mainframe data to popular PC formats

Components • software product

Characteristics • asynchronous emulation of IBM ASCII terminal at data rates to 1200 bps via modem • Hayes Smartmodem required; EBCDIC format also acceptable • data formatting into DIF or Basic Sequential List (BSL) format; data management and graphics analysis functions included

Pricing • \$250 for single copy license, \$30,000 for unlimited corporate license

PC-PROFS

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, compatible personal computer with MS-DOS; Color graphics adapter and 256K bytes RAM required

Application • provide an interface between the PC and IBM's Professional Office System, for access to the PROFS IBM mainframe network

Components • software product

Characteristics • asynchronous communication via a Hayes Smartmodem or equivalent at speeds up to 1200 bps; modem interface only • product emulates IBM 3101 terminal to PROFS; automatic dial and logon to mainframe

Pricing • not available at this time

■ AVATAR/3R COMPUTERS

18 Lyman Street, Westboro, MA 01581 • 617-366-5300

PA1000

Personal Computers/Operating Systems • IBM PC or PC/XT; other personal computer capable of emulating a DEC VT100, IBM 3101, LSI ADM-5, Televideo 950, or ADDS Viewpoint

Application • emulation of a 3278 IBM terminal on a cluster controller supporting either SDLC or bisync, in addition, the product will support connection to an asynchronous host computer such as a DEC if the terminal emulated is compatible with the asynchronous host

Components • hardware system, requires external software in PC to emulate a compatible terminal device

Characteristics • the PA1000 provides a single asynchronous channel attached via an RS-232 interface and operating at speeds to 9600 bps to attach to an IBM 3270 cluster controller and emulate a 3278 workstation; the same terminal can select connection direct to an asynchronous RS-232 output port which provides access to a compatible asynchronous host port; the 3278 connection is standard coaxial interface

Pricing • \$995

TC3278 Systems

Personal Computers/Operating Systems • the product is an 8-bit CP/M system

Application • to convert an IBM 3278 or 3178 terminal into a CP/M computer system, retaining its ability to act as a terminal on the IBM host via a cluster controller connection

Components • hardware system, available with floppy or hard disk drives and supporting software

Characteristics • the TC3278 is a computer system which uses the IBM 3278/3178 terminal as a console; the 3278 retains its ability to attach to the IBM host system and gains additional abilities to connect to DEC or other systems via VT100 emulation • full file transfer in both directions is supported with either host system, and the product can store data from one host and forward it to another

Pricing • from \$2,945 for a system with a single 410K-byte disk drive to \$6,995 for a dual-processor system with 20M-byte hard disk and 410K-byte floppy

■ AVCOM, INC

P.O. Box 29153, Columbus, OH 43229 • 614-882-8176

PM-300 Integral Modem & COMPAC Software System

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or other compatible PC with MS-DOS

Application • provides basic asynchronous communication support to timesharing hosts for other computers which can communicate with simple ASCII terminal devices; automatic dialing is also provided

Components • integral 300-bps modem and software package (software also sold separately)

Characteristics • modem operates to 300 bps only, and is equipped with autodial; Bell 103 compatible • Compac software provides emulation of basic ASCII terminals into minicomputers and mainframes; file transfer in both directions is supported; also provides full emulation of the CompuServe "B" protocol • Compac will operate to 1200 bps with a 212-compatible modem (not supplied) or direct via RS-232 (IBM Asynchronous Communication Adapter or equivalent)

Pricing • PM-300 and software is \$189.95; Compac software alone is \$69.95

■ BARR SYSTEMS, INC

2500 Blue Ridge Road, Suite 315, Raleigh, NC 27607 • 919-782-4462

BARR/HASP

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer with MS-DOS

Application • provides emulation of remote job entry facilities emulating a HASP workstation into IBM's MVS/JES2 or JES3, VM/RCS, DG HAMLET, Datanex HASP+ on the VAX, and other systems supporting HASP protocols

Components • circuit board and software product

Characteristics • provides full HASP multileaving emulation with data compression at speeds to 19.2K bps with proper modem (not included); emulates IBM 2780/3780 terminal using the bisync protocol • data from PC files can be generated off-line and sent to host; data from host can be received to disk or spooled to up to 7



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printer ports • RS-232 interface supplied on board, external synchronous modem required

Pricing • \$750, including software

■ CLEO

461 North Mulford Road, Rockford, IL 61107 • 815-397-8110

□ CLEO 3270

Personal Computers/Operating Systems • Altos 8000, 8600, 586; DEC VT180; Epson QX-10; Fortune; IBM PC or PC/XT; Kaypro II; Televideo; TRS-80/2; Victor 9000; Zenith Z-100; all require vendor-standard operating system support

Application • provide microprocessor emulation of a bisync 3276 cluster of IBM terminal devices or an SDLC/SNA 3271 or 3275 for attachment to IBM or compatible host computers

Components • software product

Characteristics • CLEO 3270 allows a personal computer to emulate an IBM 3270 family cluster controller • the PC normally appears as one or more 3278 terminals or 3287 printers; computers with multiple terminal devices may be supported in multi-device mode • a package for the IBM PC which includes additional serial cards will support up to five slave PCs running off the central emulator system; Dates to 9600 bps are supported, but speeds may depend on modem and on the particular microcomputer system used • PC synchronous support from the PC vendor or a compatible third-party vendor is required

Pricing • prices vary with computer system, from \$395 to \$995 • a single-user IBM PC system would cost \$500, and the 7-device system (local, five remotes, and printer) would cost \$980 • the emulation hardware for the PC is \$295, and \$580 worth of additional serial ports is required for the 7-device configuration

□ CLEO 3780

Personal Computers/Operating Systems • Altos 8000, 8600, 586; DEC VT180; Epson QX-10; Fortune; IBM PC or PC/XT; Kaypro II; Televideo; TRS-80/2; Victor 9000; Zenith Z-100 • all require vendor-standard operating system support

Application • provide emulation of IBM 3780 terminal devices for batch-mode attachment to IBM or compatible host systems

Components • software product; hardware may be required for some PC systems

Characteristics • provides support for point-to-point and multi-point transmissions to and from compatible host systems over synchronous communication paths using IBM's batch bisync protocol at speeds to 9600 bps • data received may be viewed on the screen, spooled to a printer, or written to disk; disk files may be sent to the host

Pricing • pricing varies with the computer supported, from \$395 to \$995; the price for the IBM PC is \$500; hardware for the IBM PC (PC-SIC) is \$295

■ COMMUNICATIONS RESEARCH GROUP, INC

8939 Jefferson Highway, Baton Rouge, LA 70809 • 504-923-0888

□ BLAST

Personal Computers/Operating Systems • IBM PC or PC/XT using PC-DOS, compatible personal computer using MS-DOS, 8-bit CP/M or MP/M systems, Apple II using DOS 3.3 • any computer running BLAST can communicate with any other system also supporting it

Application • provides an asynchronous, error-correcting protocol between computers which support BLAST software; this supports file transfer with error protection

Components • software product.

Characteristics • BLAST is a Blocked Asynchronous Transmission protocol which provides the error-detection and correction features of a protocol such as SDLC, but without the special hardware needed for synchronous protocols • data rates vary with the computer systems involved and the type of connection (modem or direct), but speeds to 19.2 kbps are available • the product

supports popular integral modems and serial port adapters on the host systems; full bidirectional transfer and saving of files is supported

Pricing • PCBLAST for the IBM PC, AP2BLAST, and CP/M BLAST are \$250; BLAST for the Data General systems costs from \$250 to \$1,395 depending on model and operating system; VAXBLAST for the DEC VAX/VMS system costs from \$895 to \$1,395 depending on options

□ BLAST/BOX

Personal Computers/Operating Systems • any computer system having FORTRAN (ANS-74) or C compilers

Application • provides BLAST protocol and transfer support between hosts on which a specialized BLAST implementation is not available because full-duplex asynchronous transmissions are not supported

Components • hardware product with software component supplied in source form; requires user customization of communication interface routines

Characteristics • the BLAST Box is a hardware device which converts the BLAST protocol into a simple half-duplex ASCII teletype-like protocol which can be handled by nearly any mainframe system using a special control program • a control program written for the host computer is supplied in FORTRAN and C source code, but must be customized to the communication interface

Pricing • not available at this time

■ COMPAL COMPUTER SYSTEMS

8500 Wilshire Boulevard, Suite 103, Beverly Hills, CA 90211 • 213-652-2263

□ Binary Synchronous Communications

Personal Computers/Operating Systems • COMPAL computer system (a DEC Rainbow OEM) using CP/M-86/80

Application • attachment of the COMPAL computer system to IBM hosts or other compatible host systems as an emulator for the IBM 2780/3780 batch bisync terminal

Components • a software product which requires a special hardware adapter on the COMPAL system

Characteristics • provides full 3780 functionality at speeds to 9600 bps via half-duplex synchronous modem, supporting attachment to IBM HASP, POWER, JES, CICS, CICS/VS, and BTAM hosts; file transfer in both directions is supported • a special RS-232 port is required

Pricing • software costs are \$1,000; special communications port for synchronous communications is priced at \$2,700

□ Teletype Terminal (TTY)

Personal Computers/Operating Systems • COMPAL Computer (DEC Rainbow OEM), CP/M-86/80 operating system

Application • basic teletype emulation to asynchronous ports such as timesharing host computers

Components • software product

Characteristics • TTY provides emulation of simple teletype-style teleprinter terminals such as the DEC LA36 or LSI ADM-3; this permits the attachment of the COMPAL system to host computers for file transfer to 1200 bps using asynchronous protocol • an RS-232 interface is required on the COMPAL and an external Bell 103 or 212-compatible modem is required

Pricing • \$350

■ CULLINET

400 Blue Hill Drive, Westwood, MA 02090 • 617-329-7700

□ Cullinet PC Software

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS



Personal Computer-to-Mainframe Communications Products

Application • provide integrated access to the IDMS-R relational data base system from an IBM PC

Components • software product

Characteristics • this package provides local data manipulation in IDMS style and the ability to download data or query data from a host IDMS-R data base; micro files can be stored on the mainframe, but the micro user cannot update the data base except through a program running on the mainframe

Pricing • \$1,000 for the micro product and \$75,000 for IDB, the mainframe component

■ CYGNET TECHNOLOGIES, INC

1296 Lawrence Station Road, Sunnyvale, CA 94098 • 408-734-9946

□ CoSystem

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, other compatible computers with MS-DOS

Application • provides an integrated telephone information center with data and voice communication capabilities, including speed dialing and speakerphone, electronic mail, and terminal emulation

Components • a hardware product supported by software running on the PC

Characteristics • CoSystem is an integrated voice/data system which permits data communication at rates of 300 or 1200 bps depending on the model; an asynchronous modem is integral with the unit; basic ASCII terminal emulation is supplied with the product, but other terminal emulators will run under the "shell" created by the booting of the CoSystem • an RS-232 interface compatible with IBM's Asynchronous Communication Adapter is required • a phone listing data base system and calendar are included; the system features unattended operation

Pricing • the 300-bps version of the CoSystem is priced at \$1,495 and the 1200-bps version at \$1,845 • the speakerphone option is \$150

■ DIGITAL EQUIPMENT CORP

146 Main Street, Maynard, MA 01754 • 617-897-5111

□ PRO/Communications

Personal Computers/Operating Systems • DEC Professional 300 or 350 under Professional Operating System P/Os

Application • data communication, terminal emulation, and file transfer between DEC Professional computer systems and DEC PDP-11 or VAX computers, or other minicomputers or mainframes

Components • software product

Characteristics • terminal emulation provides support for hosts compatible with the DEC VT102 or VT125 terminals at speeds to 9600 bps in direct connect mode or via modem at a speed limited by the modem • DEC hosts may also access the program in file transfer mode using software resident on the host system to complete error-protected transfers • a phone book program and program to maintain a library of line characteristics is also included • automatic dialing with redial on busy is provided

Pricing • \$195

■ DIGITAL MARKETING CORPORATION

2363 Boulevard Circle, Walnut Creek, CA 94595 • 415-947-1000

□ The Micro Link II

Personal Computers/Operating Systems • CP/M-80 systems, CP/M-86 systems, MS-DOS systems including the IBM PC and PC/XT

Application • basic data exchange with information sources, timesharing services, or computer systems which can support basic ASCII terminal devices

Components • software product

Characteristics • MICRO LINK II provides basic file exchange services with computer systems which can emulate simple asynchronous ASCII teleprinters such as the Teletype M43 • data in text or binary form may be sent and received, and file transfer to and from disk is supported; data rates to 1200 bps are allowed, and higher speeds (to 9600) may be available on some systems; a CPU serial port is used • the product requires an asynchronous modem for phone connections

Pricing • \$99

■ DYNAMIC MICROPROCESSOR ASSOCIATES

545 Fifth Avenue, New York, NY 10017 • 212-687-7115

□ ASCOM

Personal Computers/Operating Systems • personal and business computers supporting CP/M-80, CP/M-86, MS-DOS, or CP/M-compatible systems

Application • basic communication support for file exchange with information services, timesharing services, and computer systems which can support simple asynchronous, ASCII communication

Components • software product

Characteristics • terminal emulation of basic asynchronous devices such as DEC LA36 teleprinter is provided, for file exchange with minicomputers or mainframes; direct connection via RS-232 interface is supported to 9600 bps, and modems may be used for transmission at rates depending on modem model (typically 1200 bps) • automatic dialing is supported if available on the modem • product options are menu-selected

Pricing • \$175

■ FRONTIER TECHNOLOGIES CORPORATION

P.O. Box 11238, Milwaukee, WI 53211 • 414-964-8689

□ Advanced Communication (AD COM) Board

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible personal computer with MS-DOS

Application • multiprotocol host communication using synchronous or asynchronous protocols

Components • circuit board with two serial ports and communication software product

Characteristics • the AD COM product provides hardware support for any communication protocol, and COMPAC software package permits the uploading or downloading of ASCII files in many protocols at speeds to 19.2K bps • an X.25 support package is also available

Pricing • AD COM board is priced at \$275 plus \$40 for a realtime clock or printer port option • COMPAC software costs \$125 for asynchronous support, \$675 each for bisync or SDLC/HDLC, and \$795 for the X.25 support

■ GATEWAY COMMUNICATIONS, INC.

16782 Red Hill Avenue, Irvine, CA 92714 • 714-261-0762

□ G-NET LOCAL AREA NETWORK

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible personal computer with MS-DOS • CP/M support expected shortly

Application • a local-network product for IBM PCs or compatible systems which features gateway processor support for attachment to X.25 or SNA networks or host computers

Components • hardware circuit board with software product

Characteristics • G-NET connects up to 255 IBM PCs into a local network using baseband CSMA/CD technology • the network may include a gateway processor product for attachment to an IBM SNA or CCITT X.25 network or host computer; 3270 bisync is also supported; data rates to 56K bps can be handled • software configuration of serial ports is standard

Pricing • depends on configuration of network: individual PC interface modules cost \$595, file server modules cost \$1,095, and



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gateway processors \$1,560; additional ports for gateway processors (2 are standard) cost \$295 for 2-port groups or \$450 for a 4-port group • up to 18 ports can be supported

■ GATEWAY MICROSYSTEMS, INC

9501 Capitol of Texas Highway, Suite 105, Austin, TX 78759 • 512-345-7791

□ MicroGate, MicroGate II

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computers with MS-DOS

Application • emulation of IBM 2780/3780 batch terminals for attachment to IBM computers or other compatible systems

Components • integrated hardware and software product

Characteristics • the basic product provides synchronous communication via an RS-232 interface at data rates to 4800 bps • file transfer in both directions is supported, and the information may be sent asynchronously as well as in synchronous form; file concatenation is supported for transmission of data, and batch command files may control the operation of the system • the MicroGate II features program-level interface to COBOL and Assembler language to permit direct program-level communication

Pricing • \$895

■ GENERAL MICRO SYSTEMS

7525 Mitchell Road, Suite 101, Eden Prairie, MN 55344 • 612-937-9194

□ PC100/102

Personal Computers/Operating Systems • IBM PC and PC/XT with PC-DOS, or compatible personal computers with MS-DOS • vendor certifies operation on the PC, Corona, Columbia, Eagle-PC, Eagle-1600, and COMPAQ

Application • provides DEC terminal emulation for attachment of PCs to DEC systems or other computers which can interface to the DEC terminal line

Components • software product

Characteristics • supports asynchronous emulation of DEC VT100 and VT52 terminals; some models also support VT102 terminals • data rates to 9600 bps are available over serial RS-232 interface (not included); file transfer in both directions is supported; all DEC keys map to a PC key position

Pricing • basic model is \$89, VT102 emulation support is \$139

□ PC102-SVBD

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, other compatible personal computers with MS-DOS • compatible systems must accept an IBM PC-compatible circuit board

Application • emulation of DEC VT102 in 132-column mode on an IBM PC or compatible system

Components • circuit board and software product

Characteristics • the PC102-SVBD provides the same basic features as the PC100 product series, but includes a CCS SUPERVISION board which permits emulation of DEC VT102 terminals in 132-column mode; screen sizes of 80X25, 132X25, 80X44, and 132X44 are supported

Pricing • hardware and software are priced at \$799 • owners of the SUPERVISION product may purchase the software alone for \$179

□ PC4010

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, compatible personal computer with MS-DOS • graphics adapter required

Application • emulation of the Tektronix 40/10 graphics terminal

Components • software product

Characteristics • emulates the Tektronix graphic terminal model 40/10 in direct attachment or modem connect mode • RS-232

asynchronous interface required • speeds up to 9600 bps are supported in direct-connect mode, and speeds via modem connection are limited by the modem involved (typically 1200 bps)

Pricing • not available at this time

■ HAWKEYE GRAFIX

23914 Mobile, Canoga Park, CA 91307 • 213-348-7909

□ COMMX

Personal Computers/Operating Systems • any system running CP/M-80, CP/M-86, MS-DOS, PC-DOS, CDOS, or TurboDOS

Application • provide flexible protocol support for asynchronous data exchange with information services, timesharing computers, or other computer systems

Components • software product

Characteristics • COMMX is a menu-driven file transfer program which permits the user to parametrically control and protocol so that many host systems can be accommodated; several types of flow control are supported, and "prompt recognition" for triggering transfers of data is also permitted • data rates to 1200 bps are supported • for full capabilities, a Hayes, Novation, U.S. Robotics, or other compatible smart modem are required

Pricing • 8-bit versions are \$99, and 16-bit versions \$150 • source code available at a premium

■ HAYES MICROCOMPUTER PRODUCTS, INC

5923 Peachtree Industrial Boulevard, Norcross, GA 30092 • 404-449-8791

□ Micromodem IIe/Smartcom I

Personal Computers/Operating Systems • Apple II, Apple III computer with DOS 3.3, CP/M 3.0, CP/M Plus, or Pascal

Application • permit attachment of Apple computers to information services, timesharing services, or computer systems compatible with a basic asynchronous ASCII terminals

Components • integral modem and software product

Characteristics • the combination of hardware and software permit an Apple user to dial and communicate with commercial information services, timesharing services, or computer systems using a basic teletype emulation protocol • flow control is supported during file transfer in either direction; automatic dial and answer of calls supported • data rates are 110 or 300 bps • registered for direct connection to the phone system via RF-11, RJ-12, or RJ-13

Pricing • \$329

□ Smartmodem 1200B/Smartcom II

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or other compatible system capable of accepting an IBM PC-compatible circuit board and running MS-DOS

Application • provides communication with commercial information services, timesharing services, or computer systems capable of interfacing with teletype-style terminals

Components • integral modem and software product

Characteristics • provides communication support over phone lines at speeds to 1200 bps via Bell 212-compatible modem • software will support file transfer in both directions with flow control, automatic dial and log-on, and automatic answer • registered for direct connection via RJ-11, RJ-12, or RJ-13 jack

Pricing • \$599

■ IBM

1133 Westchester Avenue, White Plains, NY 10604 • 914-696-1900

□ Asynchronous Communications Support

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • provide basic teletype (ASR 33/35) emulation for



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file transfer with IBM mainframes or other compatible computer systems

Components • software product

Characteristics • provides basic terminal emulation capabilities for the PC, imitating the operation of a Teletype ASR 33 or 35 terminal; this permits access to many IBM mainframe product programs and user applications; data rates of 1200 bps are supported via modem, and rates to 9600 bps are supported in direct connect mode • requires an IBM Asynchronous Communication Adapter or equivalent

Pricing • \$60 for the software product, \$120 for the Asynchronous Communication Adapter

3101 Emulation

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer with MS-DOS

Application • emulation of IBM's ASCII 3101 terminal device for attachment to IBM host computer systems

Components • software product

Characteristics • this product expands on the basic Asynchronous Communication Support by adding the ability to emulate a 3101 terminal device; the PC can then attach directly or via modem at speeds of up to 9600 bps; speeds may be limited by the mode • a RS-232 serial port compatible with the IBM Asynchronous Communication Adapter is required; an asynchronous modem is required for phone line attachment

Pricing • \$140 for the software product, \$120 for the Asynchronous Communications Adapter

3270 Binary Synchronous Emulation

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible system with MS-DOS • hardware compatibility with IBM BSC Communication Adapter or equivalent is required

Application • supports binary synchronous emulation of the IBM 3270 terminal devices for attachment of a PC to compatible mainframe (particularly IBM) or minicomputer system

Components • software product, but recommended is also supplied by vendor

Characteristics • emulates a 3274 terminal device for direct connection to 9600 bps; phone connection via leased or dial-up lines is limited in speed by the modems involved; file transfer in both directions is supported • IBM BSC Communications Adapter circuit board or equivalent is required; synchronous modem required for phone line connection

Pricing • \$700 for the software product; \$300 for the BSC Communication Adapter

3270 PC

Personal Computers/Operating Systems • independent PC product, an enhancement of the IBM PC line

Application • provides a highly integrated PC/Mainframe environment for PC users via emulation of the 3278 and 3279 terminals

Components • personal computer product

Characteristics • the 3270 PC provides the user with seven concurrent operating sessions; four with the host system via 3270 emulation, one full DOS 2.0 session, and two local "notepad" sessions; multiple windows are supported for these sessions, and these windows can be defined in size; data can be copied between host windows, and file transfer to the host in VM/SP or MVS/TSO is supported • attachment of the 3270 PC is via coaxial cable to a 3274 controller

Pricing • from \$4,290 to \$7,180 depending on configuration; host file transfer support is \$600

3270 PC/3279 Attach

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS 1.1 or 2.0

Application • permits a 3279 terminal to be used as the keyboard and display for an IBM PC and retains accessibility of the 3279 to the host systems

Components • hardware product with supporting software

Characteristics • this permits users with IBM 3279 terminals to use the devices interchangeably as 3270-terminal devices or as keyboard-display systems for the IBM personal computer; no file transfer or interaction between the host and the PC system is supported in this mode

Pricing • contact vendor

3270/3770 SNA Emulator

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS • requires IBM SDLC Communication Adapter or equivalent

Application • provides for attachment of a PC to an SNA network as an interactive terminal device or a simple batch terminal

Components • software product, but vendor supplies recommended circuit board as well

Characteristics • this product emulates an SNA LU-1 or LU-2 for purposes of attachment to a host computer system to transfer files or access mainframe information • data rates to 9600 bps are supported, and connection may be direct or via phone lines and modems; leased and dial lines are supported for connection, and modem and line specifications may limit the data rates • synchronous modems are required

Pricing • \$700 for the software product, and \$300 for the SDLC Communication Adapter

3278/3279 Emulation Adapter/3278/3279 Emulation Control Program

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS capable of interfacing with IBM circuit boards

Application • provide for 3270 emulation in an SNA or BSC environment by attaching to a 3270 cluster controller via coaxial cable

Components • hardware product with supporting software

Characteristics • provides PC attachment to a local 3270 cluster controller via coaxial cable, emulating either the 3278 workstation or the 3279 color workstation; both the remote 3270 session and a local DOS session may be operating concurrently, and the user can switch from one to other interactively

Pricing • contact vendor

5251 Emulation Program & IBM Personal Computer Display Station Emulation Adapter

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system running MS-DOS and capable of interfacing with an IBM-compatible circuit board

Application • provide support for the attachment of IBM PCs to IBM System 34/36/38 computer systems

Components • hardware and supporting software

Characteristics • this product permits an IBM PC or compatible system to be attached via an IBM 5251-12 either locally or remotely; all functions of the host can thus be accessed, and the PC may also operate in stand-alone mode • RPQs permit file transfer to create virtual diskettes on the host system

Pricing • \$893

XT/370

Personal Computers/Operating Systems • independent PC product

Application • provide a highly-integrated micro/mainframe environment where some mainframe programs can migrate to and run on the PC • PC NATIVE-MODE PROGRAMS CANNOT PARTICIPATE IN THE XT/370 MAINFRAME LINK ENVIRONMENT



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Components • an independent personal computer with hardware and software support • a kit to upgrade an existing IBM PC/XT to an XT/370 is also available

Characteristics • the XT/370 provides a PC user with the ability to emulate a 3277-2 in session with applications under TSO, IMS, CICS, VM, etc; the device attaches to a 3274 control unit via cable; local sessions under a PC form of CMS are also supported, and the user can switch interactively from one session to the other • special hardware and a special operating system permits the PC to execute mainframe programs directly • no PC-DOS native-mode interaction is supported

Pricing • starting at \$8,995 • PC/XT users may purchase an upgrade kit for \$3,790

■ INFORMATICS GENERAL (A joint project with VisiCorp)

21031 Ventura Boulevard, Canoga Park, CA 91364 • 213-887-9040

□ VisiAnswer

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible personal computer with MS-DOS

Application • PC link to Informatics' ANSWER/DB data base product to transfer any ANSWER/DB file to the PC for manipulation via any VisiCorp product

Components • software product, both micro and mainframe

Characteristics • a BSC or SDLC/SNA or an asynchronous autodial/autoanswer modem path provides a connection between the PC and ANSWER/DB which can operate to 9600 bps; this path can be used to load files to the PC for use by VisiCalc or other VisiCorp products; the data may NOT be returned to the host • full mainframe data security and access protection is supported; data is requested by "queries" constructed on the PC

Pricing • approximately \$1,000 per PC, for a "typical" configuration of 30+ units

■ INFORMATION BUILDERS, INC.

1250 Broadway, New York, NY 10001 • 212-736-4433

□ PC/Focus

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible personal computer with MS-DOS

Application • provide PC users with much of the power of the FOCUS language on mainframe systems, plus a link to the mainframes for data exchange

Components • software product

Characteristics • PC/FOCUS links to the host system via ASCII asynchronous communication paths, direct or via modem; the link can be used to request data from the host for local storage and processing, or to return data to the host on a file-save basis • update of a file on the host is not supported • while on the micro, the data can be manipulated via a powerful subset of mainframe FOCUS; FOCUS includes a relational data base, financial modeling system, report generator, and transaction processor

Pricing • \$1,595 for the PC version; mainframe cost is additional • Volume discounts for PC software are available

■ INFORMATION TECHNOLOGIES, INC

7850 East Evans Road, Scottsdale, AZ 85260 • 602-998-1033

□ LINKUP

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible personal computer with MS-DOS

Application • multi-function, multi-terminal communication package for file exchange with many different host computers

Components • hardware product with supporting software

Characteristics • LINKUP is an ambitious product which provides both asynchronous and synchronous communication emulating terminals such as the DEC VT52 and VT100, IBM 3101, Tektronix 40xx, IBM 3270, or IBM 2780/3780; the product will receive and

send files to any host compatible with one of these host types. Operation in async mode is to 19.2 Kbps, and synchronous exchange at up to 56 Kbps is supported; terminal emulation mode is keystroke selected

Pricing • \$795 for hardware and TTY terminal emulation support; DEC emulation is \$95 extra; 3101 emulation is \$59; 2780/3780 emulation is \$195 3270 emulation is \$195, and Tektronix 40xx emulation is \$159

■ INNER LOOP SOFTWARE

P.O. Box 45857-C, Los Angeles, CA 90045 • 213-645-5162

□ VDTE 2

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible system with MS-DOS

Application • emulation of Hewlett-Packard terminals for attachment to HP or other compatible host computers

Components • software product

Characteristics • this product emulates the HP2624, HP2648, or DEC VT52 terminals; both serial ports are supported at speeds to 9600 (19.2 Kbps in short bursts); modem or direct connection is supported • software supports print screen and other print options, and full file transfer • seven pages of display memory permit scrolling backward to catch lost information • requires IBM Asynchronous Communication Adapter or equivalent • color Graphics adapter required for graphics display

Pricing • \$200

■ INTERACTIVE SYSTEMS CORPORATION

1212 Seventh Street, Santa Monica, CA 90401 • 213-540-8363

□ INtext II Emulator

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or other compatible systems with MS-DOS

Application • improve throughput and performance of INTERACTIVE's UNIX-based INed text editor by providing local data storage and intelligence, and permit file transfer by DEC emulation

Components • software product, optional mini/mainframe component

Characteristics • provides emulation of the vendor's own INtext II terminal, a product based on the Perkin-Elmer 1251 terminal; the device can emulate DEC VT52/BT100 series terminals as well • file transfer to the UNIX host is supported, with downloading of files into the PC scheduled for release • users of INTERACTIVE's INed program will find significant performance improvements result through the use of the PC as a workstation; non-INed users may use the product in DEC emulation mode • data rates to 9600 bps asynchronous are supported through local connections; data rates on phone line connections depend on the line and modem • requires an RS-232 port, IBM Asynchronous Communication Adapter or equivalent

Pricing • \$475, with volume discounts available

■ INTERCOMPUTER COMMUNICATIONS CORPORATION

3195 Linwood Avenue, Suite 2A, Cincinnati, OH 45208 • 513-321-3199

□ INTERCOM 101

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible system with MS-DOS

Application • emulation of popular Burroughs MT983/TD830 terminals for attachment to Burroughs hosts or other compatible computer systems

Components • software product; vendor-supplied hardware is optional

Characteristics • Intercom 101 uses either an IBM Asynchronous Communication Adapter, an IBM-equivalent, or their own INTERCOM 1000 board to provide Burroughs users with emulation of popular Burroughs poll-select terminals; if the INTERCOM 1000 is



Personal Computer-to-Mainframe Communications Products

used, the product will support both synchronous and asynchronous forms of the Burroughs protocol • speeds to 9600 bps can be achieved with the IBM hardware, while Intercomputer's own board will operate to 38.4 Kbps • the INTERCOM 1000 will support Burroughs' TDI interface, and a less expensive INTERCOM 200 TDI card is available for those who do not need synchronous communication • since the Burroughs protocol periodically polls terminal devices for data or status, a portion of the software (called the DATACOM module) remains resident in the PC and responds to these polls • file transfer in both directions is supported

Pricing • the DATACOM module costs \$99, and the INTERCOM 101 emulator costs \$40; the INTERCOM 200 TDI interface board is \$165, and the INTERCOM 1000 synchronous/asynchronous board is \$325

INTERCOM 300

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • support high-level custom file transfer between IBM PCs and Burroughs mainframes

Components • software product with optional vendor-supplied hardware support

Characteristics • this product, in conjunction with a 300B component which runs on the Burroughs mainframe, interacts with a resident DATACOM module to provide error-protected file transfer at speeds to 38.4 Kbps; RS-232 interface or Burroughs TDI is supported, with proper hardware • if the vendor's INTERCOM 1000 communication board is installed, the connection may be synchronous, otherwise an asynchronous protocol is used • automatic dial and unattended operating modes are supported

Pricing • \$250 for the microcomputer software, \$500 for source code for the Burroughs mainframe component; hardware interfaces are \$165 for a basic TDI interface or \$325 for a synchronous board with TDI and RS-232

LANTECH SYSTEMS INC.

9635 Wendell Road, Dallas, TX 75243 • 214-340-4932

uNETix

Personal Computers/Operating Systems • a custom operating system for the IBM Personal Computer and other personal computers capable of running MS-DOS

Application • provides a UNIX-like environment which includes emulation of IBM 3101 terminal devices

Components • software product

Characteristics • uNETix is an operating system which runs on MS-DOS-compatible computer systems and provides users of such systems with a basic UNIX environment • asynchronous data ports can be used as UNIX "character" devices to support remote users • the system can emulate an IBM 3101 for attachment to remote computers via asynchronous modems or direct connection; speeds to 9600 bps are supported • requires an IBM Asynchronous Communication Adapter or equivalent

Pricing • \$129.95

LINK SYSTEMS

1640 19th Street, Santa Monica, CA 90404 • 213-453-1851

DataLink

Personal Computers/Operating Systems • Apple II with UCSD Pascal 1.1 or later

Application • provide communication between an Apple/Pascal system and information services, timesharing systems, or computer systems compatible with asynchronous teletype protocols

Components • software product

Characteristics • DataLink supports transmission and reception of files over asynchronous communication paths by emulating a basic ASCII teleprinter device; the program is written in PASCAL and supports a number of compatible internal and external

modems; data transfer may be controlled via several flow control protocols including XON/XOFF and STX/ETX; the program will transfer using error protection to a host or other system capable of generating an Longitudinal Redundancy Check (LRC) character; the user may exit the program without disconnecting the communication path to perform other tasks, then re-enter it to continue to session • transfer to 4800 bps is supported, but most modem transfer is assumed to be 1200 bps

Pricing • \$99.95

MASTERLINK

82 Mitchell Boulevard, San Rafael, CA 94903 • 415-499-8466

Handshake

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • provide emulation of Burroughs TD830/MT983 terminals for attachment to a Burroughs computer or other compatible system

Components • software product with optional vendor-supplied hardware

Characteristics • Handshake provides multi-session terminal emulation of Burroughs Poll-Select terminals in synchronous or asynchronous mode • up to four sessions and four screen windows are supported at a time, and sessions or windows may be created or destroyed dynamically; file transfer may be handled via a simple user-written program on the Burroughs systems or through the CANDE utility package • a teletype mode of operation is provided for connection to non-Burroughs systems • interface is the RS-232 standard or an optional (hardware required) TDI interface • data rates to 9600 bps are supported, direct connected, modem connections are limited by line and modem characteristics • IBM Asynchronous Communication Adapter or equivalent required for async operation; customization may be required for synchronous operation

Pricing • \$145 for the basic software; the TDI interface converter is \$195

Handshake/Plus

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible system with MS-DOS

Application • emulation of Burroughs TD830/MT983 terminals for file transfer and access to Burroughs systems or compatible computers, particularly where data conversion to microcomputer spread sheet format is required

Components • software product, with optional supporting hardware supplied by vendor

Characteristics • Handshake Plus adds the ability to support multiple host computers and special spread sheet data formats to the basic package • file transfers may be binary or ASCII, and a translation option will handle EBCDIC data or custom formats; screen formats can be stored on the PC or local access rather than being transmitted by the host; text and forms mode permit special formatting of data for word processing or spread sheet use; a special translation utility provides translation to Lotus 1-2-3 format for incoming host data • data rates to 9600 bps are supported, and connection may be direct via RS-232 or TDI or via modem

Pricing • \$295; owners of the Handshake may upgrade to Handshake Plus for \$150 within 90 days or \$200 thereafter; TDI interface is \$195

MCCORMACK & DODGE

560 Hillside Avenue, Needham Heights, MA 02194 • 617-449-4012

PC Link

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible system with MS-DOS

Application • provide access to vendor mainframe applications and many other application systems for PC system users

Components • hardware and software product



Personal Computer-to-Mainframe Communications Products

Characteristics • by emulating a 3270 terminal device, this package gives PC user access to any sequential or VSAM data set or to any McCormack & Dodge application through CICS; transfer of files in both directions is supported, and it is possible to update a mainframe data base subject to the control structure of the application; no special local PC processing support is provided for remote application execution

Pricing • \$25,000 for mainframe program, plus \$2,500 per PC; volume discounts are available

■ MICROCOM, INC

1400A Providence Highway, Norwood, MA 02062 • 617-762-9310

□ 3270 Protocol Converter

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer systems with MS-DOS; Apple III

Application • provide emulation of IBM 3270 terminal devices using the binary synchronous protocol for attachment to IBM computers or other compatible systems

Components • hardware product; supporting software from vendor is optional

Characteristics • a stand-alone 3270 protocol converter which appears to the host as a 3274 control unit with multiple 3278, 3279, or 3287 workstations • data rates to the host are to 9600 bps synchronous, and data connections to the PCs may be modem-supported at speeds to 1200 bps; a maximum of two PCs can direct connect to the converter at 9600 bps; a maximum of three PCs can be supported; any form of VT100 emulator can work with the product, but software for the Apple III and IBM PC is available from the vendor • an RS-232 serial port is required

Pricing • depends on number of PCs supported; one PC configurations cost \$795, two-PC units are \$995, and three-PC systems \$1,595; the terminal emulator software for the Apple II or IBM PC is \$25

■ MICROPLOT SYSTEMS

1897 Red Fern Drive, Columbus, OH 43229 • 614-882-4786

□ PC-PLOT-I

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer with MS-DOS

Application • provide emulation of Tektronix 4010 terminal for basic use of graphics software on host computer systems

Components • software product

Characteristics • PC-PLOT-I is a basic graphics terminal product which permits the use of the PC as a Tektronix 4010 terminal, but which has restricted features • data rates to 9600 bps are supported in direct connect mode; modem connection data rates are limited by line and modem characteristics; IBM's Color Graphics Adapter is supported • the RS-232 interface must be compatible with IBM's Asynchronous Communication Adapter, and asynchronous modems are required for phone connection

Pricing • \$40

□ PC-PLOT-II

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • implementation of a complete graphics workstation emulating the Tektronix 4010 on the IBM PC

Components • software product

Characteristics • this version of PC-PLOT enhances the basic package to include the ability to save and recall picture files sent from the host computer; it also supports the Plantronics COLOR PLUS graphics board, the Hercules monochrome graphics board and the IBM Color Graphics Adapter; the product also supports graphic plots on the IBM/Epson printer and the HP7470A plotter • data rates are to 9600 bps or as limited by the modem, and an RS-

232 interface compatible with IBM's Asynchronous Communication Adapter is required

Pricing • \$75

□ PC-PLOT-III

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible personal computer with MS-DOS

Application • provide graphics terminal/workstation emulation based on the Tektronix 4010 plus provide DEC VT100 emulation for communication with other host systems

Components • software product

Characteristics • this third version of the PC-PLOT line adds advanced graphics features and the ability to emulate ANSI X3.64 terminals such as the VT100; autodial and automatic answer are supported, as well as automatic generation of log-on sequences • data transfer is asynchronous up to 9600 bps via RS-232 port which must be IBM Asynchronous Communication Adapter or equivalent, ASCII files may be uploaded or downloaded in DEC mode; all of the color graphics boards supported by the PC-PLOT-II are also supported by this product

Pricing • \$95

■ MICROSTAR

687 Mansfield Avenue, Ottawa, ONT K2A 2T5 • 613-722-7426

□ Videotext Interpreter

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • emulation of Videotext terminals and applications using the Telidon or NAPLPS Videotext protocols

Components • software product

Characteristics • this product emulates the 699-level Telidon protocol and the majority of the NAPLPS protocol standard now under consideration by NASI; both monochrome and color displays are supported, making the software compatible with the portable systems and most business configurations; hardcopy output on the IBM/Epson printer is supported with 3 grey scales, and 8-color printing is supported on the IDS Prism printer • data is exchanged asynchronously at 1200 bps; data can be spooled to disk • asynchronous communication adapter or equivalent required

Pricing • \$280 for software, \$800 for software and Plantronics color board

■ MICROSTUF, INC

1845 The Exchange, Suite 140, Atlanta, GA 30039 • 404-952-0267

□ CROSSTALK

Personal Computers/Operating Systems • most 8-bit and 16-bit computers running CP/M or MS-DOS, including the IBM PC and PC/XT

Application • terminal emulator for support of connection to DEC, IBM, or other compatible host computers

Components • software product, but CROSSTALK is supplied with many popular modem or computer products

Characteristics • full data exchange with many host computer systems is a goal of CROSSTALK • the software is available for nearly all CP/M and MS-DOS systems and offers emulation of the DEC VT100, the IBM 3101, ADDS Viewpoint, and TVI 910/920 • data may be exchanged at up to 9600 bps in direct connect mode, or via communication lines at speeds limited by the line and modems; file transfer in both directions is supported • the 16-bit version (CROSSTALK XVI) provides interactive switching from the emulated terminal display to a special status display at a keystroke; automatic dial and answer and automatic log-on may be supported depending on the modem used • an integral or RS-232 interface and external modem are required for phone connections

Pricing • \$195



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■ MSA, INC

3445 Peachtree Road, N.E., Atlanta, GA 30326 • 404-239-2000

□ Executive PeachPack II

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • provide a link between one or more MSA application programs on the mainframe and popular spread sheet, graphics, data base, or word processing packages on the PC

Components • software product

Characteristics • Executive PeachPack allows user of MSA applications to load data to PCs for manipulation by Peachtree Software (an MSA company) products such as PeachCalc or PeachText or by other products such as Lotus 1-2-3 through support of the popular DIF data format • the link is maintained via the PeachLink package auto dialed into a RENEX protocol converter on the host system using IBM Asynchronous Communication products or via a 3270-emulator hardware package such as TAC's board; data may be loaded to the PC based on menus and predefined queries to the mainframe. data can be sorted and formatted on the micro, and reloaded to the mainframe in the form of transactions to the MSA applications involved; updates of the mainframe data base must be handled through DP application control; data rates to 9600 bps are supported

Pricing • \$6,000 for the Executive PeachPack II; Graphics PeachPack is \$3,000 and Administrative PeachPack \$1,500 • hardware such as the Hayes modem, TAC board, or RENEX protocol converter are available from the vendor

■ NATIONAL INSTRUMENTS

12109 Technology Boulevard, Austin, TX 78727 • 800-531-5066

□ NET488

Personal Computers/Operating Systems • IBM PC and PC/XT with PC-DOS, or other compatible personal computer systems with MS-DOS and the capability to use IBM PC-compatible circuit boards; also available for DEC Rainbow computer systems

Application • provide for communication between computer systems based on the concepts and protocols of the IEEE-488 Instrumentation Bus

Components • hardware product with supporting software

Characteristics • NET488 provides the ability to attach an IBM PC or compatible system to an IEEE-488/Hewlett-Packard GPIB bus; this permits the exchange of data with other systems similarly supported, including the DEC line of Unibus and Q-bus computer systems; transfer rates depend on the computers involved, but may reach 300,000 bytes per second • programs to support file transfer are included, as are subroutines to permit the user to communicate over the IEEE-488 bus directly from application programs • compatible software may be required on the opposite host system

Pricing • \$385 for the hardware and \$100 for the software package for the IBM PC or DEC Rainbow; multibus (IEEE-796) and S-100 (IEEE-696) support is also available

■ NEWPORT GROUP

44 West Memorial Boulevard, PO Box 386, Newport, RI 02840 • 401-846-5763

□ Express Data Exchange

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible system with MS-DOS • TRS-80 M-II, III, 12, or 16

Application • provide basic communication support for data exchange with information sources, timesharing services, or computer systems which can support connection to simple asynchronous teletype-style terminal devices

Components • software product

Characteristics • this product provides for menu-driven communication with any computer system capable of handling terminals of the Teletype 33/35 type; file transfer in both directions is supported, and the computer may also send directly keyed data to the

opposite system; operates at speeds to 19.2K bps in direct mode or via modem at speeds determined by the modem type • asynchronous modem or RS-232 interface is required

Pricing • \$50 for single disk, \$75 for dual disk systems

■ OFFICE SOFTWARE AUTOMATION, INC

4305 El Dorado, Plano, TX 75075 • 214-867-5307

□ INTERM

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer with MS-DOS

Application • provide DEC VT100, VT52, or IBM 3101 emulation support for the attachment of the PC to DEC systems or other computers capable of supporting the VT100 terminal

Components • software product

Characteristics • provides for emulation of the DEC VT100 and VT52 terminals in 80X24 mode as well as emulation of the IBM 3101 terminal • direct connection permits operation to 9600 bps; remote operation via communication lines is restricted in speed by the modems and line characteristics • files may be UPLOADED (to the DEC host), DOWNLOADED (to the PC) or COPIED to a display or printer; print screen functions are also supported, and the entire session with the computer can be saved on a disk file for later review • INTERM is designed to work with Hayes autodial modems or the Racal-Vadic 3450 series, but other modems may also be used; automatic dial and directory facilities are supplied • requires integral modem of the Hayes type or an RS-232 port compatible with the IBM Asynchronous Communication Adapter

Pricing • \$200

■ OMNAR CORP

12517 Chandler Avenue, North Hollywood, CA 91607 • 213-985-3004

□ PC Interface

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible system with MS-DOS

Application • to communicate with minicomputer or mainframe applications running under the PICK operating system, by emulating the functions of a PICK terminal

Components • software product with both PC and host system components

Characteristics • communicates with a PICK host computer via an asynchronous serial interface or asynchronous modem • data rates to 9600 bps are supported • the package allows the PC to emulate a PICK terminal for the purpose of extracting data or loading data down to the host; data may be formatted for WordStar, VisiCalc, or Lotus 1-2-3; other packages may also be supported • PICK commands may be entered from the PC • mainframe data may be updated from the PC subject to PICK file access controls • requires IBM Asynchronous Communication Adapter or equivalent

Pricing • \$99 for the PC software and \$1,895 for the host package • PICK operating system is required on the host system

■ ON-LINE BUSINESS SYSTEMS, INC.

115 Sansome Street, San Francisco, CA 94104 • 415-391-9555

□ OBS FTP

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible system with MS-DOS • Apple II with DOS, or with CP/M • any 8080 or Z-80 CP/M system with serial port

Application • provide file transfer support between the microcomputer and an IBM system running VM/CMS or TSO

Components • software product with mainframe and micro component

Characteristics • this package provides emulation of a "dumb" teletype-style terminal to communicate between the microcomputer and a TSO or CMS command installed on the host system • data rates supported are to 9600 bps providing the connection is direct



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via RS-232; the modem must support the speed in phone connections; modem connections are normally 1200 bps • the protocol employed by FTP provides error protection over a basic asynchronous interface, so companion software must be installed on the destination host • a standard serial interface for the PC is assumed

Pricing • prices vary according to micro type and IBM mainframe interface requirements • a TSO interface is \$3,500, as is the CMS interface; both host interfaces are \$4,500; the PC version costs \$500 for up to 10 copies and \$50 per copy thereafter

■ ON-LINE SOFTWARE INTERNATIONAL

Fort Lee Executive Park, Two Executive Drive, Fort Lee, NJ 07024 • 201-592-0009

□ OMNILINK/OMNIMICRO

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible microcomputer with MS-DOS

Application • provides for interchange of text and form information between PCs, terminals, and word processors in an IBM CICS environment

Components • software product with both mainframe and microcomputer component

Characteristics • a host CICS application called OMNIMICRO provides message switch and storage services for multiple PCs, terminals, and word processors; test files can be retrieved using a query language under the OMNIMICRO package • The AURA application subsystem permits users to select and sort records, produce reports, query data bases, define screens, enter text, and add columns of numbers as a spread sheet generator, and create graphs • files may be transferred in both directions, and the host can switch data between PCs; update of host files is supported, subject to host controls • an IBM Asynchronous Communication Adapter or equivalent is required; phone connection requires a modem; speeds to 9600 bps are supported in direct connect mode, and phone connection data rates are limited by the modem

Pricing • \$30,000 for OS mainframe license, \$1,200 per PC, volume discounts available

■ PATHWAY DESIGN, INC

177 Worcester Street, Wellesley, MA 02181 • 617-237-7722

□ BSC-3270/3770 Emulator

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible system with MS-DOS • compatibility with IBM-PC circuit boards is required

Application • provide 3270 or 3770 binary synchronous communication emulation for the PC to support attachment to IBM mainframes and other compatible systems

Components • hardware product with supporting software

Characteristics • the product appears to the IBM host as a control unit of the 3271, 3274, 3275, or 3276 class and a terminal of the 3277, 3278, or 3279 type • the 3277 RJE station is also emulated • data can be transferred in ASCII or EBCDIC at rates to 19.2 Kbps on leased or switched lines; files may be transferred in either direction subject to the limitations of the application software on the host • synchronous modems are required • the 3277 emulator supports data compression, transparent text for full file transfers, formatted printing, etc

Pricing • the software cost is \$595, and hardware costs \$295 • volume discounts are available

□ SNA-3270/3770 Emulator

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer with MS-DOS and the ability to interface with IBM PC circuit boards

Application • emulation of IBM 3270 or 3770 devices in an SNA environment to support data exchange with IBM computers or other SNA-compatible systems

Components • hardware product with supporting software

Characteristics • the product emulates a Physical Unit type 2 in an SNA network, a cluster controller of the 3270 family, or a 3770 batch RJE station; the 3270 workstation emulation provides LU.T2 support for the display and LU.T1 or LU.T3 support for the printer port; 3770 emulation provides LU.T1 support; attachment is via RS-232 interface using the synchronous SDLC/SNA protocol at data rates to 19.2 Kbps • full file transfer is available under 3770 emulation, and transfer subject to screen support and host application limitations is available under 3270 emulation • synchronous modem is required for dial or leased line connections

Pricing • \$595 for the software and \$295 for the communication support board

□ 2780/3780 Emulator

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • emulation of the IBM 2780/3780 binary synchronous RJE stations for file transfer between PCs and compatible host systems

Components • hardware product with supporting software

Characteristics • this package provides RJE emulation of the IBM 2780 and 3780 batch terminals at data rates to 19.2 Kbps using synchronous modems and the IBM bisync protocol; data compression, transparent text, selectable I/O destination (disk or printer) and unattended operation are supported • hardware included provides an RS-232 interface; full file transfer is supported

Pricing • \$595 for the software, and \$295 for the synchronous hardware interface (PATHWAY board)

■ PERFECT SOFTWARE, INC

702 Harrison Street, Berkeley, CA 94710 • 415-527-2626

□ PerfectLink

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer systems with MS-DOS

Application • terminal emulation of several popular terminal types for attachment of a PC to a variety of asynchronous-port minicomputers or mainframes

Components • software product

Characteristics • PerfectLink provides emulation of Teletype 33/35 terminals, DEC VT52, ADM-3A, TVI 920, or IBM 3101 terminals using asynchronous ASCII protocols at data rates to 9600 bps • an IBM Asynchronous Communication Adapter or an integral modem of any popular type is required for operation • modem data rates will limit the transmission speeds if modems are used; files may be transferred in both directions, and automatic dial and log-on to the host system is supported; the program is menu-driven for ease of operation

Pricing • \$113

■ PERSOFT, INC

2740 Ski Lane, Madison, WI 53713 • 608-233-1000

□ TE100/TE125-FT

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • terminal emulation of popular DEC terminals to permit attachment of a PC to a DEC computer or other compatible system

Components • software product

Characteristics • SmarTerm TE100 series provides the ability to emulate DEC VT100, 101, 102, or VT52 terminals and to transfer files or text for display or host action at speeds to 9600 bps 80X24 display mode is supported, NOT 132-character mode • file capture on the PC can be triggered by a special character received or by command; a list of files can be provided for transfer out to the host. An error-free protocol can be implemented with BASIC programs provided for the host environment • requires an IBM Asynchronous Communication Adapter or equivalent; uses either the COM1 or COM2 serial port addresses on the PC; a VT125 version



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is available to handle the emulation of the DEC VT125 graphics terminal

Pricing • \$125

TE400-FT

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • emulation of the Data General (DG) D100, D200, or D400 terminals to permit the PC to attach to a DG or compatible host

Components • software product

Characteristics • this product allows DG users to attach PCs to their systems through the emulation of the DG D-series terminals; the communication is asynchronous at data rates to 9600 bps, either direct connect or via modems; modems may limit data rates; file transfer of program or text files is supported • multiple window features of the D400 terminal are supported; soft function key definition for 10 keys; a list of files may be selected for transmission to the DG host; a special protocol for error-protected transmission is defined, and BASIC source for its implementation is provided • serial RS-232 port required; must be compatible with the IBM Asynchronous Communication Adapter

Pricing • \$150

TE950-FT

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • provide terminal emulation of the Televideo 950 terminal for attachment of a PC to a computer capable of supporting that device

Components • software product

Characteristics • this product emulates the TVI 950 display terminal, and supports asynchronous communication at rates to 9600 bps direct connected via RS-232 cable or over phone connections; phone data rates may be reduced by modem limitations; the system supports file transfers in both directions, and has data capture control based on operator command or on receipt of a "trigger character" from the host • an asynchronous serial interface compatible with the IBM Asynchronous Communication Adapter is required

Pricing • \$150

PERSYST

15801 Rockfield Boulevard, Suite A, Irvine, CA 92714 • 714-859-8871

PC/HASP

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or other compatible computers with MS-DOS • hardware compatibility with the IBM PC is required

Application • emulation of a HASPRJE workstation for attachment to an IBM computer or other system with HASP multileaving support

Components • hardware product with vendor-supplied support software, priced separately

Characteristics • emulates an IBM 360/20 HASP/ASP remote job entry workstation for transfer of text and binary files in both directions • blank suppression, data compression, automatic sign-on, variable block size, and dynamic device assignment are supported; data rates to 19.2K bps are available for dial or leased line connections; communication is in IBM 2780/3780 batch binary synchronous protocol • synchronous modem support is required; an RS-232 port is included with the hardware

Pricing • \$695 for hardware, \$995 for software

POLYGON ASSOCIATES, INC

9 American Industrial, Maryland Heights, MD 63043 • 314-576-7709

Poly-XFR

Personal Computers/Operating Systems • DEC Rainbow 100 or VT180 personal computers under CP/M

Application • file transfer and terminal emulation support for DEC personal computers through terminal emulation of the DEC VT100 terminal

Components • software product with both micro and minicomputer component

Characteristics • this package has three elements: a terminal emulator program, a microcomputer file transfer program, and a compatible minicomputer program to handle the opposite end of the file transfer • data rates to 9600 bps are available; files can be transferred in both directions, and the transfer supports both ASCII and binary data formats; VAX/VMS, PDP/11 RSX and RT-11 systems may receive the data in a special file transfer utility program also supplied • compatible DEC serial ports are required on all systems

Pricing • \$300 for the PC software and \$600 for the host software

PROTOCOL COMPUTERS, INC

6150 Canoga Avenue, Suite 100, Woodland Hills, CA 91367 • 800-423-5904

PCI 1051

Personal Computers/Operating Systems • Apple II, III, and Lisa; IBM PC and PC/XT with PC-DOS, or compatible systems using MS-DOS; DEC Rainbow; TRS 80 model II and model 16 • most CP/M compatible computer systems

Application • attachment of PCs to IBM System 34/36/38 computers via emulation of a 5251-12; a cluster of PCs may attach to a single 1051

Components • hardware product with support software provided by the vendor for some supported PCs

Characteristics • the 1051 emulates an IBM 5251-12 PU.T1 for a SNA connection to an IBM system 34/36/38; personal computers running terminal emulator programs may attach to the 1051 instead of ASCII terminals; the support for functions such as file transfer will vary depending on the terminal emulator software used on the PC • PCI supplies IBM PC software which supports file transfer in both directions, data rates to 9600 bps are supported for direct or modem connection between 1051 and IBM host, and between the PC and the 1051 • connection to the PC requires a standard serial port for the PC

Pricing • depends on the number of ports; \$3,100 for 1-port models, to \$7,000 for 7-port units • volume discounts available

PCI 1071

Personal Computers/Operating Systems • Apple II, III, and Lisa; IBM PC and PC/XT with PC-DOS, or compatible systems using MS-DOS; DEC Rainbow; TRS 80 model II and model 16 • most CP/M compatible computer systems

Application • attachment of multiple personal computers to an IBM or other host via the bisync protocol by emulating the operation of a 3270 cluster controller

Components • hardware product, with supporting software provided by the vendor for some PCs

Characteristics • this product provides 3270 emulation in a binary synchronous environment, permitting the attachment of multiple PCs via the emulation on the PC on a supported ASCII terminal type; the specific features of the combination will be dependent on the terminal emulator chosen for the PC; the vendor supplies a terminal emulator product for the IBM PC which supports file transfer in both directions • data rates are to 9600 bps for both the asynchronous connection between the PC and the 1071 and the bisync connection between the 1071 and the host • a standard serial port is required on the PC

Pricing • dependent on the number of ports; \$3,100 for 1-port models, to \$7,000 for 7-port units • volume discounts available



Personal Computer-to-Mainframe Communications Products

□ PC 1076

Personal Computers/Operating systems • Apple II, III, and Lisa; IBM PC and PC/XT with PC-DOS, or compatible systems using MS-DOS; DEC Rainbow; TRS 80 model II and model 16 • most CP/M compatible computer systems

Application • attachment of multiple PCs into an SNA network by emulating a 3274/3276 cluster; a cluster of PCs may attach to a 1076

Components • hardware product; some supporting software may also be supplied by the vendor

Characteristics • the 1076 is a protocol converter designed for ASCII terminal emulation of IBM 3270 devices in an SNA environment; PCs which provide terminal emulation of any popular asynchronous terminal may be connected to the device at speeds to 9600 bps, directly or via dialed or leased line connection; the 1076 is then attached to the IBM controller via modem or direct connection • data capture and other software terminal emulator functions may vary by PC type; the PCI software for the IBM PC permits file transfer in both directions • a standard serial port for the PC is required

Pricing • dependent on the number of ports; \$3,100 for 1-port models, to \$7,000 for 7-port units • volume discounts available

■ RACAL-TELESYSTEMS, INC

410 N. Michigan Avenue, Chicago, IL 60611 • 312-329-0700

□ Protocol & Code Translators

Personal Computers/Operating Systems • any computer system with basic asynchronous terminal emulation capability

Application • provide a bridge between unlike computers or word processors by converting between sets of unlike protocols

Components • hardware system with firmware support for protocols

Characteristics • primarily designed to communicate between unlike word processors • three models of converters are available for conversions; each converter unit is equipped with a module to translate the protocol of its attached device; both communication level and application level (word processing level) translation is made; PCs may attach to the converter as simple asynchronous devices, as word processors which they emulate, or as special terminals such as the IBM 3780; attachment speeds are to 4800 bps • the model 101 is capable of fixed form translation for a pair of devices on a single converter; the model 202 can support many different device types, but each device must have its own converter and communication can involve only one pair at a time; the model 404 can support variable protocols translated to a single "master" protocol within one unit • only one 101 or 404 device is required to link two computers; a 202 is required for each device

Pricing • the Model 101 is \$3,995; the 202 is \$3,195 (one is required for EACH device); and the 404 is \$4,995

■ RIXON INC

2120 Industrial Parkway, Silver Spring, MD 20904 • 301-622-2121

□ PC212A/PC COMM 1

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer with MS-DOS • Circuit-board/bus level compatibility with the IBM PC is required

Application • automatic dialing and log-on for information services, timesharing services, and host computer systems

Components • hardware product with supporting software

Characteristics • an integral, intelligent modem product, this unit provides users with the ability to make connections to and log onto remote computer systems by selecting a number from a list of 10 in modem memory; once communication is established, standard utilities may be used for file transfer

Pricing • \$499; \$599 with RS-232 port • \$89 for software; \$49 if purchased with modem

■ SHARED SYSTEMS TECHNOLOGIES

Route 7 South, Box 163, Bennington, VT 05201 • 802-442-8008

□ ACE

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS; also available for most CP/M-compatible personal computers

Application • emulation of a basic asynchronous terminal to permit connection to information services, timesharing systems, or computers which can support a teletype-style interface

Components • software product

Characteristics • ACE is an assembly-language program which provides emulation of a simple asynchronous ASCII terminal of the Teletype 33/35 type; it supports file transfer in both directions, printer output of data, local echo capability, parity detection, and operation to 9600 bps • a standard serial port is required on the PC, and operation over telephone lines requires a suitable asynchronous modem • modem speed may limit data transfer rate

Pricing • \$150

□ ACE NEC APC

Personal Computers/Operating Systems • NEC APC computer

Application • DEC terminal emulation for attachment to DEC computers or other compatible computer systems, information services, or timesharing hosts

Components • software product

Characteristics • this version of ACE provides NEC users with emulation of the popular VEC VT100 terminal for attachment to DEC hosts or other systems • file transfer, printer operation, local echo control, and parity checking are all standard • data rates to 19.2K bps may be supported • a NEC asynchronous port is required, and phone operation will require a suitable asynchronous modem, which may limit data rates

Pricing • \$150

■ SIMWARE, INC

969 Bronson Avenue, Ottawa, ONT K15 4G8 • 613-235-6736

□ SIM3278/AZPC 2

Personal Computers/Operating Systems • all systems with basic ASCII terminal emulation support, including IBM PC, Apple, CP/M computer systems

Application • provide 3278 emulation for computer systems with only ASCII asynchronous terminal emulation available

Components • software product with both micro and mainframe component

Characteristics • requires a terminal emulator package on the PC; the PC attaches to a mainframe running the SIM3278 software, and that software allows it to emulate an IBM 3278 terminal device • access data rates, file transfer capabilities, and other features are dependent on the terminal emulator software used; works with IBM VM/CMS, MVS/VTAM with NCP and NTO or NPSI

Pricing • \$6,500 per mainframe for VM version of SIM3278, or \$12,000 per mainframe for MVS version; AZPC 2 emulator program is \$750 for any number of PCs

■ SOFTWARE DYNAMICS, INC

P.O. Box 247, Dunedin, FL 34296 • 813-733-8784

□ SDI-3274-51C

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer with MS-DOS • hardware compatibility with PC is required

Application • emulation of IBM 3274 control unit for attachment to an IBM host computer or other compatible host using the bisync protocol

Components • software product; vendor may supply optional hardware



Personal Computer-to-Mainframe Communications Products

Characteristics • emulates a 3274-51C control unit in line attach mode using the bisync protocol • file transfer in both directions is supported subject to the limits of the 3270 screens and the host application program; Data rates to 9600 bps are supported • requires synchronous modem for operation; supports AST CC-232 board with dual RS-232 interfaces • PC emulates attached workstation of 3278 type

Pricing • not available at this time

SDI-3780

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible system with MS-DOS • hardware compatibility with IBM PC is required for circuit board

Application • emulation of the IBM 3780 terminal in ASCII mode for attachment to IBM computers or other compatible systems

Components • software product, hardware available from vendor as an option

Characteristics • provides emulation of the IBM 3780 workstation in ASCII mode only, except for Home mode and On-Line Test mode; Point-to-point and multipoint operation are supported at data rates to 9600 bps; transparent mode for binary transfers is NOT supported in ASCII 3780 systems; three printers and disk file spooling are supported for downloaded data, and transmit command files permit the sending of multiple data files • hardware has an RS-232 interface • requires synchronous modems • works with AST CC-232 board; other interfaces available

Pricing • \$599 for software • hardware pricing on request

■ SOUTHEASTERN SOFTWARE

7743 Briarwood Drive, New Orleans, LA 70128 • 504-246-7937

Data Capture/Data Capture IIe

Personal Computers/Operating Systems • Apple IIe, IBM PC or PC/XT with PC-DOS; other IBM-compatible computers with MS-DOS

Application • provide basic asynchronous support for connection to information services, timesharing systems, or computers which can support a teletype-style terminal device

Components • software product

Characteristics • provides menu-driven communication capabilities emulating a basic ASCII asynchronous terminal device such as a teleprinter; program is written in BASIC and operating speed is to 1200 bps either directly connected or via modem; files may be transferred to or from the disk, and files can be printed as well • requires serial port on supporting processor; supports integral modems compatible with vendor's standard serial port

Pricing • \$90 for Apple IIe software; \$120 for IBM PC software

■ SSM MICROCOMPUTER PRODUCTS INC

2190 Paragon Drive, San Jose, CA 95131 • 408-946-7400

Transend

Personal Computers/Operating Systems • Apple II, IIe

Application • basic communication support for attachment to information services, timesharing systems, or computers with the ability to interface to simple teleprinter emulators

Components • software product, optional vendor hardware available

Characteristics • provides basic teleprinter emulation in asynchronous mode to 300 bps (1200 bps with proper modem); file transfer in both directions is supported, as is automatic dial and automatic answer; unattended operation is optional

Pricing • Transend 1 basic package is \$89; Transend II with unattended mode is \$149; Transend 3 with PC/PC error control protocol is \$275

Transmodem 1200

Personal Computers/Operating Systems • Apple II, IIe

Application • connection to information services, timesharing

systems, or computer systems which can support teleprinter-type devices

Components • hardware product with supporting software

Characteristics • modem and serial interface permits operation to 1200 bps in direct connect mode or via modem; files of any size may be sent or received; disk storage limitations apply if files are spooled to disk; automatic dial and automatic answer are supported; unattended operation is optional; includes modem and serial interface card, plus cable

Pricing • \$999

Transpack PC/PC

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer with MS-DOS

Application • attachment of PC to information services, time-sharing systems, or computer systems compatible with the teleprinter asynchronous protocol

Components • hardware product with supporting software; software support also sold separately

Characteristics • provides for file exchange with any system capable of supporting teleprinter-type asynchronous terminals; data rates to 1200 bps are supported; printing may take place concurrent with communication; automatic dial, answer, and log-on are provided; some asynchronous protocol control selection possible through menus • includes integral modem, but software may be separately purchased for use with Hayes Smartmodems

Pricing • \$479 for 300 bps; \$659 for 1200 bps

■ TECHLAND SYSTEMS, INC

25 Waterside Plaza, New York, NY 10010 • 212-684-7788

Blue Lynx 3276 SDLC

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible system with MS-DOS • hardware compatibility with the IBM PC is required

Application • provides SNA/SDLC 3270 emulation for attachment to IBM hosts

Components • hardware product with supporting software

Characteristics • provides for emulation of IBM 3276-12 workstation with attached 3287 printer, using SDLC/SNA protocol support at data rates to 9600 bps • file transfer of text files is supported subject to the restrictions of 3270 screens and the printer is NOT available • requires synchronous modems or modem eliminators; multipoint operation also supported; includes RS-232 interface board

Pricing • \$690

Blue Lynx 3276/5 BSC

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • emulation of IBM 3276 in binary synchronous mode for connection to an IBM or other compatible computer system

Components • hardware product with supporting software

Characteristics • provides support for binary synchronous communication at speeds to 9600 bps emulating an IBM 3276/3278 workstation; a 3287 printer capability is also included • files may be uploaded and downloaded in text mode subject to the restrictions of the 3270 screens on the application programs on the host system; uploaded modems or modem eliminator are required; the product includes an RS-232 interface board

Pricing • \$690

Blue Lynx 5251

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • PC attachment to an IBM 34/36/38 computer emulating a 5251-12 workstation with attached 5256 printer



Personal Computer-to-Mainframe Communications Products

Components • hardware product with supporting software; vendor supplies separate products for file transfer support

Characteristics • provides emulation of a remotely attached 5251 workstation operating on a synchronous communication line at speeds to 9600 bps • if PC is equipped with a Color Graphics Adapter, the 5292 color workstation may be emulated • file transfer is supported with optional utility programs which run on the IBM host; this program, called the ETU, appears as an interactive program and permits PC disk data to appear as data from a display • requires synchronous modem or modem eliminator for operation; the product includes an RS-232 interface

Pricing • \$690 for the microcomputer product, \$800 for the System 36/38 transfer program; and \$400 for the System 34

■ TECHNICAL ANALYSIS CORP

120 W. Wieuca Rd. N. E., Atlanta, GA 30042 • 404-252-1045

□ IRMA

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS • hardware compatibility with IBM PC is required

Application • provide emulation of an IBM 3278-2 terminal device attaching to a 3270 control unit via coaxial cable for communication to IBM computers or compatible systems

Components • hardware product with supporting software

Characteristics • IRMA permits PC users to attach their systems to IBM cluster controllers of the 3274 or 3276 family; the control unit may be attached to a binary synchronous or SDLC/SNA communication line; file transfer is supported in both directions by utility programs, and user programs may access screen data interactively; the program can become resident on user command, and in this mode can retain communication connection to the host system while running PC programs; the user can shift between PC and terminal emulation modes with a single keystroke

Pricing • \$1,195

□ IRMALINE

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible system with MS-DOS; hardware compatibility with the IBM PC is required; DEC Rainbow and Apple Lisa versions also available

Application • communication with IBM or other computer systems through emulation of the IBM

Components • hardware product with supporting software

Characteristics • IRMALINE hardware attaches to an IBM 3274 control unit and provides a dial-up interface whereby an IBM PC, DEC Rainbow, or Apple LISA can call and emulate the operation of a 3278 workstation; special emulation software is supplied for the PC • standard asynchronous RS-232 interface is required on the PC • dial-up data rates are limited by the modems involved; 1200 bps is typical; file transfer and other features of the IRMA product are also present with IRMALINE

Pricing • \$1,395

■ TECMAR, INC

23600 Mercantile Road, Cleveland, OH 44122 • 216-464-7410

□ ELAN

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • attachment of a PC to an Ethernet system for data exchange with DEC or other Ethernet-compatible hosts

Components • hardware with supporting software

Characteristics • provides an Ethernet-compatible network for PCs which can support the attachment of DEC or other minicomputers and mainframes • file transfer in both directions is possible, but some host programming may be required for this support • includes Ethernet adapter for coaxial connection to Ethernet network • various packages are available for inter-PC communication via Ethernet as well

Pricing • \$1,645 depending on software and hardware options; \$2,395 is typical • host attachment and software not included

■ TELEVIDEO SYSTEMS, INC

1170 Morse Avenue, Sunnyvale, CA 94086 • 408-745-7760

□ TeleAsync

Personal Computers/Operating Systems • Televideo TS-8 series with CP/M

Application • support file transfer with other systems employing the BLAST protocol (including DEC), or computers or service suppliers compatible with a basic asynchronous teleprinter protocol

Components • software product

Characteristics • provides basic emulation of asynchronous teleprinter terminals in ASCII for attachment to compatible host systems and transfer of text files; binary or text files may be transmitted in error-protected form to computers which support the BLAST protocol (developed by Communications Research Group, Inc.) including the DEC computers; data rates may be limited by the modem in phone connections, but direct connect rates to 19.2 K bps are supported • an RS-232 interface is required

Pricing • \$150

□ Tele3270

Personal Computers/Operating Systems • Televideo TS-8 series products, TS-16 series may access the link through a local network • CP/M required

Application • emulation of an IBM 3276 M-2 control unit/workstation for attachment to an IBM or compatible host computer

Components • software product

Characteristics • provides the ability for 8 and 16-bit workstations on a Televideo PC network to access an 800-series processor for attachment to an IBM or compatible host computer as a 3270 terminal device • file transfer is supported for both screen and print data, and real or disk spooled printers are supported; files may be uploaded to the host if a proper screen format and application exists; uses the binary synchronous protocol at data rates to 9600 bps; workstations appear as 3278 terminals • synchronous modem required; users may toggle between emulation mode and CP/M

Pricing • \$500

□ Tele3780

Personal Computers/Operating Systems • Televideo TS-8 series products with CP/M

Application • provide 3780 emulation support for attachment to IBM or compatible host computers

Components • software product

Characteristics • provides 3780 emulation for file transfers in ASCII text or binary mode at data rates to 9600 bps using the binary synchronous protocol; space compression is supported, and a buffer expansion facility from 128 to 512 bytes is provided; command files can be supported for communication control and a user program interface is optional • supports use of PC as an RJE terminal on an IBM host • synchronous modem required

Pricing • \$500

■ TOMINY, INC

4221 Malsbary Road, Cincinnati, OH 45242 • 513-984-6605

□ DATA BASE-PLUS

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, Altos with Xenix, Onyx with Unix 3.8

Application • integrated data base application using DATA BASE-PLUS on the mainframe

Components • software product with both micro and mainframe component

Characteristics • provides PC users with a form of DATA BASE-



Personal Computer-to-Mainframe Communications Products

PLUS for microcomputers, with access to mainframe DATA BASE-PLUS via PC vendor's own mainframe access methods (synchronous or asynchronous) • data download to the PC is in simple ASCII form, and upload messages appear to the host package as DATA BASE-PLUS transactions • vendor communication hardware and software required on the PC

Pricing • \$7,350 for the basic microcomputer package. Business applications in package form available at \$1,000 each • DATA BASE-PLUS for the mainframe is \$49,000

■ VEN-TEL, INC

2342 Walsh Avenue, Santa Clara, CA 95051 • 408-727-5721

□ PC Modem Plus

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS • hardware compatibility with IBM PC is required

Application • provide emulation of multiple terminal devices with integral modem support for access to various host computer systems and computer services

Components • hardware (integral modem) product with supporting software

Characteristics • this product includes an integral modem and the CROSSTALK-XVI communication program; terminal emulation of the DEC VT100 and IBM 3101 is supported, and file transfer in both directions is provided; automatic dial, answer, and log-on are standard; information on phone numbers and log procedures is stored on disk; transfers may be at 300 or 1200 bps depending on the modem mode • the integral modem is registered for direct connection via and RJ-11 jack

Pricing • 300 bps model is \$389; 1200 bps modem costs \$689 • an upgrade to convert the 300 bps unit to 1200 bps operation is \$300 • volume discounts are available

■ VM PERSONAL COMPUTING

60 East 42nd Street, New York, NY 10165 • 212-697-4747

□ RELAY

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible personal computer with MS-DOS

Application • data exchange with PC in an IBM CMS environment

Components • software product with micro (RELAY) and mainframe/CMS (PLEASE) component

Characteristics • RELAY provides asynchronous access to an IBM host at a speed up to 9600 bps or as limited by the modem; the PC user has access to a screen editor and full CMS support as a terminal simultaneously; CMS commands may be used to build

files on the host which can be accessed by the PLEASE package and downloaded to the PC; uploading of the data to the host is also done via PLEASE and creates CMS files; most popular file formats can be uploaded • serial port or integral modem required on the PC; addressing must be compatible with IBM COM ports

Pricing • \$149 for RELAY; \$1,495 for PLEASE

■ XCOM

3213 Ramos Circle, Sacramento, CA 95827 • 916-366-7071

□ SA-3212

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible personal computer with MS-DOS • hardware compatibility with IBM PC is required

Application • provide emulation of multiple terminal devices with integral modem support for access to various host computer systems and computer services

Components • integral modem with supporting software

Characteristics • provides terminal emulation through an integral modem to DEC, IBM, or other host computers; it emulates DEC VT100, IBM 3101, or TVI 921 terminals; data rates are limited to 1200 bps; the package provides full modem control and status monitoring of the connection • registered for direct connection to the phone system via an RJ-11 jack

Pricing • \$449

■ ZIPCO MAILING SERVICE

400 Quivas Street, Denver, CO 80204 • 303-534-2097

□ ZIPCOM/ZE-COM

Personal Computers/Operating Systems • IBM PC or PC/XT with PC-DOS, or compatible computer system with MS-DOS

Application • full modem control of asynchronous data communication circuits to host computers or information services capable of supporting basic teleprinter devices

Components • software product

Characteristics • provides sophisticated modem control for the operation of both full and half-duplex modems at data rates to 1200 bps • file transfer is supported, and printing of incoming data is supported even if the line speed is higher than the printer speed; code translation from EBCDIC to ASCII and the reverse is supported, and telex connections are supported; file-stored logon files and built-in screen editor functions are also provided

Pricing • \$205

• END

