

Integrating Micros in the Mainframe Environment

If you are confused about the various micro/mainframe links on the market, you have plenty of company. A great variety of "solutions" to the micro-to-mainframe connection "problem" are being marketed, and the prices are as varied as the products represented. In this report we try to answer some of your questions by discussing micro/mainframe link applications, connection methods, access problems, and other important issues. Included are products that consist of software only, of plug-in conversion cards plus software, and of standalone converters plus software. We have excluded a fourth type of micro/mainframe link, the standalone converter without software, because this product is mainly used to allow inexpensive ASCII display terminals to be employed in synchronous networks.

WHY MICRO-TO-MAINFRAME?

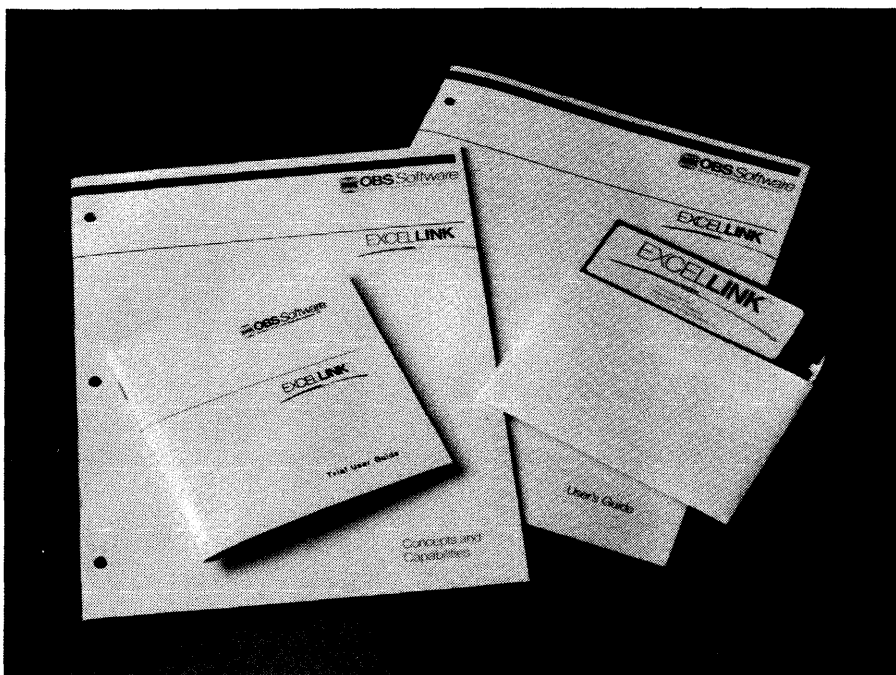
Microcomputers are an ever-growing force in the office of the 80s and beyond. And the microcomputer user is the driving force behind the micro/mainframe link effort. The evolution of general-purpose microcomputer software, such as spreadsheets, graphics programs, and database management programs, has helped the microcomputer to gain access to the company mainframe, which can provide a wealth of valuable information to managers at the departmental level. It is not surprising that many of these microcomputer users, MIS managers, and department managers are beginning to take a second look at the relationship between their desktop computers and the big mainframes. Even the most advanced microcomputer will never displace the massive corporate mainframe, but increasingly the two levels of technology seem to need one another to make people more productive. However, first they have to communicate.

As the microcomputer becomes the workstation of choice in many organizations, users are becoming increasingly concerned with the necessity to access corporate information through the microcomputer. This report covers a wide variety of products available to connect a microcomputer or personal computer to a host mainframe. Products covered in this report range from relatively inexpensive software packages to more costly software/hardware combinations.

Included in this report is a general discussion of how to manage the micro-to-mainframe link. The issues involved in completing the micro-to-mainframe link are examined, and suggestions are included on how to best accomplish the link in your organization. We have also included detailed specifications, in comparison column format, of 138 currently available micro-to-mainframe link products currently offered by 89 vendors.

There are several reasons to establish a micro-to-mainframe connection.

First, there is the obvious need for mainframe data. A microcomputer is not efficiently used if data must be rekeyed into the system. The operator will not be able to work with large files, updating of information will be a laborious task, and time will be wasted in unnecessary data entry tasks. Second is the fact that the manager has selected this equipment as a personal workstation. He/she feels, probably correctly, that his/her efficiency can be improved



Excellink, from OBS Software (San Francisco, CA) is a micro-to-mainframe software product that consists of two programs, one running on the host computer and one running on the microcomputer. The programs conduct terminal sessions and file transfers between micros and MVS or VM mainframes through VTAM, TCAM, BTAM, VTAM/NTO, and CP. Excellink supports IBM 3278-2 compatibility, as well as asynchronous IBM 3101 terminal emulation.

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▷ through use of the programs typically available to the microcomputer user. If the data processing department does not make this data available, then less work will be done, or harmful ways will be found to circumvent the system. Finally, the microcomputer has become a part of the organization. In the early days of the personal computer, it entered through the back door, but today it has achieved the status of a standard tool. It would certainly be counterproductive to prevent efficient use of this tool by blocking access to corporate data.

Historically, the micro-to-mainframe connection may be viewed as a part of the larger scale migration toward end-user computing. Mainframe programming languages have been simplified, database management programs have made information easier to maintain, interactive processing has brought terminals to the desks of end users, and Information Centers have taught end users how to access mainframe files through fourth generation languages. Progress naturally points to the day when a desktop microcomputer will be as essential to the well-motivated corporate manager as the telephone is today. Information Centers were originally set up with the idea of reducing data processing applications backlogs by teaching end users the rudiments of database access. As a sign of the times, today's Information Centers are almost invariably tied to the acquisition, use, and communications of microcomputers.

Although the use of microcomputers is not a panacea for mainframe backlog problems, it can provide some relief. In this respect, it is a step beyond mainframe end-user computing. Small programs may be off-loaded from the mainframe (or, rewritten for the microcomputer), files may be accessed through fourth generation languages, and, more importantly, the microcomputer can be used to access information at once, rather than continuously (as is the case with a terminal). If a file is downloaded into a spreadsheet, processing reverts to the microcomputer, and the mainframe CPU is available for other applications. It should also be noted, however, that mainframe access will probably rise overall as the result of microcomputer proliferation. There will simply be more people trying to obtain data, and the net result may be a network overload. Much of this processing will, however, be valid and will contribute to the overall efficiency of the organization.

To summarize, the micro-to-mainframe connection is necessary for efficient microcomputer usage. Establishment of such a connection is a part of the natural movement toward end-user computing. The microcomputer is becoming a standard workstation due to its provision of easily learned general usage programs, and the data processing department can take advantage of the new situation by providing adequate support through an Information Center.

MAKING THE RIGHT CONNECTION

A number of methods are available for establishing a micro-to-mainframe connection, depending upon your needs and budget. The microcomputer is a great communicator in its own right, and its native ASCII abilities can be

enhanced through the use of appropriate hardware and software. Terminal emulation is the usual method of establishing connections, and IBM 3270 emulation is preferred due to the widespread use of IBM mainframes and bisynchronous or SNA/SDLC communications in major corporations. Batch terminals such as the IBM 2780/3780 or 360/20 HASP have also been selected for some micro-to-mainframe packages. Less popular formats are also available, though not in the same quantities.

Most micro-to-mainframe connections are established through the use of some type of protocol conversion. Protocol conversion provides terminal emulation capability. It is generally accomplished through use of an external or internal device, such as the popular Irma board from DCA. It should be noted that some micro-to-mainframe products assume that such a device has been installed. In general, three different levels of connection are available: dumb terminal emulation, intelligent emulation, and integrated micro-to-mainframe processing.

Simple, or "dumb" terminal emulation works well, but does not provide the processing capabilities that most microcomputer users envision when they think of accessing the mainframe. In this configuration, the microcomputer operates as a terminal—and nothing more. No records are stored and no local processing of incoming data is available.

At the next level, "intelligent" terminal emulation is possible. Here, the micro retains information passed to it by the mainframe, and stores it in files for local processing at a later time. Local processing is attractive due to the ease of use and manipulative characteristics of spreadsheet programs—applications developed for microcomputers are still largely limited to the microcomputer environment.

Further up the scale are more powerful emulation schemes which allow the micro to sift through data called from the mainframe and sort it into a form that is readily usable by the particular microcomputer program that will be used, before storing it in a file for local processing. In some powerful connection products, the mainframe actually handles all of the sorting, thus providing more efficient use of resources and improved access times.

The cost of establishing a connection is directly related to its sophistication, so determining an appropriate level for your organization can yield considerable cost savings.

APPLICATIONS

Having established that a micro-to-mainframe connection is possible, we must now ask how it should be used. The connection introduces a new level of complexity to the data processing environment, can be costly, and can compromise the security of the corporate database. The need must, therefore, be strong, and detailed planning is essential.

The major advantage to microcomputer usage, as perceived by users, is the ability to perform financial analysis on an ad hoc basis. The electronic spreadsheet is the tool

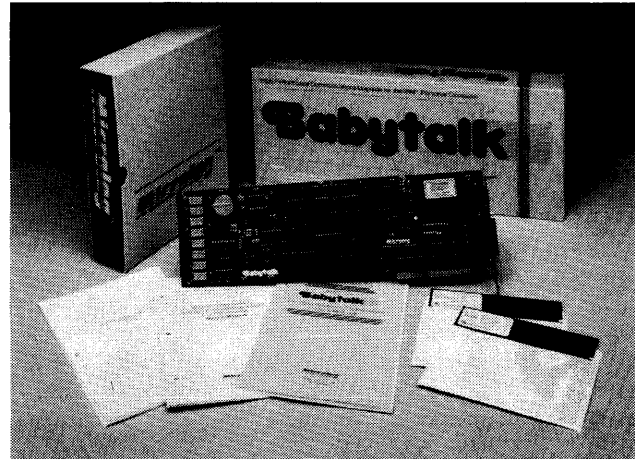
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▷ which made microcomputer usage popular, and it is still the primary tool used to manipulate information on these systems. The data used in spreadsheet analysis is generally resident in the mainframe database. Microcomputer users must, therefore, either find a way to download that data electronically, or they must rekey it themselves. As spreadsheets have grown in size and complexity, manual data entry has become increasingly less attractive. In addition, data entry is cumbersome and time-consuming, so the latest figures are seldom available. This problem has provided the major impetus behind the movement toward micro-to-mainframe communications. Most facilities now available are, in fact, specifically targeted toward spreadsheet users.

There are other applications in which the micro-to-mainframe connection is desirable, however. The simplest case is where the microcomputer must simply replace a terminal. This occurs when a manager has some applications which require the instant power of a small computer, but must also use a terminal to perform on-line interactive processing tasks. The user may work with a mainframe accounting package, for example, and perform simple cost-benefit analyses using a spreadsheet. To avoid having two CRT display stations, the microcomputer can be used in a local processing mode for spreadsheets, and in a terminal emulation mode for the on-line application. The microcomputer can, moreover, address several hosts, and may be used to replace several terminals. This is most evident with the IBM 3270 Personal Computer, which can access four hosts at once and display ongoing processing in user-defined windows.

Another application which is growing in popularity is the use of a microcomputer in querying the corporate database. This grows out of the spreadsheet function, but queries may be broader, include text, and trial-and-error searching may be supported. The use of natural languages to produce results is now possible, through compatible capabilities provided on both the microcomputer and on the mainframe. A package such as Artificial Intelligence's Intellect system may, for example, allow the user to query the system in something like real-world English, and automatically download the results into an appropriate microcomputer form, such as a spreadsheet, a graph, a word processing package, or whatever the situation calls for. The microcomputer can be used to structure the mainframe query, thus saving CPU time, and it can be used to format the information for local processing.

Finally, with interest turning toward the micro-to-mainframe connection, more capabilities will inevitably be developed. New, integrated microcomputer packages provide the ability to mix text with graphics with spreadsheet results, and this capability will be supported by the micro-to-mainframe connection. The primary usage will be to create reports which the manager may use for later reference, for presentations, or as a sales tool. Specific applications packages, such as accounting and project management tools, will also take advantage of the connection.



Microlog (Suffern, NY) markets Baby Talk, a family of products that allow various PCs to communicate with the IBM S/360, S/370, 30XX, and 43XX series of host computers. Baby Talk combines hardware (a plug-in PC board) with software, and supports IBM 3270 terminal emulation, Async (TTY), batch (2780/3780), and HASP communications.

Data processing history has consistently demonstrated that new facilities lead to previously unimagined applications. As micro-to-mainframe connections evolve, we can look forward to many new uses, and perhaps, a whole new approach to distributed processing.

In summary, then, we can identify the following specific benefits of a micro-mainframe connection:

- More efficient microcomputer spreadsheet usage.
- Space savings (one CRT per desk).
- Ease in report preparation (integrating text, spreadsheet projections, graphics).
- Speed in processing, and a reduced queue for mainframe CPU time.
- Access to multiple hosts, with possible data integration (the Dow Jones on-line service with MIS data, for example).
- Capability to run user-developed applications for quick analysis of corporate data (user-defined spreadsheets, DBMS reports, and high-level language programs).

ACCESS PROBLEMS

To determine what is appropriate for your organization, we must first examine the traditional difficulties associated with micro-to-mainframe connection strategies. The most important of these may be summarized as follows:

- Size of mainframe files.
- Capabilities of emulation.



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- ▷ —Complexity of interconnection.
- Flexibility of download capability.

Size of Mainframe Files

Microcomputers are inherently much smaller than mainframes, and this size discrepancy is of importance in establishing connections. Mainframe files are, typically, much larger than the microcomputer is able to manage. This difference is obscured by the advertised capabilities of spreadsheets. Many of today's spreadsheet packages may be expanded far in excess of your microcomputer's capacity. The primary limitation is RAM. Even 512K will not support the thousands of rows and columns that mainframe files might provide. Theoretically, the spreadsheet may be able to do it, but the practical limitation is RAM.

The size restriction has two important effects upon the micro-to-mainframe connection. First, access to complete files is ruled out. Therefore, procedures for data selection must be in place on the mainframe (for downloading), or on the microcomputer. Secondly, mainframe files are more easily manipulated by the mainframe. Therefore, efficiency dictates that a file transfer package do at least some initial processing at that level.

Capabilities of Emulation

Related to the problem of mainframe file size is terminal emulation capability. Most micro-to-mainframe packages establish connections by acting as terminals. In this mode, the simplest download method is simply to dump whatever appears on the screen into a file on the microcomputer. For many applications, this is simple, cheap, and effective. The format of mainframe data is immediately apparent, the size of the resultant file can be limited, and information can be screened through use of mainframe database query.

The difficulties inherent in this method are related to its strengths. First, only information which appears on the screen may be transferred, thus limiting record size to a level well below the capabilities of most spreadsheets. Secondly, the resulting format may require substantial alteration to fit the microcomputer application that is desired. Third, the end user must spend time fitting the information to the computer, and some of the advantages of electronic downloading are thus eliminated. Nevertheless, these emulation packages remain popular, and ways are constantly being sought to eliminate these problems.

Complexity of Interconnection

The level of complexity, or intelligence, of the connection between the two machines is, in part, responsible for the access difficulties mentioned above. The more powerful the connection; the more tools will be provided to make the end user's job easier. Ideally, access should be through a simple query, and the connection should be capable of selecting data, formatting it for an appropriate microcomputer package, downloading it, and possibly sending it back

to the mainframe after alterations have been made. The processes, in other words, should be transparent to the user, and all of the information that he or she needs should be available in one file of a size that the microcomputer can handle. It should also, of course, be reasonably affordable.

Every package departs from this ideal in some respect.

Flexibility in Downloading

One problem that has emerged in the micro-to-mainframe area is the fact that many packages only operate with one or two specific microcomputer packages. This means that you may be out of luck if you have a less popular spreadsheet. Or, it may force you to learn an unfamiliar set of commands in order to make use of the micro-to-mainframe connection. If information is not available in a form that your microcomputer can use, the micro-to-mainframe package is of little value to you. The evolution of standards, such as the spreadsheet DIF file, is a hopeful trend, but this compatibility factor should nonetheless be thoroughly researched before an expensive communications package is purchased.

MICRO-TO-MAINFRAME IMPACT ON DATA PROCESSING

The prospect of a micro-to-mainframe connection has caused considerable disquiet among data processing managers for a number of reasons. The political ramifications of putting power in the hands of end users have been viewed as threatening, in that the microcomputer user is actually able to perform a data processing task using central files. Micro-to-mainframe connections may also impact the security of the mainframe database, and many administrators are uncertain as to how they can access the mainframe, and how the vulnerability of the data that is stored there may be controlled. One related area of growing concern is how the microcomputer will affect other parts of the data processing establishment, particularly in its tendency to increase the company's communications needs and making networking a more complex task. The need to provide adequate training to end users is also important, as is establishment of an organizational climate in which the micro-to-mainframe link can thrive and—theoretically, at least—reduce some of the backlog pressures on the data processing department.

Political Issues

No technological revolution occurs without accompanying political struggle. Data processing uncertainties over the role of microcomputers will certainly be augmented by the growing popularity of the micro-to-mainframe connection. At stake is the control of corporate information resources. Someone will be called upon to control microcomputer usage, and if the data processing or MIS director chooses to ignore the issues, the power will revert to someone else. Control of microcomputers extends to the manager's desk, and brings with it control of the corporate database. The data processing department is uniquely situated to take advantage of its knowledge in obtaining this control. If the

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▷ effort is inflexible, however, users will not be satisfied. The time is coming when local processing of mainframe data will be essential, and information *will* be made available. Therefore, it is in the data processing administrator's best interests to see that an adequate policy for microcomputer usage is implemented, and that users are able to easily obtain the information that they need to perform their tasks.

Security

Provision of a micro-to-mainframe connection affects security in a number of ways. Most mainframe access techniques make use of terminal emulation. This allows the user to take advantage of the standard security measures employed by the mainframe, such as password protection, usage logs, and the like. Any security provisions that are used with terminal access may be used with microcomputer access, provided that only terminal emulation is permitted. Packages that allow unhindered uploading from the microcomputer to any mainframe files will, of course, create genuine hazards, but this is really a terminal control problem. The real threats lie in the dramatic proliferation of terminals that microcomputer access will develop, and in the vulnerability of local storage on the microcomputer.

Terminal proliferation becomes a security problem in situations where limiting physical access to terminals has played a part in the security system. This situation is not too common, but it does happen. The cure is, of course, provision of adequate security through use of logons and passwords, thus placing security at the individual level, rather than at the terminal.

Local microcomputer storage represents a much more serious problem. Highly confidential material, such as salary information, new product descriptions, and customer files, may be downloaded by authorized personnel. This information may later be tapped by unauthorized users if it is stored on disk. Disks may be stolen or copied, or the user may fail to end the local application, thus leaving part of the file resident in RAM. The only solution to this problem is establishment of adequate physical security for the microcomputer, with provision for secure storage of disks. Because this form of security is not at the mainframe level, and is not easily implemented in software, many organizations have been lax in this area. With the micro-to-mainframe connection, the risks of microcomputer vulnerability will be many times magnified.

The use of microcomputers, and their growing familiarity within organizations, also poses a problem which is independent of the micro-to-mainframe connection, yet deserving of mention here. Increased computer literacy leads, inevitably, to increased vulnerability of data processing centers. More people know more about how to enter a system. Connections established through telecommunications must be carefully guarded, and any nonterminal connection should be examined to insure that adequate security measures are afforded.

Networking

The micro-to-mainframe connection imposes an additional burden upon the data communications network. Since this network generally resides within the control span of the data processing manager, the impact here may be considered before linkage is established. Difficulties in this area emerge slowly, as more and more connections are established. This means that they have the potential to take the data processing manager unaware. The problem does not lie in micro-to-mainframe connections per se; it resides in the fact that microcomputer usage is growing at a tremendous rate and most users want access to the database. Thus, there is an immediate growth in demand for lines. At the same time, the method used to access the mainframe provides some peculiarities of its own in heavy usage situations.

Micro-to-mainframe connections emulate terminals in most connection strategies. Terminal emulation may be accomplished through hardware or through software. In either case, it takes some time. There is a slight delay between input and translation. Meanwhile, the mainframe "believes" that it is communicating with a terminal, and there are no provisions for a translation delay. This means that, in very heavy-use situations, protocol conversion may cause errors and result in delays due to faulty transmission. Therefore, the microcomputer communications link must be evaluated carefully, and care should be taken to insure that excessive burden is not placed on the network.

Mainframe Software Impact

The micro-to-mainframe connection can have a substantial impact upon mainframe software. The need to upgrade systems and modernize data processing procedures has been frequently misunderstood by upper management. In particular, interactive processing has frequently lagged even in situations where it would be desirable. Managers will begin clamoring for access to mainframe data. If it exists only as the last page of a report produced by a batch-oriented system, it will be unavailable and dissatisfaction will be made evident. The micro-to-mainframe connection could actually be used as an excuse to upgrade the mainframe software environment, at the same time establishing powerful mainframe-based microcomputer links.

In micro-to-mainframe connections, the mainframe is frequently used to handle the difficult process of fitting a file to the format demanded by microcomputer software. The mainframe may also handle data selection, and provide powerful database query functions. Micro-to-mainframe links may be provided for a single mainframe package, such as a database management system, or they may be provided across a series of packages. The mainframe software's linking capabilities thus describe how the connection will be established. Since the mainframe packages are many times more expensive than microcomputer programs, they will essentially drive the system. Many mainframe software companies are using a personal computer linker as an aid in marketing the larger packages. Selection of such a package

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▷ will largely depend upon its other capabilities, and upon how well it fits organization needs. The personal computer link, can, however, become a persuasive factor—as many of these vendors are discovering. Many data processing centers are now due for software upgrades, and the personal computer connection should be considered at this time.

Cost Control

The mainframe element leads naturally into the subject of cost. Micro-to-mainframe connections range between the unbelievably cheap to the unbelievably expensive. Access to a time-sharing system through a modem can cost under \$100. An intelligent micro-to-mainframe link, with mainframe software and instant downloading to a relevant microcomputer application can cost well over \$100,000, depending upon how many microcomputer units are involved. The range of capabilities is very broad, and, in general, you pay for what you get. It is a mistake to purchase too little, for then you will not have sufficient capability. It is also a mistake to purchase too much. An evaluation of actual needs is required, and this should be matched to the systems available—with due provision for expansion. A modular approach is frequently possible. For really heavy needs, however, it is much less expensive to tackle the job at once, starting from the mainframe end, than to build by fits and starts. In this way, compatibility problems can then be avoided.

Capabilities Selection

In selecting a micro-to-mainframe package, it is important to match capabilities with needs. Although a complete description is not possible at this time due to rapid evolution within this area, the following factors should be considered:

- Communication method—terminal emulation (async, bisync, ASCII, etc.)
- Download capability—screen, full file, selected fields
- Mainframe participation (or, is the package only resident on the microcomputer)
- Software restrictions—limitations to specific packages, microcomputer and/or mainframe
- Upload capability—ability to send altered files to the mainframe
- Security features
- User interface—speed, ease of use, transparency

Training

The development of a micro-to-mainframe connection has made user training a critical issue. Although training needs have surfaced before, particularly in conjunction with the

move to legitimize microcomputers by applying various corporate controls, the micro-to-mainframe connection may have a direct effect on the corporate database. The user must be made aware of how his or her actions may affect the database, and must be taught to use the microcomputer efficiently within its new environment. The capabilities of the microcomputer are expanded, usage becomes more complex, and the data processing department is the only potential internal source of usage information. Training thus becomes the responsibility of the data processing department, and it is through training that control can be established.

Policy Needs

Control of microcomputer usage has become an issue partly as a result of micro-to-mainframe links and partly as a result of the tremendous growth that microcomputing has achieved in recent years. Compatibility and cost have been the driving forces behind the control issue. If microcomputers are introduced into the organization on an ad hoc basis, then they will not be able to communicate with each other—let alone, with the mainframe. If standards are not set for microcomputer purchase, then the problems of linking a heterogenous system will emerge long before an attempt is made to provide a sophisticated micro-to-mainframe connection. Software, too, must be standardized to an extent, to enable efficient file transfer. Sophisticated micro-to-mainframe packages may, indeed, require standardization at the microcomputer software level. Finally, distinctions must be made between what is appropriate for processing on the microcomputer, and what is more efficiently handled by the mainframe.

The microcomputer, with its mainframe connection, is a valuable corporate resource. It has the capacity to change many aspects of the data processing environment. Planning is essential. Because microcomputers are relatively inexpensive and inconspicuous, their potential impact upon the organization has frequently been underrated. In the greatly expanded world of today's microcomputer use, an urgent need for well-planned and consistent policy making has emerged. The microcomputer should, in fact, be accorded the attention that has heretofore been accorded other computer technologies. As a mainframe workstation with independent processing capability, the microcomputer is a part of the data processing system, and some attempt should be made to follow conventional systems analysis/design techniques.

The critical part of the planning process is configuring the system to meet real user needs, and providing channels for feedback to insure that the system is operating effectively. If user needs are being properly met, and micro-to-mainframe connections are neither excessive nor insufficient, then a wide range of benefits will be felt. The data processing department and the user will no longer be at odds, and processing tasks can be handled with a facility that was previously impossible to achieve. Planning and control are not easy tasks, and there are political obstacles to be overcome; the effort is, however, eminently worthwhile. ▷

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Information Centers

One popular method for establishing control over microcomputers and facilitating mainframe linkage is effective use of the Information Center concept. The Information Center was developed in 1976, at IBM, as a means of introducing and controlling end-user computing within a corporation. End-user computing, in the original concept, was mainly defined as use of fourth generation languages in accessing the corporate database through a terminal. A survey sponsored by Crwth Computer Coursewares indicates that about 1,400 Information Centers have been established since the concept was introduced.

The Information Center provides an ideal mechanism for controlling microcomputer usage within the mainframe environment. The Centers now in place have generally expanded to include microcomputer usage concerns, particularly where micro-to-mainframe connections are planned or already established. The primary advantage of using the Information Center approach is that the concept is already well tested and has proven reliable in assisting the end user with mainframe access and small programming tasks. Incorporation of microcomputers is a natural extension of this process, particularly given the microcomputer's potential to become the standard workstation for user-driven applications.

The tasks of the Information Center, with microcomputer usage included, are as follows:

- End-user education, including training in appropriate languages and in operation of microcomputer programs.
- Technical support, including development of micro-to-mainframe connections and providing terminal access where appropriate.
- Data availability, or insuring that the data requested is available in a form that is accessible to the user given his or her level of sophistication in computer usage.
- Evaluation of tools, including testing of microcomputer programs to insure that they meet the needs of the user and provision of appropriate on-line query languages, where appropriate.
- Ad hoc consulting, providing the end user with advice when situations arise which the end user is unable to handle through conventional means, and channeling applications through the data processing department where they exceed the capabilities of the user-driven system.

The Information Center operates as a subdepartmental group within data processing. Its primary mission becomes the selection and maintenance of equipment, and provision of appropriate training for micro-to-mainframe connections. In some corporations, of course, user-driven computing will remain primarily with terminals, but for most companies, microcomputers will take on more and



The DataTalker II from Winterhalter (Ann Arbor, MI) is a standalone front-end processor that connects to a microcomputer's asynchronous serial port. It features one synchronous modem port, three asynchronous serial ports, 64K memory, and a Z80A processor. The DataTalker II can be used in conjunction with Winterhalter's 3270 BSC, 3270 SNA, 3780/2780 BSC, X.25, and 3270 Coax emulation software.

more communications tasks. The microcomputer makes the task of the Information Center somewhat more difficult, simply because the machines are more powerful and more flexible than terminals. This means that the Information Center will require more support.

One of the primary difficulties in developing an Information Center is finding and training staff members. The Information Center requires a staff with expertise in training as well as in technical matters. Ideally, it should function as an intermediary between data processing and the end user. The staff should be knowledgeable in microcomputer hardware and software, and familiar with advances in micro-to-mainframe connection strategy. It should be able to advise the user and help him or her to efficiently obtain the information or perform the functions that are necessary to his or her task, and should, at the same time, remain in constant communication with the data processing department to insure that security measures are not being violated and the network has sufficient capacity to handle connections efficiently.

Altogether, this places a large burden on the shoulders of Information Center staff members, but it provides many benefits for the organization. Once the Center has been established and active for some time, its job will be made easier by the existence of a much larger body of personnel who are knowledgeable in how the system works.

Resultant Trends

Microcomputer access to the mainframe has been sought for some time, and it is only now becoming available. The need for such a connection has been strong, ever since the first Apples entered the first offices. Now that it is becoming available, trends in development are beginning to appear. Although provision of a mainframe link may appear, superficially, as a relatively simple thing, the implications may be extraordinary. Has the micro-to-mainframe connection opened a Pandora's box, and set forth a new evil within the data processing world? Or, is the microcomputer

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▷ to become the answer to the burgeoning applications backlog? Only time will tell. However, a few significant developments are likely in the years to come.

First, the micro-to-mainframe connection insures that the microcomputer will have a place within the business world for many years to come. In fact, it will probably become the standard workstation, particularly with decreases in size and enhancements to its communications capabilities.

Second, the microcomputer will now make it necessary for data processing centers to upgrade software to permit more interactive processing.

Third, the microcomputer's mainframe access will put considerable pressure on the corporate network, forcing upgrades in some cases, and making it necessary to use more sophisticated network monitoring tools. A networking center may, in fact, be required as a means of meeting this need.

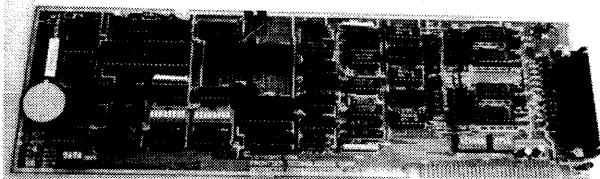
Fourth, the need for computer literacy will become even more evident, as it will become impossible to perform many jobs without a knowledge of elementary data processing techniques.

Fifth, micro-to-mainframe packages will become more user-friendly, and capabilities will expand to include access to more varieties of microcomputer and mainframe programs. Micro-to-mainframe packages will probably also drop in price to the point where sophisticated packages are available to most institutions.

Sixth, microcomputers will come to depend more and more on compatibility, and MS-DOS and Unix will begin to compete for the micro-to-mainframe connection market.

MICRO-TO-MAINFRAME LINK CHARACTERISTICS

The comparison charts at the end of this report present the key characteristics of 138 packages, from 89 vendors, that allow microcomputers to communicate with a host mainframe. The information contained in these charts was supplied by the vendors during May, June, and July 1985.



AdCom2-M, from Frontier Technologies (Milwaukee, WI), is a militarized version of the company's AdCom2 Communication Controller. The board can be used with Frontier Technologies' range of emulation software, including SNA/SDLC 3270, Bisync 3270, Bisync 3780, and PCX.25.

Their cooperation with the Datapro editorial staff is greatly appreciated.

Datapro sent requests for information to over 180 North American vendors known or believed to be in the micro-to-mainframe link business. Each mailed request was followed up by at least one telephone call. We feel that the responses provide an in-depth overview of today's micro-to-mainframe market.

The absence of any specific company from our charts means that the company failed to respond to our information requests, was unknown to us, or has discontinued marketing micro-to-mainframe links.

Vendor/Product

Listed at the top of each column is the vendor and the product name. As a policy, we include only those vendors that either manufacture the micro-to-mainframe hardware or publish the appropriate software; distributors have been excluded.

Package

In order to classify the *types* of micro-to-mainframe links currently available, we've asked the vendor to describe what is included in the product package. We've identified three basic types: software only, plug-in conversion card plus software, and standalone converter plus software.

Software only. Many of the packages included in the charts are software only. The majority of these are the highly customized, expensive links offered by a few vendors such as Comshare and Cullinet.

Plug-in conversion card plus software. The majority of the products in the charts comprise an IBM bus-compatible expansion card and diskette software.

Standalone converter plus software. A third type of product bundles a standalone converter with PC software. These converters require their own power supply and are not as transparent as expansion cards.

Converters supported. Several of the software products included in the charts require a plug-in or standalone converter offered by another vendor. If so, we've listed the converters that the package requires or supports. In most instances, information on the particular third-party converter required, e.g., DCA's Irma or AST's PCOX, can be found under the appropriate vendor listing in the charts.

System Requirements

Host systems supported. Most of the products included in the charts are for use with IBM mainframes, e.g., the 30XX or 43XX Series. Some work with any host that recognizes IBM 3270 or 3780 workstations.



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▷ **Host operating systems supported.** We've listed any vendor-supplied information about the host operating system environment.

Host-end programming. Some of the products require host-end programming. Most of the time this is simply a magnetic tape software load. Sometimes the host programmer must execute a special batch program or configurator to enable efficient interaction with the connected microcomputer.

Microcomputers supported. Nearly all of the products work with the IBM PC, the hard disk PC XT, or the multiuser PC AT. However, several are also able to work with IBM slot-compatible systems such as those offered by Compaq, ITT, or AT&T.

Microcomputer operating systems supported. Of course, MS-DOS and PC-DOS are the most popular operating systems for micro-to-mainframe software. Most of the products in the charts support Version 2.0 or higher, because hard disk support is essential when attempting to download mainframe-size files. Other operating systems also appear, including CP/M and Unix.

Microcomputer system memory requirement. We've listed the amount of microcomputer system memory (RAM) required to run the software, in bytes.

Media. Most of the PC programs are provided on 5¼-inch diskettes. If applicable, the package may include software resident on magnetic tape for loading at the host end.

Program Functions

Asynchronous terminals emulated. Some of the programs enable a microcomputer to emulate an asynchronous terminal.

Synchronous terminals emulated. Nearly every package included in the charts provides some sort of synchronous terminal emulation. This is, of course, the primary reason for linking microcomputers to hosts in the first place, so that PCs can access the host database in an IBM synchronous networking environment.

Host data download capability. For most micro-to-mainframe applications, the ability to download data from the host database into the microcomputer's mass storage device is essential.

Download functions. We've divided each product's host data download capability into the following functions: the ability to capture a screenful of data at a time, the ability to capture an entire host file to diskette, and/or the ability to capture specific items from the host file, often in the form of a query.

Host database update capability. Several products enable the microcomputer user to actually update the host database. This can, of course, be a dangerous practice; however,

some software allows for the definition of levels of host access for each user.

File formatting capability. After the data is downloaded from the mainframe to the microcomputer, it is desirable to have those files formatted in such a manner that they can be used with popular business applications software packages.

Applications supported. One of the most useful types of file formatting is the Data Interchange Format (DIF). The DIF format was created by Software Arts, the software vendor that created the popular VisiCalc spreadsheet.

Optional file formatting software. Some vendors offer file formatting software as an option; if so, we've listed all available software options.

Other download/upload functions. Several packages include upload/download functions not described above. Examples include the ability to transfer binary as well as text files, built-in error checking during transmission, and automatic ASCII-to-EBCDIC code translation.

Ability to upload data for processing. Many products have the ability to upload data from the microcomputer to the host, to utilize the strength of the host processor.

Ability to download files for local processing. Due to the cost associated with tying up the host and, in many cases, the inaccessibility of the host for nonpriority projects, it is often very desirable to be able to download data onto the microcomputer's disk for processing.

Security features. Security is a critical issue when a microcomputer user is permitted to access a corporate database. For this reason, it is desirable for a program to control access through the use of passwords and other levels of security, e.g., the ability to define user profiles. Another security measure available with some programs is an audit trail capability, which maintains a user access log.

Other program functions. Several of the products included are unique in some way. Other program functions may include the ability to define host logon sequences, data compression capability, the ability to generate host programs off-line, the ability to address an attached PC printer as a separate logical unit, etc.

Screen Functions

Terminal functions supported. Most of the products attempt to duplicate the functions of the emulated terminal. Terminal functions include editing, scrolling, function keys, visual attributes, and windowing.

On-screen help. Several programs provide some form of on-screen help to the user. Help functions range from simple prompts to lengthy descriptions of program functions and commands. Some programs allow for the creation of user-defined help menus, which is most useful for customized applications.

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▷ **Status line.** A variety of status line functions may be incorporated into the program. Many programs attempt to duplicate the 3270 status line. Status indicators include session progress, time-of-connect, file size, transmission block count, etc.

Communications

Local/remote connection to host or controller. All of the products enable a microcomputer to link to a host. Different interconnect methods are employed, depending on the product. The way a product enables the microcomputer to connect to the host is a very important consideration for a would-be buyer.

Interface provided. Most products that require a plug-in conversion card have a coaxial interface. Some of the products use an asynchronous input/output port, such as the IBM Asynchronous Adapter.

Other communications. When provided by the vendor, we've listed other communications capabilities such as the maximum transmission speed, built-in modem eliminator capability, on-line diagnostics, etc.

Pricing and Availability

Onetime license or purchase price, basic package. This is the retail charge for the product. The license refers to the fine print of the software agreement which tells you that you do not actually purchase the program outright, but perpetually lease it and must respect the vendor's copyright.

Additional software support charges. Some products are available with software modules that provide extended capabilities, e.g., file formatting or extended 3270 support. We've listed the price for each module.

Charges for support services. Most vendors provide product support for a limited time period, e.g., one year after the date of purchase. Some vendors provide unlimited free support to their customers; others charge a fee.

Date of first delivery. We have provided the date of first delivery to indicate how long the package has been on the market.

Lead time on orders. This indicates the amount of time a user must wait for delivery after receipt of order (ARO). If the term "stock" appears for this entry, the package is available from the vendor immediately.

Number installed to date. The number installed to date may help you to discern the magnitude of the market, but does not always reveal the relative merits of a micro-to-mainframe link.

Comments. Try as we might, when compiling a study of this sort, we sometimes come across products whose basic characteristics are not completely covered by the categories we've delineated. The comments help to amplify preceding

data or to explain key elements of a product that may have been overlooked in the formal chart entries.

VENDORS

Listed below, for your convenience, are the full names, addresses, and telephone numbers of the 89 vendors whose products are included in the comparison charts that follow.

Applied Data Research, Route 206 and Orchard Road, CN-8, Princeton, NJ 08540. Telephone (201) 874-9000.

Applied Information Systems, Inc., 500 Eastowne Drive, Suite 207, Chapel Hill, NC 27514. Telephone (919) 942-7801 or (800) 334-5510.

Applied MicroSystems, Inc., P.O. Box 832, Roswell, GA 30077. Telephone (404) 475-0832.

Artificial Intelligence Corporation, 100 Fifth Avenue, Waltham, MA 02254. Telephone (617) 890-8400.

Ashton-Tate, 10150 West Jefferson Boulevard, Culver City, CA 90230. Telephone (213) 204-5570.

AST Research Inc., 2121 Alton Avenue, Irvine, CA 92714. Telephone (714) 863-1333.

Attachmate Corporation, 3241 118th S.E., Bellevue, WA 98005. Telephone (206) 644-4010.

Burroughs Corporation, 1 Burroughs Place, Detroit, MI 48232. Telephone (313) 972-7000.

CAP Gemini Software Products, Inc., 2350 Valley View Lane, Dallas, TX 75234. Telephone (214) 247-5454.

Chi Corporation, 26055 Emery Road, Cleveland, OH 44128. Telephone (216) 831-2622.

Cincom Systems, Inc., 2300 Montana Avenue, Cincinnati, OH 45211. Telephone (513) 662-2300.

Cipherlink Corporation, 3807 Wilshire Boulevard, Suite 700, Los Angeles, CA 90010. Telephone (213) 387-5371.

CLEO Software, (a division of Phone 1, Inc.), 1639 North Alpine Road, Rockford, IL 61107. Telephone (815) 397-8110.

Communications Research Group, 8939 Jefferson Highway, Baton Rouge, LA 70809. Telephone (504) 923-0888.

Communications Solutions, Inc., 992 S. Saratoga-Sunnyvale Road, San Jose, CA 95129. Telephone (408) 725-1568.

Computer Associates International, Inc., 125 Jericho Turnpike, Jericho, NY 11753. Telephone (516) 333-6700.

Computer Corporation of America (CCA), Four Cambridge Center, Cambridge, MA 02142. Telephone (617) 492-8860.

Comshare, Inc., 3001 S. State Street, Ann Arbor, MI 48104. Telephone (313) 994-4800.

Context Management Systems Corporation (Lemain, Inc., exclusive distributor), P.O. Box 3010, Agoura, CA 91301. Telephone (818) 706-3141.

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- **Cullinet Software, Inc.**, 400 Blue Hill Drive, Westwood, MA 02090. Telephone (617) 329-7700.
- CXI, Inc.**, 3606 W. Bayshore Road, Palo Alto, CA 94303-4229. Telephone (415) 424-0700.
- The Datalex Company**, 650 Fifth Street, San Francisco, CA 94107. Telephone (415) 541-0780.
- Datastream Communications, Inc.**, 2520 Mission College Boulevard, Santa Clara, CA 95050. Telephone (408) 986-8022.
- Digital Communications Associates, Inc. (DCA)**, 1000 Alderman Drive, Alpharetta, GA 30201. Telephone (404) 442-4000.
- Diversified Data Resources, Inc.**, 25 Mitchell Boulevard, Suite 7, San Rafael, CA 94903. Telephone (415) 499-8870.
- Forte Communications, Inc.**, 2205 Fortune Drive, San Jose, CA 95131. Telephone (408) 945-9111.
- Frontier Technologies Corporation**, 3510 N. Oakland Avenue, P.O. Box 11238, Milwaukee, WI 53211. Telephone (414) 964-8689.
- Gateway Microsystems Incorporated**, 9501 Capital of Texas Highway, Suite 105, Austin, TX 78759. Telephone (512) 345-7791.
- Hawkeye Grafix, Inc.**, 23914 Mobile Street, Canoga Park, CA 91307. Telephone (818) 716-5220.
- Hewlett-Packard**, Office Systems Division, 8010 Foothills Boulevard, Roseville, CA 95678. Telephone (916) 786-8000.
- Honeywell Information Systems**, 200 Smith Street, Waltham, MA 02154. Telephone (617) 890-8400 or (800) 328-5111.
- ICOT Corporation**, 830 Maude Avenue, Mountain View, CA 94039. Telephone (415) 964-4635.
- IDE Associates**, 35 Dunham Road, Billerica, MA 01821. Telephone (617) 663-6878 or (800) 257-5025.
- IE Systems, Inc.**, 112 Main Street, P.O. Box 359, Newmarket, NH 03857. Telephone (603) 659-5891.
- InfoCenter Software, Inc.**, 171 Main Street, New Paltz, NY 12561. Telephone (914) 255-8925.
- Information Builders, Inc.**, 1250 Broadway, New York, NY 10001. Telephone (212) 736-4433.
- Information Resources, Inc.**, 200 Fifth Avenue, Waltham, MA 02154. Telephone (617) 890-1100.
- Information Technologies, Inc.**, 7850 E. Evans Road, Scottsdale, AZ 85260. Telephone (602) 998-1033.
- Intel Corporation**, 12675 Research Boulevard, P.O. Box 9968, Austin, TX 78766. Telephone (512) 258-5171.
- Intelligent Technologies International Corporation**, 151 University Avenue, Palo Alto, CA 94301. Telephone (415) 328-2411.
- InterChart Software, Inc.**, 104 Carnegie Center, Princeton, NJ 08540. Telephone (609) 987-1590.
- Intercomputer Communications Corporation**, 3195 Linwood Avenue, Cincinnati, OH 45208. Telephone (513) 321-3199.
- International Business Machines Corporation (IBM)**, Old Orchard Road, Armonk, NY 10504. Contact your local IBM representative.
- Linkware Corporation**, 77 Rumford Avenue, Waltham, MA 02154. Telephone (617) 894-9330.
- Local Data, Inc.**, 2701 Toledo Street, Torrance, CA 90503. Telephone (213) 320-7126.
- Mackensen Corporation**, 3323 Pearl Street, Santa Monica, CA 90405. Telephone (213) 452-5520.
- Management Decision Systems, Inc.**, (see Information Resources, Inc.)
- Management Science America, Inc.**, 3445 Peachtree Road N.E., Atlanta, GA 30326. Telephone (404) 239-2000.
- Martin Marietta (Information Technology Division)**, P.O. Box 2392, Princeton, NJ 08540. Telephone (609) 799-2600.
- MasterLink, Inc.**, 82 Mitchell Boulevard, San Rafael, CA 94303. Telephone (415) 499-8466.
- Mathematica Products Group, Inc.**, (see Martin Marietta)
- McCormack & Dodge Corporation**, 1225 Worcester Road, Natick, MA 01701. Telephone (617) 655-8200.
- The Mega Group**, 17701 Mitchell Avenue North, Irvine, CA 92714. Telephone (714) 474-0800.
- Micro Tempus Inc.**, 440 Dorchester Boulevard West, Suite 300, Montreal, Quebec, H2Z 1V7 Canada. Telephone (514) 397-9512.
- Microlog, Inc.**, 222 Route 59, Suffern, NY 10901. Telephone (914) 357-8086.
- Midwest Data Source, Inc.**, 1010 Nimitz Road, Cincinnati, OH 45230. Telephone (513) 231-2023.
- The MOM Corporation**, (a division of National Product Marketing, Inc.), Two Northside 75, Atlanta, GA 30318. Telephone (404) 351-2902.
- NCR Corporation**, 1700 South Patterson Boulevard, Dayton, OH 45479. Telephone (513) 445-5000.
- Network Research Corporation**, 2380 N. Rox Avenue, Oxnard, CA 93030. Telephone (805) 485-2700.
- Network Software Associates, Inc.**, 19491 Sierra Soto, Irvine, CA 92715. Telephone (714) 768-4013.
- OBS Software**, (a division of On-Line Business Systems, Inc.), 115 Sansome Street, San Francisco, CA 94104. Telephone (415) 391-9555.
- On-Line Software International Inc.**, Fort Lee Executive Park, Two Executive Drive, Fort Lee, NJ 07024. Telephone (201) 592-0009.
- Oracle Corporation**, 2710 Sand Hill Road, Menlo Park, CA 94025. Telephone (415) 854-7350.



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- ▷ **Orcima Corporation**, 6095 East River Road, Minneapolis, MN 55432. Telephone (612) 572-1000.
- Package Solutions, Inc.**, One Huntington Quadrangle, Suite 2C10, Melville, NY 11747. Telephone (516) 752-1640.
- Pansophic Systems, Inc.**, 709 Enterprise Drive, Oak Brook, IL 60521. Telephone (312) 986-2263.
- Pathway Design, Inc.**, P.O. Box 8179, Natick, MA 01760-0051. Telephone (617) 237-7722 or (800) 343-0515.
- Performance Software, Inc.**, 452 Southlake Boulevard, Richmond, VA 23113. Telephone (804) 794-1012.
- Quadram Corporation**, 4355 International Boulevard, Norcross, GA 30093. Telephone (404) 923-6666.
- Ryan-McFarland Corporation**, 609 Deep Valley Drive, Rolling Hills Estate, CA 90274. Telephone (213) 541-4828.
- SAS Institute, Inc.**, P.O. Box 8000, SAS Circle, Cary, NC 27511-8000. Telephone (919) 467-8000.
- Simware Inc.**, 14 Concourse Gate, Suite 100, Nepean, Ontario, K2E 7S6 Canada. Telephone (613) 727-1779.
- SIS/SunData**, 1285 Drummer Lane, Wayne, PA 19087. Telephone (215) 341-8700.
- Software AG of North America**, 11800 Sunrise Valley Drive, Reston, VA 22091. Telephone (703) 860-5050.
- Software Dynamics, Inc.**, P.O. Box 247, Dunedin, FL 34296-0247. Telephone (813) 733-8784.
- Software International Corporation (subsidiary of General Electric Software Products Company)**, One Tech Drive, Andover, MA 01810. Telephone (617) 685-1400.
- Solaris Computer Corporation**, 1994 Tarob Court, Milpitas, CA 95035. Telephone (408) 943-1818.
- Sterling Software Marketing, Inc.**, 11050 White Rock Road, Suite 100, Rancho Cordova, CA 95670-6095. Telephone (916) 635-5535 or (800) 824-8512.
- The Systems Center, Inc.**, 1320 Greenway Drive, Suite 300, Irving, TX 75038. Telephone (214) 659-9318.
- Techland Systems Inc.**, 25 Waterside Plaza, New York, NY 10010. Telephone (212) 684-7788.
- Tecmar, Inc.**, 6225 Cochran Road, Solon, OH 44139. Telephone (216) 349-0600.
- Tesseract Corporation**, 101 Howard Street, San Francisco, CA 94105. Telephone (415) 543-7320.
- Thomas Engineering Company**, 2440 Stanwell Drive, Concord, CA 94520. Telephone (415) 680-8640 or (800) 832-8649.
- Thorn EMI Computer Software**, One Industrial Drive, Windham, NH 03079. Telephone (603) 898-1800.
- 3Com Corporation**, 1365 Shorebird Way, P.O. Box 7390, Mountain View, CA 94039. Telephone (415) 961-9602.
- Uccel Corporation**, UCCEL Tower, Exchange Park, Dallas, TX 75235. Telephone (214) 353-7100.
- Urgeo Software, Inc.**, P.O. Box 305, Cheney, WA 99004. Telephone (509) 455-6058.
- VM Personal Computing, Inc.**, 6 Germantown Road, Danbury, CT 06810. Telephone (203) 798-6755.
- Wall Data Incorporated**, 17769 N.E. 78th Place, Redmond, WA 98052-4992. Telephone (206) 883-4777 or (800) 433-3388.
- Winterhalter, Inc.**, 3853 Research Park Drive, Ann Arbor, MI 48106. Telephone (313) 662-2002 or (800) 321-7785.
- Xerox Computer Services**, 5310 Beethoven Street, Los Angeles, CA 90066. Telephone (213) 306-4000. ◀

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Applied Data Research PC DATACOM	Applied Data Research PC/PTE	Applied Data Research PC eMAIL
PACKAGE	Software only	Software only	Software only
Converters supported	DCA Irma/Irmaline/Irmalette, IBM 3270 PC/async, Forte, PCI boards	DCA Irma/Irmaline/Irmalette, IBM 3270 PC/async, Forte, PCI boards	DCA Irma/Irmaline/Irmalette, IBM 3270 PC/async, Forte, PCI boards
SYSTEM REQUIREMENTS			
Host systems supported	IBM 43XX, 81XX, 30XX, 370	IBM 43XX, 30XX	IBM 43XX, 8XXX
Host operating systems supported	OS, DOS, MVS	OS, DOS, DOS/VSE	OS, DOS, CICS, Vollie, Roscoe
Host end programming Microcomputers supported	None required IBM PC, PC XT, PC AT, 3270-PC	Req. ADR/Roscoe or ADR/Vollie IBM PC, PC XT	Host software loading IBM PC, PC XT
Microcomputer operating systems supported	PC-DOS 1.1, 2.0, 2.1, 3.0	PC-DOS 1.1, 2.0, 2.1, 3.0	PC-DOS 1.1, 2.0, 2.1, 3.0
Microcomputer system memory requirement	320K bytes	256K bytes	384K bytes
Media	5¼-inch diskette	5¼-inch diskette	5¼-inch diskette, mag tape
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	TTY	TTY	TTY
Synchronous terminals emulated	IBM 3278 Model 2	IBM 3278/3279	IBM 3278/3279
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data, capture entire host file, capture specific items from host file	Capture an entire host file to diskette	Directory (in/out box, folders, etc.), message, network segment
Host database update capability	Yes	Yes (members)	Yes (eMail libraries)
File formatting capability Applications supported	Yes DIF, CSV (comma separated value), SYLK files	No Auto. ASCII/EBCDIC conver., data compress./transpar., error check	Yes Data from WP document file converted to ADR/eMail format; auto. ASCII/EBCDIC conversion
Optional file formatting software	No	No	No
Other download/upload functions	Auto. ASCII/EBCDIC conv.; data compress./transpar.; error check	No	Messages and updated directories loaded to mainframe
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes (directories)
Security features	Password, record, field, field content	Loc. security via ADR PC/sign-on, remote via ADR/Roscoe, ADR/Vollie	Password, internally encrypted to protect data
Other program functions	PC-based report writer, PC-based query creation	File upload/download editing	No
SCREEN FUNCTIONS			
Terminal functions supported	Visual attributes, function keys	Full erase and editing functions, visual attributes, windows, scrolling, function keys	Visual attributes, scrolling
On-screen help Status line	Yes Yes; line 25	Yes Yes	Help menus User location in system, scroll lock, shift, caps, alt, etc.
COMMUNICATIONS			
Local/remote connection to host or controller	Local connect to 3270 controller	Local connect to 3270 controller, async remote	Local connect to 3270 controller; async remote
Interface provided	Coaxial via Irma card	Coaxial or async (adapter)	Coaxial, async (adapter)
Other communications	Dial up, protocol converters	None	None
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$495/PC	Contact vendor for pricing	\$195
Additional software support charges	None	None	None
Charges for support services	Included (first year only)	Contact vendor	Included (first year only)
Date of first delivery	December 1983	3rd quarter 1985	2nd quarter 1985
Lead time on orders	Stock	Contact vendor	Contact vendor
Number installed to date	Information not available	New product	New product
COMMENTS	Requires DATACOM/DB, DATAQUERY on mainframe		Requires ADR/eMAIL on mainframe

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VENDOR/PRODUCT	Applied Data Research PC EMPIRE	Applied Information Systems BURCOM	Applied MicroSystems, Inc. PC-PROFS
PACKAGE	Software only	Software only	Software only
Converters supported	DCA Irma card (sync) or Hayes compatible modem (async)	No converter required	None required
SYSTEM REQUIREMENTS			
Host systems supported	IBM 370, 43XX, 30XX	All Burroughs host systems	Any host supporting VM
Host operating systems supported	OS VM	All Burroughs OS	VM/370—CMS
Host end programming	None required	None required	None required
Microcomputers supported	IBM PC	DEC Professional 300; also, see Comments below	IBM PC, PC XT, Compaq, other compatibles
Microcomputer operating systems supported	PC-DOS 1.1, 2.0, 2.1, 3.0	POS, Micro RSX, Micro RSTS, Micro VMS	PC-DOS 1.1, 2.0, 2.1
Microcomputer system memory requirement	256K bytes	3K bytes	256K bytes
Media	5 ¼-inch diskette	5 ¼-inch diskette	5 ¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	Burroughs MT983/MT993	TTY
Synchronous terminals emulated	None	Burroughs MT983/993	None
Host data download capability	Yes	Yes	Yes
Download functions	Report data after running an ADR/EMPIRE model	Capture entire host file to diskette	Capture an entire host file to diskette, capture specific items from host files
Host database update capability	Yes (EMPIRE models)	No	PROFS—Professional Office System
File formatting capability	Yes	No	Yes
Applications supported	Spreadsheets converted to ADR/Empire model, data, and control files	—	Standard and custom document formats are supported
Optional file formatting software	No	None	None
Other download/upload functions	Upload locally created and edited ADR/EMPIRE files to MF	No	No
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	No	Yes	Yes
Security features	TSO password, VM password, ADR/Roscoe password	None	Auto log-on to host, multiple port search for avail. host line
Other program functions	No	No	Integral full screen text editor
SCREEN FUNCTIONS			
Terminal functions supported	Visual attributes, scrolling	Full erase and editing functions, visual attributes, scrolling, function keys	Full erase and editing, visual attributes, scrolling, function keys
On-screen help	Help menus	Help menus	Help menus, tutorial diskette
Status line	Location of user in system, diagnostics	None	Yes—send, receive, alarm, caps lock, echo, comm. settings
COMMUNICATIONS			
Local/remote connection to host or controller	Local connect to 3270 controller using the Irma card, adapter	Local or remote connect to host or controller	Remote to host
Interface provided	Coaxial, async (adapter)	Async/sync, dependent on TDI	Requires async adapter
Other communications	None	None	Requires Hayes compatible modem
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$195	\$695-\$1,995	\$295
Additional software support charges	None	None	Two corporate license plans available; contact vendor
Charges for support services	Included (first year only)	Varies with support level	Free telephone support
Date of first delivery	3rd quarter 1985	1984	November 1983
Lead time on orders	Contact vendor	2 weeks	Two days
Number installed to date	New product	Information not available	Information not available
COMMENTS	Requires ADR/EMPIRE on mainframe	Versions of BURCOM are also available for the DEC Micro-11 and Micro-VAX; 1984 info.	Icon based; totally automatic connection to PROFS host; allows host text files to be downloaded or uploaded to PC; supports data pacing and XMODEM file transfer verification; selective retrieval of PROFS correspondence

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VENDOR/PRODUCT	Artificial Intelligence Corp. Intellect	Ashton-Tate dBASE-Answer	AST Research AST-BSC
PACKAGE	Software only	Software only	Plug-in conversion card plus software
Converters supported	None required	DCA Irma required for sync operation	No additional converter required
SYSTEM REQUIREMENTS			
Host systems supported	IBM 4300, 303X, 308X, compatible systems	IBM 43XX and larger	IBM 43XX, 303X, 370, 8100
Host operating systems supported	VM, TSO	All IBM mainframe OS	See Comments below
Host end programming	None required	Host software ANSWER/DB required	None required
Microcomputers supported	IBM PC, PC XT	IBM PC, PC XT, PC AT & compatibles	IBM PC, PC XT
Microcomputer operating systems supported	PC-DOS, Concurrent CP/M	MS-DOS 2.0	PC-DOS 1.1, 2.0, 2.1, 3.0
Microcomputer system memory requirement	256K bytes	256K bytes	128K bytes
Media	5 1/4-inch diskette	5 1/4-inch diskette	5 1/4-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	TTY	None	None
Synchronous terminals emulated	IBM 3278	IBM 3278, 3279 with Irma card	IBM 3278 Model 2, 3279 Model 2A, and 3274/3276 Control Units
Host data download capability	Yes	Yes	Yes
Download functions	Capture entire host file to diskette, capture specific items from host file	Ability to query mainframe databases, by establishing a query set-up on the micro	Capture screenful of data at a time
Host database update capability	No	No	Yes; host dependent
File formatting capability	Yes	Yes	No
Applications supported	Spreadsheet, graphics (DIF, ASCII)	Downloaded information is stored in dBase II/III/Framework files	Not applicable
Optional file formatting software	No	No	No
Other download/upload functions	No	No	Yes; bidirectional text or binary file transfer to MVS/TSO, VM/CMS
Ability to upload data for processing	No	Yes	No
Ability to download files for local processing	No	Yes	No
Security features	No	Passwords, defined levels of access for each user	Host defined
Other program functions	No	Access to multiple mainframe databases, with the ability to extract certain information	Supports attached printer as a separate addressable device
SCREEN FUNCTIONS			
Terminal functions supported	Windows under Concurrent CP/M	Full erase and editing functions via the Irma card	Full erase and editing functions, visual attributes, scrolling, function keys
On-screen help	Tutorials, on-line help	Guidance through query set-ups	Host defined
Status line	None	3270 status line	Session status
COMMUNICATIONS			
Local/remote connection to host or controller	Local connect to 3274, remote via 1200/300 bps modem	Local connect to 3270 control unit	Remote connection to a 370X/3725 controller
Interface provided	Via interface adapters	Coaxial via the Irma card	Synchronous modem interface
Other communications	Directory for dialing remote mainframe	Transparent communications; automatic disconnect	Local diagnostics; built-in modem eliminator capability
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$17,500; includes communications link plus 10 PC diskettes	\$45,000; includes 1 mainframe program, 50 PC program diskettes	\$695
Additional software support charges	\$250 per additional PC diskette	None	None
Charges for support services	Basic support included	Included	None
Date of first delivery	September 1984	July 1984	Information not available
Lead time on orders	Information not available	Information not available	Contact vendor
Number installed to date	Information not available	Information not available	Information not available
COMMENTS	Natural language user interface to mainframe database; 1984 info.	ANSWER/DB mainframe software developed by Informatics; 1984 info.	Host operating systems: CICS/VS, IMS/VS, JES 2 & 3, RES, TCAM, VTAM, NCCF, TSO, NOSPC, VSPC, 8100PX

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	AST Research AST-SNA	AST Research AST-PCOX	AST Research AST-3780
PACKAGE	Plug-in conversion card plus software No additional converter required	Plug-in conversion card plus software No additional converter required	Plug-in conversion card plus software No additional converter required
Converters supported			
SYSTEM REQUIREMENTS			
Host systems supported	IBM 43XX, 303X, 370, 8100	All IBM hosts that support 3274/3276 Control Units via category A interfacing	IBM 370, 43XX, 30XX, S/34, and others; DEC; Wang; Honeywell
Host operating systems supported	See Comments below	All 3270 operating systems; TSO, VM/CMS for file transfer	Any OS supporting BSC RJE
Host end programming	None required	None required	None required
Microcomputers supported	IBM PC, PC XT	IBM PC, PC XT	IBM PC, PC XT
Microcomputer operating systems supported	PC-DOS 1.1, 2.0, 2.1, 3.0	PC-DOS 1.1, 2.0, 2.1, 3.0	PC-DOS 1.1, 2.0, 2.1, 3.0
Microcomputer system memory requirement	128K bytes	64K bytes, 128K bytes (transfers)	64K bytes (1.1), 128K bytes (2.0)
Media	5¼-inch diskette	5¼-inch diskette	5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	None	None
Synchronous terminals emulated	IBM 3278 Model 2, 3279 Model 2A, 3274/3276 Control Units	IBM 3278 Models 2, 3, and 4; 3279 Models 2A and 3A	IBM 2780, 3780, 2770, 3741
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data at a time	Capture screenful of data at a time, capture an entire host file to diskette	Capture an entire host file to diskette; RJE workstation—bidirectional file transfers
Host database update capability	Yes, host defined	Yes, host dependent	No
File formatting capability	No	No	No
Applications supported	Not applicable	Not applicable	Not applicable
Optional file formatting software	No	No	No
Other download/upload functions	Yes; bidirectional text or binary file transfer to MVS/TSO, VM/CMS	Yes; bidirectional text or binary file transfer to MVS/TSO, VM/CMS	Selectable ASCII/EBCDIC translation; supports binary data
Ability to upload data for processing	No	Yes	Yes
Ability to download files for local processing	Yes	Yes	Not in a single session
Security features	Host defined	Defined by host system	Defined by host system
Other program functions	Supports attached printer as a separate 3287 Logical Unit	Documented interface to emulation software	See Comments below
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and editing functions, visual attributes, scrolling, function keys	Full erase and editing functions, visual attributes, scrolling, function keys, Model 3,4 support	Scrolling
On-screen help	Host defined	Host defined	Menus
Status line	Session Status	Session status	Line/session status
COMMUNICATIONS			
Local/remote connection to host or controller	Remote connect to an IBM 370X/3725 controller	Local connect to an IBM 3274/3276 Control Unit	Remote connection to host
Interface provided	Synchronous modem interface	Coaxial	Synchronous modem interface
Other communications	Local diagnostics; built-in modem eliminator capability	Local hardware/interface diagnostics	Local hardware/modem diagnostics; modem eliminator capability
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$895	\$895 w/o file transfer; \$995 w/file transfer	\$895
Additional software support charges	None	None	None
Charges for support services	None	No charge	No charge
Date of first delivery	Information not available	Information not available	Information not available
Lead time on orders	Stock	Stock	Stock
Number installed to date	Information not available	Information not available	Information not available
COMMENTS	Host operating systems: CICS/VS, IMS/VS, JES 2 & 3, RES, TCAM, VTAM, NCCF, NOSF, VSPC, 8100PX	Host operating systems: CICS/VS, IMS/VS, JES 2 & 3, RES, TCAM, VTAM, NCCF, NOSF, VSPC, 8100PX	Two modes of operation: 1) Interactive—menu driven; 2) Unattended—from user-created command file; documented interface to emulated protocol

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	AST Research AST-3270/Coax	Attachmate Corp. Attachmate-3270 Coaxial Interface	Burroughs Data Transfer System (DTS)
PACKAGE	Plug-in conversion card plus software	Plug-in conversion card plus software	Software only
Converters supported	No additional converter required	No additional converter required	None required
SYSTEM REQUIREMENTS	All IBM hosts that support 3274/3276 control units via Category A interfacing	IBM 360/70, 30XX, 4300, 4700	Burroughs B1000, V Series (incl. B2000/B3000/B4000), A Series (incl. B5000/B6000/B7000)
Host systems supported	All 3270 operating systems; TSO, VM/CMS for file transfer	VM/CMS; TSO mainframe/PC—ORMS	Burroughs MCP
Host operating systems supported	None required	DOS	None required
Host end programming	IBM PC PC XT, PC AT, Portable, & compatibles	IBM PC, PC XT, PC AT, & compatibles	Burroughs B20 Series (B21/B22/B25)
Microcomputers supported	PC-DOS 1.1, 2.0, 2.1, 3.0	PC-DOS, MS-DOS	Burroughs BTOS
Microcomputer operating systems supported	384K bytes RAM (inc. file trans.)	None; uses on-board RAM	512KB (Master); 384KB (clst./st.)
Microcomputer system memory requirement	5¼-inch diskette	5¼-inch diskette	5¼-inch diskette (micro); mag tape (host)
PROGRAM FUNCTIONS	None	None	Burroughs MT983
Asynchronous terminals emulated	IBM 3278-2/-3/-4, 3279-2A/-3A	IBM 3278/3279/3178 (coaxial 2A terminals), and 3287-2A printers	Burroughs MT983
Synchronous terminals emulated	Yes	Yes	Yes
Host data download capability	Capture screenful of data at a time, capture entire host file to disk., trans. PC file thru host	Capture screenful of host data, entire host files, specific items from host files	Capture an entire host file to diskette; see also Comments
Download functions	Yes; host dependent	All 3270 update capabilities	A Series only (using ERGO); on other sys., DTS prog. enhanced
Host database update capability	No	Yes	Yes
File formatting capability	Not applicable	General file formatting	Download to Multiplan SYLK file; to Burroughs Business Graphics Package Graph file; B20 WP ASCII
Applications supported	No	No	Upload B20 sequential, direct, or indexed sequential files
Optional file formatting software	None	No	None
Other download/upload functions	Yes	Yes	Yes
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Defined by host system	Two levels of mainframe access security, including a key lock	Must enter thru a variety of B20 & mainframe security access proc.
Security features	Local screen copy, 10 display profiles allowed, interactive config., Internat. keyb. define	3270 printer sharing, 3270 printer capture/printer emulation	Download or upload transfer definition for entire files; call up list of upl. or downl. trans. def
Other program functions	Full erase and editing functions, visual attributes, windowing, scrolling, function keys	Full erase and editing, visual attributes, scrolling, windows, function keys	Full erase and editing functions, visual attributes, windowing, scrolling, function keys
SCREEN FUNCTIONS	Host defined	Help menus	Yes; field-by-field basis
Terminal functions supported	Yes; 3270	Status line for time of day, row, line, communications status	DTS shows running count of number of records transferred
On-screen help	Local or remote to IBM 3274/3276 control unit or 4300 int. adapter	Local to IBM 3274/3276	Remote to all Burroughs mainframe
Status line	Coaxial	Coaxial 2A	Local to B21, B22, B25 or master
COMMUNICATIONS	Local hardware interface	None	Two-wire direct interface; modem
Local/remote connection to host or controller	Diagnostics	Uses Burroughs Multi-Point protocol	
Interface provided	\$1,145 (includes file transfer)	Variable—\$910-\$1,308, depending on options; quantity discounts	Host—\$50-\$200/mo.; B20—\$525 + \$500 for poll/select per cluster
Other communications	None	Printer sharing, \$149; 3270 printer capture/emulation, \$186; see Comments for other software	Full range of software support avail. at charge, incl. hot-line support; can incl. on-site supp.
PRICING AND AVAILABILITY	None	Second year warranty, \$60	\$215-\$370; \$660-\$1,140
One-time license or purchase price, basic package	None	March 1984	May 1984
Additional software support charges	None	2 weeks	4 weeks
Charges for support services	None	Over 2000	Information not available
Date of first delivery	July 1985		
Lead time on orders	Contact vendor		
Number installed to date	Information not available		
COMMENTS	Provides concurrent display of 1 host session, 1 PC-DOS session, & up to 2 user notepads	Interface card contains one or two coaxial inputs, plus 64KB or 256KB of on-board RAM. Add'l. software: concurrent windows, \$249; DFT host windows, \$249; extended 3270 functions, \$249; 1984 info.	DTS allows an entire host file, or selected fields from the file, to be downloaded to the B20 disk/diskette automatically formatted for the desired application; on A Series, ERGO allows extensive query capabilities

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Cap Gemini Software Products MultiPro	Chi Corporation Sperry Communications System for IBM PC	Chi Corporation Sperry Communications System for DEC Rainbow
PACKAGE	Software only	Plug-in conversion card plus software	Standalone converter plus software
Converters supported	Local Data DataLynx, InterLynx; DCA Irma; AST-PCOX	No additional converter required	No additional converter required
SYSTEM REQUIREMENTS			
Host systems supported	IBM 4300, 303X, 308X	Sperry 1100 Series	Sperry 1100 Series
Host operating systems supported	VM, MVS	Sperry	Sperry
Host end programming Microcomputers supported	Via host software modules IBM PC XT, PC AT, 3270-PC	No IBM PC, PC XT, PC AT, & compatibles	No DEC Rainbow 100, Rainbow 100+
Microcomputer operating systems supported	MS-DOS	MS-DOS & compatibles	MS-DOS & compatible
Microcomputer system memory requirement	320K bytes	128K bytes (minimum)	64K bytes (minimum)
Media	5¼-inch diskette	5¼-inch diskette	5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	DEC VT100	None	None
Synchronous terminals emulated	IBM 3278 Model 2	Sperry UTS 20, UTS 30, UTS 40, UTS 400, Uniscope 100/200	Sperry UTS 20, UTS 30, UTS 40, UTS 400, Uniscope 100/200
Host data download capability	Yes	Yes	Yes
Download functions	Capture an entire host file to fixed disk	Capture screenful of data, entire host file to diskette, specific items from host file	Capture screenful of data, entire host file to diskette, specific items from host
Host database update capability	Yes, the mainframe-resident project library may be updated	Yes; MAPPER, DEMAND, TAP	Yes; MAPPER, DEMAND, TIP
File formatting capability Applications supported	Yes Application software development by DP professionals	Yes Provides link to MAPPER	Yes Provides link to MAPPER
Optional file formatting software	No	No	No
Other download/upload functions	Ability to update host-resident files using local screen editor	None	None
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Defined levels of access: none, read only, read/update	Configuration options allow terminal addresses to be secured	Configuration options allow terminal addresses to be secured
Other program functions	Audit trail (update history of project library); includes a session keystroke file	Hot key access to MS-DOS for PC functions; Sperry peripheral support for device connection	Hot key access to MS-DOS for PC functions; Sperry peripheral support for device connection
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and editing functions, windows, scrolling, cut and paste between windows, function keys	Full erase and editing functions, visual attributes, scrolling, function keys, horiz. strike thru	Full erase and editing functions, visual attributes, scrolling, function keys, horiz. strike thru
On-screen help	Help menus, command prompt line	Control page	Control page
Status line	Yes	No	No
COMMUNICATIONS			
Local/remote connection to host or controller	Local or remote to 4300, 303X, 308X	Local and remote connection to Sperry host	Local and remote connection to Sperry host
Interface provided	Coaxial or RS-232-C	Sync. modem & coaxial connection	Sync. modem & coaxial connection
Other communications	None	None	None
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	Purchase: \$38,000 for mainframe software and \$2,800/workstation	\$745	\$1,250
Additional software support charges	None	None	None
Charges for support services	Included	\$84/year	\$110/year
Date of first delivery	February 1984	January 1985	April 1983
Lead time on orders	2 weeks	1-3 weeks (less than 50 units)	1-3 weeks (less than 50 units)
Number installed to date	50	Information not available	More than 250
COMMENTS	Supports all phases of the application software development process, from conception phase, through analysis, design, programming, documentation, and maintenance	Connection through either modem or terminal multiplexer; hardware can also replace IBM bisync adapter	Connection through either modem or terminal multiplexer; hardware can also replace IBM bisync adapter

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Chi Corporation Sperry Communications System for TI Professional	Chi Corporation Sperry Communications System for Zenith Z-100/Z-150	Cincom Systems PC Contact
PACKAGE	Plug-in conversion card plus software	Plug-in conversion card plus software	Software only
Converters supported	No additional converter required	No additional converter required	None required
SYSTEM REQUIREMENTS			
Host systems supported	Sperry 1100 Series	Sperry 1100 Series	IBM S/370
Host operating systems supported	Sperry	Sperry	MVS, OS, VS1, DOS/VSE, VM
Host end programming	No	No	Yes
Microcomputers supported	Texas Instruments Professional	Zenith Z-100, Z-150	IBM PC
Microcomputer operating systems supported	MS-DOS & compatible	MS-DOS & compatible	PC-DOS
Microcomputer system memory requirement	128K bytes (minimum)	128K bytes (minimum)	128K bytes
Media	5¼-inch diskette	5¼-inch diskette	5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	None	None
Synchronous terminals emulated	Sperry UTS 20, UTS 30, UTS 40, UTS 400, Uniscope 100/200	Sperry UTS 20, UTS 30, UTS 40, UTS 400, Uniscope 100/200	IBM 3278
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data, entire host file to diskette, specific items from host file	Capture screenful of data, entire host file to diskette, specific items from host file	Capture screenful of data, entire host file to diskette, specific items from host files
Host database update capability	Yes; MAPPER, DEMAND, TIP	Yes; MAPPER, DEMAND, TIP	Yes—TOTAL, DL1, TIS, VSAM
File formatting capability	Yes	Yes	ASCII and DIF file formatting
Applications supported	Provides link to MAPPER	Provides link to MAPPER	No
Optional file formatting software	No	No	Yes; contact vendor
Other download/upload functions	No	No	No
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Configuration options allow terminal addresses to be secured	Configuration options allow terminal addresses to be secured	Complete security & accounting facility using in-place systems
Other program functions	Hot key access to MS-DOS for PC functions; Sperry peripheral support for device connection	Hot key access to MS-DOS for PC functions; Sperry peripheral support for device connection	No
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and editing functions, visual attributes, scrolling, function keys, horiz. strike thru	Full erase and editing functions, visual attributes, scrolling, function keys, horiz. strike thru	Full erase, editing, windows, visual attributes, scrolling, function keys, application devel.
On-screen help	Control page	Control page	Complete help
Status line	No	No	Yes
COMMUNICATIONS			
Local/remote connection to host or controller	Local and remote connection to Sperry host	Local and remote connection to Sperry host	—
Interface provided	Sync. modem & coaxial connection	Sync. modem & coaxial connection	Via communications adapters
Other communications	None	None	—
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$745	\$745	Host—\$10,000 to \$30,000; PC—\$500
Additional software support charges	None	None	MANTIS: \$15,000 to \$55,000
Charges for support services	\$84/year	\$84/year	15% of purchase price
Date of first delivery	January 1985	1984	July 1984
Lead time on orders	1-3 weeks (less than 50 units)	1-3 weeks (less than 50 units)	2 weeks
Number installed to date	Information not available	More than 200	Information not available
COMMENTS			
	Connection either through modem or terminal multiplexer; hardware can also replace IBM bisync adapter	Connection either through modem or terminal multiplexer; hardware can also replace IBM bisync adapter	1984 info.

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Cipherlink Any™ Databridge	CLEO Software Division of Phone 1 3780 Plus	Communications Research Group Blocked Asynchronous File Transfer (BLAST)
PACKAGE	Software only	Software only, or software with SYNcable	Software only
Converters supported	None required	No converter required	The BLAST Box
SYSTEM REQUIREMENTS			
Host systems supported	IBM S/370, S/34/36/38, Series 1; Prime; DEC VAX & PDP; HP 3000/9000; Sperry; Burroughs; others	Any computer supporting IBM 2780/3780 BSC protocol	IBM 4321 and up; Univac 1100, NCR Tower, DEC VAX, DG MV Series, HP 3000, Wang VS, and others
Host operating systems supported	CICS, MVS, Primos, PIC, VMS, UNIX, RSX, RSTS, & most others	No	VM/CMS, MVS/TSO, VMS, Unix, AOS, MPE, MPOS, RSTS, RT-11, & others
Host end programming	No	No	For error-free file transfer
Microcomputers supported	IBM PC, PC XT, PC AT, AT&T 6300, & compatibles	IBM PC, Altos 186/586/986, H-P HP 150, Tandy 2000/6000, AT&T 3B2/3B5, Zenith Z-100, Victor 9000	IBM, Apple, Compaq, TeleVideo, TI, Zenith, H-P, DEC, Kaypro, Altos, Radio Shack, Seiko, others
Microcomputer operating systems supported	MS-DOS, UNIX, XENIX, MP/M	MS-DOS, UNIX, XENIX	MS-DOS, PC-DOS, CP/M-80/-86, CCP/M-86, Unix, MP/M-80/-86
Microcomputer system memory requirement	Not applicable	128K bytes	64K—256K bytes, depending on OS
Media	5¼-inch diskette, 9-track tape	5¼-inch or 3½-inch diskettes	5¼-inch diskette, 8-inch diskette, 3½-inch diskette, mag tape
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	DEC VT100/220, IBM 3101, most other async. terminals	None	TTY, DEC VT100, DG Dasher 200
Synchronous terminals emulated	IBM 327X, 5251	IBM 2780/3780	None
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data, entire host file to diskette, specific items from host file	Capture an entire host file to diskette	Capture screenful of data, an entire host file to diskette, capture specific items from host
Host database update capability	Yes; most screen-driven applications	Not generally available	Yes
File formatting capability	Yes	Not generally available	No
Applications supported	Spreadsheets, databases, most other interactive applications	Not applicable	Not applicable
Optional file formatting software	Yes	No	ASCII/ EBCDIC conversion as needed; internal text represent.
Other download/upload functions	Application-to application integration from micro-mini-mainfr.	Standard 3780 features (transparent/non-transparent files)	Error-free file transfer
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Security-defined levels of access, audit trail	Serial line monitor to view line protocol	Password
Other program functions	Not applicable	Maintains log file of all transactions w/time/date stamp, supports unattended operation	Ability to manage local & remote files including get file names, delete, copy, type, print, etc.
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and edit functions, visual attributes, windows, scrolling, function keys, others	None	Full erase and editing functions, visual attributes, windows, function keys, scrolling
On-screen help	Tutorial	Full help menu	Help menus
Status line	Session progress	Interactive status descriptions	Percent completion, modem status, line quality
COMMUNICATIONS			
Local/remote connection to host or controller	Local to S/34/36/38; remote to all others	Usually remote to micro or mainframe supporting 3780 protocol	Local or remote connect to host or controller
Interface provided	Coax, twinax, async/sync modems	DTE/DCE cable provided	Asynchronous via any method
Other communications	None	External modem has auto-dial, auto-answer, pulse/tone dialing	Supports X.3, X.28, X.29 network handshaking for packet networks
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$10,000	\$500-\$1,000 license	Versions range from \$250 (PCs) to \$895 (minis) to \$895/up (MFs)
Additional software support charges	Virtual Terminal Interf.—\$1,000; Scheduler—\$500; Field Calc.—\$1,500; Data Merger—\$1,500; other	None	None
Charges for support services	15%/purchase price/yearly support	Free telephone support	None
Date of first delivery	November 1984	January 1983	December 1980
Lead time on orders	2-4 weeks	4 days	2-30 days
Number installed to date	8	10,000 licensed units	More than 18,000
COMMENTS	The Any Databridge is a non-application specific transfer product; specific application transfers are configurable by end user w/o writing code; easily upgrades w/o additional expense to conform to new rel. of softwr.		Several versions available (for 130 different computer), all with the same user interface; a hardware independent and link independent product; contact vendor for demonstration versions

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Computer Associates International CA-LINK	Computer Corporation of America (CCA) PC/204	Computer Corporation of America (CCA) PC/WORKSHOP
PACKAGE	Software only	Software only	Software only
Converters supported	IBM asynch or bisync communications adapter card	No converter required	No converter required
SYSTEM REQUIREMENTS			
Host systems supported	All IBM mainframes & all true compatibles	IBM 370, 30XX, 43XX	IBM S/370, 43XX, 30XX, and PCMs
Host operating systems supported	CMS, DOS/VSE (CICS/VS), and MVS (CICS/VS and TSO)	DOS/VS, VSE, OS/VS, VM/CMS	DOS/VS & VSE, VS1, MVS, VM/CMS
Host end programming	No	Data dictionary view definition	Data dictionary entries
Microcomputers supported	IBM PC, PC XT, PC AT, and compatibles	IBM PC, PC XT, and compatibles	IBM PC, PC XT, PC AT, & compatibles
Microcomputer operating systems supported	PC-DOS	PC-DOS, MS-DOS 2.0, 2.1	PC-DOS, MS-DOS 2.0, 2.1, 3.0
Microcomputer system memory requirement	256K bytes	192K bytes	192K bytes
Media	5¼-inch diskettes/mainframe install tape	5¼-inch diskette, hard disk	5¼-inch diskette, hard disk
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	IBM 3101	None	None
Synchronous terminals emulated	IBM 3270	IBM 3278/3279	IBM 3278/3279
Host data download capability	Yes	Yes	Yes
Download functions	CA-LINK has the ability to selectively download entire files, select records/portions of rec. Yes; real-time	Specific items are selected from user view in dict., qualified, sorted, & aggregated on mainframe Yes; PC files can be copied to mainframe database	Specific programs are selected from host program library and downloaded to PC files Yes; update host program library
Host database update capability	Yes	Yes	Yes
File formatting capability	Yes	Yes	No
Applications supported	SuperCalc ³ , CA-EXECUTIVE, and other packages that use DIF, SDI, ASCII, binary	Files are downloaded to spreadsheets or relational tables; DIF or ASCII comma format is used	Not applicable
Optional file formatting software	Included; Basic, DIF, ASCII, binary	No	No
Other download/upload functions	None	Yes; mainframe directories are supported	Download program directories for selection
Ability to upload data for processing	Yes; real-time	Yes	Yes
Ability to download files for local processing	Yes; real-time	Yes	Yes; downloaded file contains host program
Security features	Based on user, date, time, # of records, file level, ind. value	Views secured by user ID in addition to 7 levels of mainfr. sec.	Programs secured by user ID at host
Other program functions	See comments	Customizable menus for PC, communication scripting	Contains Model 204 User Language syntax analyzer to check programs generated/modified at PC
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and edit functions, visual attributes, windows, scrolling, function keys	Windows, scrolling	Editing, windows, scrolling, function keys
On-screen help	Help, tutorials, menu	Auto. menu, tutorial windows	Help menus for all functions
Status line	All PC, file stats may be queried through a single terminal session	Communication progress line (send, receive, etc.)	Communications line status, caps lock status
COMMUNICATIONS			
Local/remote connection to host or controller	Local/remote	Remote/local; see comments	Remote thru dial-up port; local thru 3705/3725/3274/3276
Interface provided	Yes	Coaxial or async communications	Async modem; sync coaxial
Other communications	None	3270 emulation provided through async lines for access to 204 ap.	None
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$1,395 (5-9 copies); \$995—(10-99 copies); \$150,000 (unlimited site)	\$17,500—mainframe & 10 PC; discounted for additional PCs	\$750
Additional software support charges	Not applicable	12% per annual of license fee for maintenance	12% annual maintenance
Charges for support services	6 months free	No	None
Date of first delivery	June 1984	July 1984	September 1985
Lead time on orders	Immediate	2 weeks	2 weeks
Number installed to date	200 installations/1,500+ copies	350	Information not available
COMMENTS	Completely integrated with CA-EXECUTIVE (fully-integrated micro-based workstation) and CA-UNIVERSE (mainframe-based relational DBMS); site licensing available; mainframe-style Level 2 support available	Remote communications thru dial-up port; async communications thru special CRC block mode protocol; local communications thru 3705 or 3276 coaxial communications (DCA Irma board required)	Designed as optional extension to WORKSHOP/204 to allow programmers to develop programs offline from host in workstation environment while "checking" programs in and out of host libraries thru communications link

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Comshare Inc. Microseek Plus	Context Management Systems (Lemain, Inc.) Context	Cullinet Software Information Center Management System
PACKAGE	Software only	Software only	Software only
Converters supported	DCA Irma, IBM 3278/3279 board required	None required	DCA, Microplus, Forte, CXI, INS, etc.
SYSTEM REQUIREMENTS			
Host systems supported	IBM Model 30XX, 43XX, or equivalent series	Any asynchronous device; IBM S/370 architecture for synchronous support	IBM S/370, 30XX, 43XX, or PCM
Host operating systems supported	VM/CMS, MVS/TSO	Any	OS MFT, OS MVT, OS/VS1, OS/VS2 (MVS), DOS/VS, DOS/VSE, VM/CMS
Host end programming	No	No	Yes; software loading required
Microcomputers supported	IBM PC, PC XT	IBM PC, PC XT, PC AT, & compatibles; H-P 200 Series	IBM PC XT, PC AT, 3270-PC; Compaq; AT&T 6300
Microcomputer operating systems supported	PC-DOS 2.0 or above	MS-DOS	PC-DOS 2.0 and above, or equivalent MS-DOS
Microcomputer system memory requirement	192K bytes	384K bytes	320K bytes
Media	5¼-inch diskette	5¼-inch diskette	5¼-inch diskette or hard disk
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	IBM 3101	IBM 3101, TTY	DEC VT100, TTY
Synchronous terminals emulated	IBM 3278/3279	IBM 327X	IBM 3278/3279, 3276 controller emulation, others
Host data download capability	Yes	Yes	Yes
Download functions	Capture an entire host file to diskette, secure download	Capture screenful of data at a time, entire host file to diskette, specific items from host	Capture specific items from host file (i.e., query capability)
Host database update capability	No	Yes; will drive mainframe update application	Yes; support only IDMS/R or VSAM application
File formatting capability	No	Yes	Yes
Applications supported	Not applicable	Most interchange formats: DIF, Text, ASCII, SYLK, DBASE	Automatic file formatting for GOLDENGATE software
Optional file formatting software	No	Full procedural formatting package available	Additional support for .wks, .dbf, .dif, ASCII
Other download/upload functions	Secure upload/download using mainframe software	Auto logon	Electronic mail, upload/download any PC file
Ability to upload data for processing	Yes	No	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	As provided by host computer	No	Multiple access levels/user; archiving; audit trail; auto backup
Other program functions	Automated interaction with host computer from logon through logoff	Database storage	—
SCREEN FUNCTIONS			
Terminal functions supported	Program allows any editor program to be run from its command prompt	Visual attributes, windows, function keys	Full erase and editing functions, visual attributes, scrolling, function keys
On-screen help	Help menus	Full—in Context	Tutorials, context sensitive help
Status line	Session progress, upload/download file name, comm. parameters	No	Session progress, error conditions
COMMUNICATIONS			
Local/remote connection to host or controller	Local or remote	Local or remote; DCA Irma card required	Local to 327X controller, controller emulation, remote to 3705
Interface provided	Serial or coaxial via Irma	—	Various interfaces supported
Other communications	None	None	XMODEM, KERMIT protocols
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$7,000	\$695	\$75,000-\$150,000; GOLDENGATE w/ information link—\$1,095/PC
Additional software support charges	Information not available	None	None
Charges for support services	Information not available	No charge	\$25,000/year (optional)
Date of first delivery	1984	January 1984	September 1984
Lead time on orders	2 weeks	5 days	Stock
Number installed to date	More than 64	15,000	250
COMMENTS		Provides auto-dial and macro execution; automatically captures and formats for use by local tools, e.g., WP, graphics	Host data directly accessed by database and spreadsheet functions in GOLDENGATE; interface to other mainframe file formats (e.g., IMS/OL/1)

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	CXI, Inc. Connectware 3278/79 PC Coaxial Connection	Datalex Passport	Datastream Communications Execulink II
PACKAGE	Plug-in conversion card plus software	Software only	Standalone converter plus software
Converters supported	No additional converter required	Not applicable	Datastream 874 SNA controller
SYSTEM REQUIREMENTS			
Host systems supported	IBM 30XX, 4300	IBM 30XX, 43XX, Series 1, DEC VAX, DEC 10, DEC 20, HP 3000, Prime	IBM 43XX and above
Host operating systems supported	All operating systems supported; file transfer with TSO, CMS	IBM MVS/TSO, VM/CMS, Series 1 EDX, RPS; DEC VAX VMS; HP MPE	All 3270 systems
Host end programming	None required	Yes; host software loading	Yes; IBM host prog. (TSO, CMS/VM)
Microcomputers supported	IBM PC, Eagle PC, Columbia PC, Compaq Portables, ITT XTRA, Corona PC, Direct PC	IBM PC, PC XT, PC AT, & compatibles; Texas Instruments Professional	IBM PCs
Microcomputer operating systems supported	MS-DOS, PC-DOS, all versions	PC-DOS, MS-DOS, p-System	PC-DOS 2.0 or higher
Microcomputer system memory requirement	192K bytes	256K bytes	128K byte minimum
Media	5 1/4-inch diskette	5 1/4-inch diskette	5 1/4-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	DEC VT100, IBM 3101, TTY	TTY
Synchronous terminals emulated	IBM 3278, 3279 coaxial terminals	None	IBM 3278 Models 2, 3, 4; 3279 (4-color)
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data at a time, capture an entire host file to diskette	Capture entire host file to diskette	Capture an entire host file to diskette; use 3270-PC protocol for file transfer
Host database update capability	Only when used with 3rd party package, e.g. from Micro Tempus	No	Application dependent
File formatting capability	None	No	No
Applications supported	—	General purpose data file transfers	Not applicable
Optional file formatting software	None	No	No
Other download/upload functions	Compressed text file transfer, binary file transfer	Bidirectional data file transfer with error detect/retransmit	None
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	None; function of host	Password security for access	Password, user ID
Other program functions	File transfer capability in interactive or batch mode; able to run DCA Irma Basic programs	ASCII or binary data transfers; blank compression; configuration file definitions for diff. hosts	User-definable keyboard
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and editing functions, visual attributes, scrolling, windows, function keys	IBM 3101 and DEC VT100 terminal functions	Functions application dependent
On-screen help	For install, transfer functions	None	Menus, help menu
Status line	3278-type status line	Session characteristics, file transfer progress	3278 status line, host aborts, file size
COMMUNICATIONS			
Local/remote connection to host or controller	Local to 327X controller, local to 4321/4331/4361 adapter	Local or remote connection to host up to 9600 bps	Local or remote to Datastream controller
Interface provided	Coaxial	Asynchronous modem interface	Asynchronous
Other communications	None	Exec files for saving regularly performed operations	End-to-end error detection/retransmission
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$1,145	\$129 for PC software; \$895 or \$3,950 for host software	\$195
Additional software support charges	None	Annual site maintenance—\$950	IBM host packages approximately \$600
Charges for support services	Toll-free telephone support	\$45 per year maintenance	None
Date of first delivery	June 1983	1979	April 1985
Lead time on orders	Stock	Two weeks	30 days ARO
Number installed to date	More than 10,000	More than 5,000	Information not available
COMMENTS			
	Full int'l. keyboard mapping; supports 3274s configured for other languages; Screen Control Applic. Function Interface incl. 40 function calls for transfers, other functions; 1984 info.	Passport supports error-free data file transfers using an error detection and retransmission protocol; requires low-cost async modems; supports multiple hosts, personal computers; operation up to 9600 bps	Print spooling to disk, text & object file transfer

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Digital Communications Assoc. (DCA) Irma	Digital Communications Assoc. (DCA) Irmalette	Diversified Data Resources (DDRI) Hydra II
PACKAGE	Plug-in conversion card plus software	Plug-in conversion card plus software	Standalone converter plus software
Converters supported	No additional converter required	DCA Irmaline	Hydra II from JDS Microcomputing
SYSTEM REQUIREMENTS			
Host systems supported	IBM 43XX and larger	IBM 43XX and larger	IBM 360, 370, 43XX, 303X
Host operating systems supported	All IBM mainframe OS	All IBM mainframe OS	OS/VS1, OS/MVS, DOS, VM operating systems
Host end programming	None required	None required	Utilities for device definition
Microcomputers supported	IBM PC, PC XT, & compatibles with Intel 8086/8088 processor	IBM PC, PC XT, compatibles with Intel 8086/8088 processors	Most personal computers, including Apple, IBM, Kaypro, Radio Shack
Microcomputer operating systems supported	PC-DOS/MS-DOS 1.1, 2.0, 2.1	PC-DOS, MS-DOS	MS-DOS, PC-DOS, others
Microcomputer system memory requirement	96KB (emul.); 128KB (transfers)	96KB (emul.), 128KB (transfers)	Info. not available
Media	5 1/4-inch diskette	5 1/4-inch diskette	5 1/4-inch diskette, magnetic tape for host end
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	None	None
Synchronous terminals emulated	IBM 3278, 3279	IBM 3278	IBM 3278, 3279
Host data download capability	Yes	Yes	Yes (VSAM, SAM, ISAM)
Download functions	Capture screenful of data at a time, capture an entire host file to diskette	Capture screenful of data at a time, capture entire host file to diskette	Capture screenful of data at a time, capture an entire host file to diskette
Host database update capability	Yes	Yes	Yes (VSAM, SAM)
File formatting capability	No	No	No
Applications supported	Not applicable	Not applicable	Not applicable
Optional file formatting software	None	No	None
Other download/upload functions	User developed	User developed	No
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Same as 3278/3279	Same as 3278; also, can use Irmaline password system	Security log-on to Hydra II through modem; positive log-off
Other program functions	Supports APL programming; GENX system configurator included, for selecting system options	GENX system configuration routine for emulator program allows user to select supported options	No
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and editing functions, visual attributes, scrolling, function keys	Full erase and editing functions, visual attributes, scrolling, function keys	Full erase and editing functions, visual attributes, scrolling, function keys
On-screen help	None	None	No
Status line	Same as 3278/3279	Same as 3278	Yes
COMMUNICATIONS			
Local/remote connection to host or controller	Local connect to 3270 controller	Remote to modem or local to Irmaline converter	Local or remote connection to host
Interface provided	Coaxial	RS-232-C	Asynchronous RS-232-C
Other communications	Not applicable	Information not available	None
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$1,195	\$325	\$6,900 (8-port Hydra II); \$9,900 (16-port Hydra II)
Additional software support charges	None	None	Upload/download host software—\$3,000; IBM PC software—\$240/PC
Charges for support services	Various plans; contact DCA	Various plans; contact DCA	10% of purchase price per year
Date of first delivery	December 1982	Information not available	June 1982
Lead time on orders	Thirty days	Contact vendor	30-60 days
Number installed to date	100,000	Information not available	175
COMMENTS	Simple solution for PCs located at controller sites; no add'l. modems, telco lines, or 3705 ports required; provides file transfer utilities under VM/CMS and MVS/TSO; 1984 info.	Irmalette, when used with standalone Irmaline (\$1,295) offers remote PCs the same functionality that DCA's Irma offers local PCs; Irmalette's data rates for communications with Irmaline range from 110 to 19.2K bps	1984 info.

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Forte Communications Forte PJ	Forte Communications ForteGraph	Forte Communications ForteLink SNA
PACKAGE	Plug-in conversion card plus software	Plug-in conversion card plus software	Plug-in conversion card plus software
Converters supported	No additional converter required	No additional converter required	No additional converter required
SYSTEM REQUIREMENTS			
Host systems supported	IBM S/370 & PCMs	IBM S/370 & PCMs	IBM S/370 & PCMs
Host operating systems supported	MVS/TSO, VM/CMS	MVS/TSO, VM/CMS	MVS/TSO, VM/CMS
Host end programming	No	No	No
Microcomputers supported	IBM PC, PC XT, PC AT, & compatibles including Wang, TI, AT&T 6300, DEC, Telex, etc.	IBM PC, PC XT, PC AT, and compatibles	IBM PC, PC XT, PC AT, and compatibles
Microcomputer operating systems supported	PC-DOS, MS-DOS 2.0 or later	PC-DOS, MS-DOS 2.0 or later	PC-DOS, MS-DOS 2.0 or higher
Microcomputer system memory requirement	128K bytes	128K bytes	256K bytes
Media	5¼-inch diskette	5¼-inch diskette	5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	None	None
Synchronous terminals emulated	IBM 3278 Models 2, 3, 4, 5; 3279	IBM 3278/3279	IBM 3278/3279
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data at a time, capture entire host file to diskette, back up PC	Capture screenful of data at a time, capture entire host file to diskette, back up PC	Capture screenful of data at a time, capture entire host file to diskette, back up PC
Host database update capability	No	No	No
File formatting capability	No	No	No
Applications supported	Not applicable	Not applicable	Not applicable
Optional file formatting software	No	No	No
Other download/upload functions	No	No	No
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Provided by mainframe applications	Provided by mainframe applications	Provided by mainframe applications
Other program functions	Information not available	No	Not applicable
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and editing functions, visual attributes, windows, scrolling, function keys	Full erase and editing functions, visual attributes, windows, scrolling, function keys	Full erase and editing functions, visual attributes, windows, scrolling, function keys
On-screen help	No	No	No
Status line	Clock, session progress, row/column	Clock, session progress, row/column indicator	Clock, session progress, row/column indicator
COMMUNICATIONS			
Local/remote connection to host or controller	Local connect to IBM 3274/3276 controller, 43XX printer adapter	Local connect to IBM 3274/3276 controller, 43XX printer adapter	Local connect to IBM 3274/3276 controller, 43XX printer adapter
Interface provided	Coaxial, synchronous	Coaxial, synchronous	Coaxial, synchronous
Other communications	None	None	None
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$1,195	\$2,590	\$695
Additional software support charges	None	None	None
Charges for support services	No charge	No charge	No charge
Date of first delivery	March 1983	August 1984	March 1985
Lead time on orders	30 days	30 days	30 days
Number installed to date	Information not available	Information not available	Information not available
COMMENTS	Supported by Wang PC, DEC Professional, AT&T 6300, Telex PC, TI PC	Mainframe graphics support for PC	Remote 3274 supporting up to four host sessions

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Forte Communications Forte 3270PC	Forte Communications ForteNet	Frontier Technologies AdCom2 w/3270 SNA/SDLC
PACKAGE	Software only	Software only	Plug-in conversion card plus software
Converters supported	None required	None required	No additional converter required
SYSTEM REQUIREMENTS			
Host systems supported	IBM S/370 & PCMs	IBM S/370 & PCMs	IBM S/370, 30XX, 43XX, S/34, S/38
Host operating systems supported	MVS/TSO, VM/CMS	MVS/TSO, VM/CMS	IBM OS
Host end programming	No	No	No
Microcomputers supported	IBM PC XT, PC AT, and compatibles	IBM PC, PC XT, PC AT, & compatibles incl. Wang, TI, AT&T, DEC, Telex	IBM PC, PC XT, PC AT; AT&T 6300; NCR; & compatibles
Microcomputer operating systems supported	PC-DOS, MS-DOS 2.0 or later	PC-DOS, MS-DOS 2.0 or later	PC-DOS, MS-DOS
Microcomputer system memory requirement	386K bytes	Information not available	128K bytes
Media	5¼-inch diskette	Mag tape	5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	None	None
Synchronous terminals emulated	IBM 3278/3279	IBM 3278/3279	IBM 3274 w/3278 Model-2; 3276; 3284/3286/3287/3288 printer
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data at a time, capture entire host file to diskette, back up PC	Capture screenful of data at a time, capture entire host file to diskette, back up PC	Capture screenful of data at a time, entire host file to diskette, specific items from host
Host database update capability	No	No	No
File formatting capability	No	No	No
Applications supported	Not applicable	Not applicable	Not applicable
Optional file formatting software	No	No	Yes
Other download/upload functions	No	No	No
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Provided by mainframe applications	Provided by mainframe applications	No
Other program functions	Not applicable	Not applicable	Information not available
SCREEN FUNCTIONS			
Terminal functions supported	None	Full erase and editing functions, visual attributes, windows, scrolling, function keys	Full erase and editing functions, visual attributes, scrolling
On-screen help	No	No	Help menus
Status line	Clock, session progress, row/column indicator	Clock, session progress, row/column indicator	Yes, full
COMMUNICATIONS			
Local/remote connection to host or controller	Local connect to IBM 3274/3276 controller, 43XX printer adapter	Local connect to IBM 3274/3276 controller, 43XX printer adapter	Remote
Interface provided	Coaxial, synchronous	Coaxial, synchronous	Modem
Other communications	None	None	Not applicable
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$495	\$1,000 (CPU license)	\$275 (hardware); \$695 (software)
Additional software support charges	None	None	Information not available
Charges for support services	No charge	No charge	None
Date of first delivery	February 1985	June 1984	1983
Lead time on orders	30 days	30 days	2 weeks
Number installed to date	Information not available	Information not available	Information not available
COMMENTS	Emulation of IBM 3270-PC on an IBM PC XT or PC AT	Bidirectional host file transfer	AdCom2-M: militarized version

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Frontier Technologies AdCom2 w/3270 Bi-Sync	Frontier Technologies AdCom2 w/3780 Bi-Sync	Frontier Technologies AdCom2 w/PCX.25
PACKAGE	Plug-in conversion card plus software	Plug-in conversion card plus software	Plug-in conversion card plus software
Converters supported	No additional converter required	No additional converter required	No additional converter required
SYSTEM REQUIREMENTS			
Host systems supported	IBM S/360, S/370, 30XX, 43XX	IBM S/360, S/370, 30XX, 43XX	Mainframe or X.25 network
Host operating systems supported	IBM OS	IBM OS	IBM OS
Host end programming Microcomputers supported	No IBM PC, PC XT, PC AT; AT&T 6300; NCR; & compatibles	No IBM PC, PC XT, PC AT; AT&T 6300; NCR; ITT; & compatibles	No IBM PC, PC XT, PC AT; AT&T 6300; NCR; ITT; and compatibles
Microcomputer operating systems supported	PC-DOS, MS-DOS	PC-DOS, MS-DOS	PC-DOS, MS-DOS
Microcomputer system memory requirement Media	128K bytes 5¼-inch diskette	128K bytes 5¼-inch diskette	128K bytes 5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	None	None
Synchronous terminals emulated	IBM 3271-2 cont. w/3277-2; 3274 cont. w/3278-2; 3275-2; 3276	IBM 2780 Models 1, 2, 3, or 4, 3780, 2770, or 3741	Synchronous software X.25
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data at a time, capture entire host file to diskette	Capture screenful of data at a time, capture entire host file to diskette	Capture screenful of data at a time, entire host file to disk- ette, specific items from host
Host database update capability	No	No	No
File formatting capability Applications supported	No Not applicable	No Not applicable	No Not applicable
Optional file formatting software	Yes	Yes	Yes
Other download/upload functions	Yes	Yes	No
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Diagnose	Diagnose	No
Other program functions	Information not available	Information not available	Information not available
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and editing functions, scrolling	Full erase and editing functions, visual attributes, windows, function keys	Editing functions, visual attri- butes, windows, function keys
On-screen help	No	Yes	No
Status line	No	Display line status	No
COMMUNICATIONS			
Local/remote connection to host or controller	Remote	Remote	Remote
Interface provided	Asynchronous or synchronous modem	Synchronous modems	Modem
Other communications	Information not available	PC-to-PC	Information not available
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$275 (hardware); \$695 (software)	\$275 (hardware); \$695 (software)	\$275 (hardware); \$695 (software)
Additional software support charges	None	None	None
Charges for support services	None	None	None
Date of first delivery	1983	1983	1985
Lead time on orders	2 weeks	2 weeks	2 weeks
Number installed to date	Information not available	Information not available	Information not available
COMMENTS	AdCom2-M: militarized version	AdCom2-m: militarized version	AdCom2-M: militarized version; AdCom2 w/PCX.25 can be modified to meet customer specifications

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Frontier Technologies AdCom2 w/Compac (Async)	Gateway Microsystems MicroGate 2780/3780	Gateway Microsystems MicroGate II
PACKAGE	Plug-in conversion card plus software	Plug-in conversion card plus software	Plug-in conversion card plus software
Converters supported	No additional converter required	No additional converter required	No additional converter required
SYSTEM REQUIREMENTS			
Host systems supported	IBM 30XX, 43XX	Any host supporting IBM 2780/3780 bisync communications	Any host supporting bisync communications
Host operating systems supported	IBM OS	No special requirements	No special requirements
Host end programming Microcomputers supported	No IBM PC, PC XT, PC AT; AT&T 6300; NCR; and compatibles	No IBM PC, PC XT, PC AT; Compaq	No IBM PC, PC XT, PC AT; Compaq
Microcomputer operating systems supported	PC-DOS, MS-DOS	MS-DOS, PC-DOS (1.1, 2.0, 2.1, 3.0, 3.1)	MS-DOS, PC-DOS (1.1, 2.0, 2.1, 3.0, 3.1)
Microcomputer system memory requirement	128K bytes	128K bytes	64K bytes
Media	5¼-inch diskette	5¼-inch diskette	5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	Any ASCII	None	None
Synchronous terminals emulated	None	IBM 2780/3780	Underlying subsystem provides Bisync comm.; terminal left to user
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data at a time, capture entire host file to diskette	Capture screenful of data, capture entire host file to diskette, capture to diskette/prtr./console	Application dependent
Host database update capability	Yes	Yes, under host control	Application dependent
File formatting capability Applications supported	No Not applicable	No Not applicable	Yes Application dependent
Optional file formatting software	Yes	No	Application dependent
Other download/upload functions	None	EBCDIC transparency; interactive & batch operation	Application dependent; EBCDIC transparency; binary data
Ability to upload data for processing	Yes	Yes	Application dependent
Ability to download files for local processing	Yes	Yes	Application dependent
Security features	No	Hard copy/diskette log of comm. session	Application dependent; built-in comm. line monitor
Other program functions	Information not available	Interactive operation; batch command file operation; remote (host generated) command operation	Application dependent
SCREEN FUNCTIONS			
Terminal functions supported	Full editing functions, visual attributes, windows, scrolling, function keys	None	Application dependent
On-screen help	Help menus	Two-level help screens on-line	Application dependent
Status line	Time-of-connect clock	Session statistics, record counters	Application dependent
COMMUNICATIONS			
Local/remote connection to host or controller	Remote	Remote via modem; local via modem eliminator	Remote via modem; local via modem eliminator
Interface provided	Modem	RS-232-C modem interface	RS-232-C modem interface
Other communications	None	Supports both synchronous & asynchronous operation	Supports sync & async operation; ASCII data line control
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$275 (hardware); \$60 (Compac software)	\$895; 35% discount at qty. 50; other discounts available	\$895; 35% discount at qty. 50; other discounts available
Additional software support charges	Not applicable	None	None
Charges for support services	None	None	None
Date of first delivery	1983	April 1984	June 1983
Lead time on orders	2 weeks	14 days ARO	14 days ARO
Number installed to date	Information not available	More than 400	More than 400
COMMENTS	AdCom2: militarized version		Automatic ASCII/EBCDIC translation; transmission of ASCII data (in binary data mode)

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Gateway Microsystems MicroGate/WS	Hawkeye Grafix COMM/M	Honeywell MicroSystem PC VIP Emulator
PACKAGE	Plug-in conversion card plus software	Software only	Software only
Converters supported	No additional converter required	Optional	None required
SYSTEM REQUIREMENTS			
Host systems supported	Any host supporting 3270 or 2780/3780 bisync communications	IBM S/370; DEC VAX, DEC 10, DEC 20; HP 3000; Prime	Honeywell DPS 6, DPS 8, DPS 88/90
Host operating systems supported	No special requirements	VAX VMS, TOPS 10, TOPS 20, MVS or TSO, PRIMOS	GCOS 6, GCOS 8
Host end programming	No	COMM/M is mainframe software	No
Microcomputers supported	IBM PC, PC XT, PC AT; Compaq; TI Professional	IBM PC, PC XT, PC AT, & compatibles; also about 100 other computers using CP/M	Honeywell MicroSystem PC; IBM PC, PC XT
Microcomputer operating systems supported	MS-DOS, PC-DOS (2.0, 2.1, 3.0, 3.1)	PC-DOS, MS-DOS 1.1, 2.0, 2.1, 3.0; CP/M; MP/M; Turbo DOS	MS-DOS 2.0
Microcomputer system memory requirement	128K bytes (256K recommended)	64K bytes	256K bytes
Media	5¼-inch diskette	Diskette or download	5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	Micro performs emulation	Honeywell VIP 73XX, VIP 78XX async
Synchronous terminals emulated	IBM 3271/3274/3275/3276 with 3278/3279; 2780/3780	None	None
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data at a time, capture entire host file to diskette	Capture entire host file to diskette; file trans. of both text & binary files using CRC 16 bl. ver	Capture screenful of data at a time, entire host file to diskette, specific items from host
Host database update capability	Yes, under host control	Full source code provided for customization	Yes; DMG, DMIV
File formatting capability	No	Yes	No
Applications supported	Not applicable	SIXPAC format	Not applicable
Optional file formatting software	No	Yes; (see DES-PAC)	No
Other download/upload functions	EBCDIC transparency; binary data mode	Executable micro programs can be stored on mainframe	No
Ability to upload data for processing	Yes	Yes	No
Ability to download files for local processing	Yes	Yes	No
Security features	Hard copy/disk log of comm. session; built-in comm. line monitor	Data encryption software using govt. appr. algorithm (DES-PAC)	None
Other program functions	Features both 3270 & 2780/3780 bisync comm in one product; supports up to 4 concurr. sessions	Information not available	Information not available
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and editing functions, visual attributes, function keys	Performed at micro	Full erase and editing functions, visual attributes, scrolling, function keys
On-screen help	Two-level help screens on-line	None	No
Status line	Row/col. position, numeric field, insert mode, station number, etc.	None	Yes
COMMUNICATIONS			
Local/remote connection to host or controller	Local	Local or remote	DPS 6, Datanet 8, Datanet 66
Interface provided	RS-232-C modem interface	Async modem conn. to term. port	Asynchronous modem
Other communications	None	None	—
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$995; 35% discount at qty. 50; other discounts available	\$1,500 (includes complete source code)	\$400
Additional software support charges	None	\$400—download/installation	None
Charges for support services	None	No charge first 30 days	None
Date of first delivery	November 1984	1982	May 1985
Lead time on orders	14 days ARO	2 weeks installation ARO	Contact vendor
Number installed to date	More than 200	100	Information not available
COMMENTS	Keystroke capture and replay file feature permits automatic logons, eliminates repetitive typing, permits data upload	COMM/M requires use with the micro version of COMM (COMM/PC)	

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Honeywell MicroSystem 6/10 SNA & BSC Emulation	Honeywell MicroSystem 6/10 DSA	ICOT Corp. Virtual Terminal System (VTS)
PACKAGE	Software only	Software only	Standalone converter plus software
Converters supported	Standalone converter for BSC	None required	No additional converter required
SYSTEM REQUIREMENTS			
Host systems supported	IBM 43XX, 303X, 308X	Honeywell DPS 6, DPS 7, DPS 8/80/90	IBM 43XX, 360, 370, 303X, 308X
Host operating systems supported	DOS/VSE, MVS	GCOS 6, GCOS 7, GCOS 8	Any OS supporting 327X terminals
Host end programming Microcomputers supported	No Honeywell MicroSystem 6/10 fixed disk, MicroSystem 6/10 diskette (BSC only)	No Honeywell MicroSystem 6/10 fixed disk	None required IBM PC & compatibles; any that can emulate an ASCII terminal
Microcomputer operating systems supported	GCOS 6	GCOS 6	PC-DOS, MS-DOS
Microcomputer system memory requirement Media	1M (SNA), .5M/128K (BSC) bytes 5¼-inch diskette	1M bytes 5¼-inch diskette	128K bytes 5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	None	IBM 3101, DEC VT100, others
Synchronous terminals emulated	IBM 3277/3278/3279 disp., 3284/3286/3287 prtr., 2780/3780 HASP	Honeywell VIP 7700, VIP 7800	IBM 327X, 328X
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data at a time, entire host file to diskette, specific items from host	Capture screenful of data at a time, entire host file to diskette, specific items from host	Capture screenful of data at a time, capture entire host file to diskette, capture specific items
Host database update capability	Yes; CICS/IMS	Yes; DMG/DMIV/TDS	Yes, through interactive terminal function
File formatting capability Applications supported	No Not applicable	No —	No —
Optional file formatting software	No	No	No
Other download/upload functions	No	No	Predefined session commands for use with TSO, CMS, etc.
Ability to upload data for processing	No	No	Yes
Ability to download files for local processing	No	No	Yes
Security features	GCOS 6 (none for standalone BSC)	GCOS 6	Access security provided by VTS
Other program functions	User exits (none for standalone BSC)	User exits	PC-to-PC communications
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and editing functions, visual attributes, scrolling, function keys	Full erase and editing functions, visual attributes, scrolling, function keys	Editing
On-screen help Status line	No Yes	No Yes	Help menus 327X status line
COMMUNICATIONS			
Local/remote connection to host or controller	Remote to IBM 370X, 3725	Honeywell DPS 6, Datanet 8	Local or remote connect to host via standalone converter
Interface provided Other communications	Synchronous modem Information not available	Synchronous modem None	RS-232-C, RS-422, 20mA cl None
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$600—(SNA, BSC); \$125 (standalone BSC)	\$750	Contact vendor
Additional software support charges	None	None	None
Charges for support services	None	None	None
Date of first delivery	1984	1984	1984
Lead time on orders	Contact vendor	Contact vendor	Contact vendor
Number installed to date	Information not available	Information not available	Information not available
COMMENTS			

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	IDE Associates IDEAComm 3278	IE Systems BIS-3270	IE Systems BIS-HASP
PACKAGE	Plug-in converter plus software	Software only	Software only
Converters supported	No additional converter required	Requires micro to have a synchronous serial port	Requires micro to have synchronous serial port
SYSTEM REQUIREMENTS			
Host systems supported	IBM 360, 370, 303X, 308X, 43XX, System/3, 8100	Host systems that support bisync 3270 terminals; e.g., IBM S/360, S/370, 30XX, 43XX IBM OS	Any host system that supports hasp multileaving protocol; e.g., IBM S/360, S/370, 30XX, 43XX IBM OS
Host operating systems supported	All OS that communicate with cluster controllers	No	No
Host end programming	None required	IBM PC, PC XT, PC AT; Compaq; H-P HP150; Tandy TRS80-II; TeleVideo TelePC; Zenith Z-100/150; others	IBM PC, PC XT, PC AT; Compaq; H-P HP150; Zenith Z-100/150/160; Fujitsu Micro-16; others
Microcomputers supported	IBM PC, PC XT	PC-DOS, MS-DOS, CP/M, CP/M-86	PC-DOS, MS-DOS, CP/M, CP/M-86
Microcomputer operating systems supported	PC-DOS 2.0		
Microcomputer system memory requirement	128K bytes	8-bit—64KB; 16-bit—128KB	8-bit—64KB; 16-bit—128KB
Media	5¼-inch diskette	3½-, 5¼-, 8-inch diskette	3½-, 5¼-, 8-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	None	None
Synchronous terminals emulated	IBM 3278, 3279	IBM 3271/3277; 3274/3278; 3275; 3276; w/attached 3284/3286 prtr.	IBM hasp multileaving workstation
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data at a time, capture an entire host file to diskette	Capture screenful of data at a time; send screens to host	Capture an entire host file to diskette
Host database update capability	Yes: CMS—XEDIT files to/from PC; CICS—VSAM files to 1-2-3, dBasell	Yes; in terminal emulation mode	No
File formatting capability	No	No	No
Applications supported	Not applicable	Not applicable	Not applicable
Optional file formatting software	Yes	No	No
Other download/upload functions	User programmable capability	Receive screens to disk or printer	None
Ability to upload data for processing	Yes	Yes; able to send screens to host	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Automatic log-off	No	No
Other program functions	Key redefinition, independent addressing of PC printer, loadable emulation software	Information not available	Information not available
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and editing functions, visual attributes, scrolling, windows, function keys, etc.	Erase & edit functions, visual attributes, scrolling, function keys (as hardware will allow)	None
On-screen help	Help for all commands	Help menus	Help menus
Status line	3278 status line functions	Complete IBM 3270 status line support	No
COMMUNICATIONS			
Local/remote connection to host or controller	Local connect to 3274 or 3276 controllers	Remote	Remote
Interface provided	Coaxial	Synchronous modem support	Synchronous modem interface
Other communications	Data rate of 2.5M bps	None	None
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$995; includes hardware and software	\$695	\$695
Additional software support charges	None	None	None
Charges for support services	None	None	None
Date of first delivery	Information not available	1980	1982
Lead time on orders	Stock	Available immediately	Available immediately
Number installed to date	Information not available	More than 10,000	More than 100
COMMENTS	On-board controller requires no intervention by the PC's 8088; emulates both IBM BSC and SNA/SDLC protocols; software allows user definition of PC keyboard; permits separate host addressing of PC's printer		

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	IE Systems BIS-3780	IE Systems Micro-SNA/3270	IE Systems COAXSYS
PACKAGE	Software only	Software only	Plug-in conversion card plus software
Converters supported	Requires micro to have synchronous serial port	Adapted to Minicom card from IDE Associates	No additional converter required
SYSTEM REQUIREMENTS			
Host systems supported	Host systems that support bisync 3270 terminals; e.g., IBM S/360, S/370, 30XX, 43XX	Host systems that can communicate with IBM SNA/SDLC 3270 terminal; IBM S/360, S/370, 30XX, 43XX	Any host system supporting the IBM 3278 SNA/SDLC or BSC protocol
Host operating systems supported	IBM OS	IBM OS	IBM OS
Host end programming	No	No	No
Microcomputers supported	IBM PC, PC XT, PC AT; Compaq; H-P HP150; TeleVideo TelePC; Zenith Z-100/150/160; Fujitsu; others	IBM PC, PC XT, PC AT; Compaq; H-P HP150; Zenith Z-100/150/160; Fujitsu Micro-16; others	IBM PC, PC XT, PC AT
Microcomputer operating systems supported	PC-DOS, MS-DOS, CP/M, CP/M-86	PC-DOS, MS-DOS, CP/M, CP/M-86	PC-DOS
Microcomputer system memory requirement	8-bit—64KB; 16-bit—128KB	8-bit—64KB; 16-bit—128KB	128K bytes
Media	3½-, 5¼-, 8-inch diskette	3½-, 5¼-, 8-inch diskette	5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	None	None
Synchronous terminals emulated	IBM 3780, 2780, 2770, 3741, and CPU-to-CPU	IBM 3274/3278; 3276; 3284/3286/3287 printers	IBM 3278/3279
Host data download capability	Yes	Yes	Yes
Download functions	Capture an entire host file to diskette	Capture screenful of data at a time, send screens to host	Capture screenful of data at a time, capture entire host file to diskette, send file
Host database update capability	No	Yes; in terminal emulation mode	No
File formatting capability	No	No	No
Applications supported	Not applicable	Not applicable	Not applicable
Optional file formatting software	No	No	No
Other download/upload functions	No	No	TSO and VM/CMS file transfer supported
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	No	No	No
Other program functions	Information not available	Send screens of data prepared off-line to host in automatic or semi-automatic basis	Information not available
SCREEN FUNCTIONS			
Terminal functions supported	None	Full erase and editing functions, visual attributes, scrolling, function keys	Full erase and editing functions, visual attributes, scrolling, function keys
On-screen help	Help menus	Help menus	Help menu
Status line	No	Full IBM 3270 status line supported	Full status line supported
COMMUNICATIONS			
Local/remote connection to host or controller	Remote or local	Remote	Local or remote
Interface provided	Synchronous modem support	Synchronous modem interface	Coaxial
Other communications	None	None	None
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$695	\$695	\$995
Additional software support charges	None	None	None
Charges for support services	None	None	None
Date of first delivery	1979	1984	1984
Lead time on orders	Available immediately	Available immediately	Available immediately
Number installed to date	More than 1,000	More than 1,000	More than 1,000
COMMENTS			

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	IE Systems TWINAXIS	InfoCenter Software ILINK	Information Builders FOCTALK
PACKAGE	Plug-in conversion card plus software	Software only, residing on both host & micro	Software only
Converters supported	No additional converter required	No converter required	DCA Irma, Forte, CXI, AST
SYSTEM REQUIREMENTS			
Host systems supported	Any IBM host that supports 5250 SNA/SDLC or BSC protocol	IBM 43XX, 30XX	IBM or plug-compatible mainframes
Host operating systems supported	IBM OS	VM/CMS, MVS/TSO	VM/CMS, MVS/TSO
Host end programming	No	No	Req. FOCUS mainfr. report writer
Microcomputers supported	IBM PC, PC XT, PC AT	IBM PC, PC XT, PC AT, & compatibles, AT&T 6300	IBM PC, TI Professional, Wang Professional
Microcomputer operating systems supported	PC-DOS	MS-DOS, PC-DOS	PC-DOS, MS-DOS
Microcomputer system memory requirement	128K bytes	128K bytes	256K bytes
Media	5¼-inch diskette	5¼-inch diskette (micro), magnetic tape (host)	5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	Will operate with any terminal emul. pkg. w/file transfer cap.	None
Synchronous terminals emulated	IBM 5250 terminal family	Will operate with any terminal emul. pkg. w/file transfer cap.	None
Host data download capability	Yes	Yes	Yes, selectively
Download functions	Capture screenful of data at a time, capture an entire host file to diskette	Data extractor & reformatter for mainframe DBMSs, including RAMIS, FOCUS, SAS, APLDI, ADRS2, others	Capture an entire host file to diskette, capture specific items from host database
Host database update capability	No	Yes; FOCUS, RAMIS, SAS, ADRS2, APLDI, FPS, IC/I	Through mainframe FOCUS product, any VSAM, ISAM, etc. files
File formatting capability	No	Yes	Yes
Applications supported	Not applicable	Any package running under VM/CMS or MVS/TSO that can access sequential files	ASCII, DIF, Lotus, word processing
Optional file formatting software	No	No	No
Other download/upload functions	No	Complete	TableTalk, window driven method of constructing host queries
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	No	Same level of security as product accessed; doesn't bypass existing	Provides by mainframe FOCUS; five levels of security access
Other program functions	Information not available	Establish new databases, both PC and mainframe	Information not available
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and editing functions, visual attributes, scrolling, function keys	Menu driven/command driven	FOCTALK includes TED, a full-screen editor that duplicates IBM's XEDIT under CMS
On-screen help	Help file	Yes	User definable help menus
Status line	Full IBM status line	No	Byte count, records transmitted
COMMUNICATIONS			
Local/remote connection to host or controller	Local or remote, SNA/SDLC or BSC	See comments	Function of converter card installed
Interface provided	Twinaxial	See comments	Not applicable
Other communications	None	Works with all current communication packages w/file transfer	Not applicable
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$995	\$14,000-\$32,000—VM; \$17,500-\$40,000—MVS	FOCTALK—\$450 per PC; quantity discounts (over 75, \$275 each)
Additional software support charges	None	New releases and support	Mainframe FOCUS Report Writer software required
Charges for support services	None	15% (mainframe); 20%-30% (PC)	Included
Date of first delivery	1985	August 1984	February 1985
Lead time on orders	Available immediately	10 days	Two weeks
Number installed to date	More than 1,000	68	350
COMMENTS		Enables users to share (upload/download/crossload) data between RAMIS, FOCUS, SAS, ADRS, APLDI, 1-2-3, & over 150 others; push button mode for casual users; works with any communications pkg. w/file transfer capabilities	FOCTALK requires Information Builders' mainframe FOCUS product; FOCTALK formerly part of the PC/Focus product

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Information Builders FOCUS and PC/Focus	Information Resources EXPRESS-mate	Information Technologies Linkup System 1
PACKAGE	Software only	Software only	Plug-in conversion card plus software
Converters supported	No converter required	None required	None required
SYSTEM REQUIREMENTS			
Host systems supported	IBM 370/43XX/30XX or plug-compatible processors	IBM 30XX, 43XX; Prime	IBM S/370 or PCM; Also, DEC, H-P, & compatible systems
Host operating systems supported	VM/CMS or MVS with TSO/CICS/IMS-DC	VM/CMS, Primos	VM/CMS, OS/VS, OS/MVS
Host end programming	No	Host software provided	None required
Microcomputers supported	IBM PC, Wang Professional, TI Professional	IBM PC, PC XT, PC AT, & compatibles	IBM PC, PC XT, PC AT; ITT; NCR; Sperry; Telex; Zenith
Microcomputer operating systems supported	MS-DOS	MS-DOS (1.1, 2.0, or above)	PC-DOS, MS-DOS
Microcomputer system memory requirement	512K bytes, 5 MB hard disk	192K bytes	128K bytes
Media	5¼-inch diskette	5¼-inch diskette	5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	IBM 3270-type terminals	None	DEC VT100/VT52; TTY
Synchronous terminals emulated	IBM 3278/79 emulation via IRMA card	None	IBM 3276 Model 2, IBM 3780 RJE
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data at a time, capture an entire host file to diskette	Capture an entire host file to diskette, capture specific items from host file	Capture screenful of data at a time, capture an entire host file to diskette
Host database update capability	Yes, update capability for mainframe FOCUS files	Yes; Express Database	No
File formatting capability	Yes	Yes	No
Applications supported	Report writing, graphics, stats, financial modeling, full screen data entry	Lotus 1-2-3, Symphony, D Base II, DIF, Multiplan	Not applicable
Optional file formatting software	Yes	No	Yes
Other download/upload functions	XFER file transfer	No	None
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Data protection at file, segment, field, and 'value within field'	Full field/record level security when used w/EXPRESS on mainframe	No
Other program functions	Data encryption, relational plus facilities allowing dynamic file joining of up to 16 files	Recall commands sent to host, command files for login, mainframe graphics, menu driven interface	PC-to-PC communications
SCREEN FUNCTIONS			
Terminal functions supported	Full erase functions, line/char. insert/delete, visual attributes, windows, scrolling, function keys	Full erase and editing functions, scrolling, function keys	Editing, scrolling, function keys (depends on emulator option)
On-screen help	Comprehensive help menu screen	Help windows, tutorial on disk.	Help menus
Status line	Link communications program menus include: system type comm. para.	None	Full 3270 status line, DEC VT100/VT52 status, RJE status
COMMUNICATIONS			
Local/remote connection to host or controller	Asynchronous or bisynchronous communications via the Irma card	Direct async connection, acoustic modems, intelligent modems	Remote connect to host
Interface provided	Coaxial and bisynchronous modem	See above	Synchronous modem interface
Other communications	—	None	PC-to-PC crossover cabling
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	FOCUS—\$66,000 PC/Focus—\$1,695	\$295	\$995 w/bundled software
Additional software support charges	None for PC/Focus	None	\$390 for any additional software emulation
Charges for support services	PC/Focus-EMS contract—\$275/year	None	None
Date of first delivery	1975—FOCUS, 1983—PC/Focus	January 1984	August 1983
Lead time on orders	FOCUS—7 days, PC/Focus—3-5 days	Immediate	1 week
Number installed to date	18,000	1,500	Information not available
COMMENTS			Price includes one emulation software package plus asynchronous software

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Information Technologies Linkup System Coax	Information Technologies Linkup System XT	Intel Database Information System (iDIS)
PACKAGE	Plug-in conversion card plus software	Plug-in conversion card plus software	A fully integrated, multi-user micro system
Converters supported	No additional converter required	None required	Converter included
SYSTEM REQUIREMENTS			
Host systems supported	IBM, Amdahl, Magnuson, or plug-compatible 370/43XX/30XX processors	IBM, Amdahl, Magnuson, or plug-compatible 370/43XX/30XX processors	IBM 370, 43XX, & 308X; Control Data, Sperry, & others
Host operating systems supported	VM/CMS, MVS with TSO/CICS/IMS, SNA	VM, CMS, OS/VS	IBM MVS, DOS, CMS; extensions of CDC NOS & NOS/BE; Sperry Exec.
Host end programming	None required	No	Generation of flat files
Microcomputers supported	IBM PC, PC XT; AT&T; Compaq; Columbia; Corona; NCR; ITT; Sperry; Telex; Zenith	IBM PC, PC XT, PC AT; Compaq; ITT; AT&T; Sperry; NCR; Corona; Zenith	IBM PC & compatibles; Apple IIe & Macintosh planned
Microcomputer operating systems supported	PC-DOS, MS-DOS 2.0 or higher	PC-DOS, MS-DOS 2.0 or higher	MS-DOS, Apple DOS
Microcomputer system memory requirement	128K bytes	128K bytes	PC & compatible—128K; Apple—64K
Media	5 1/4-inch diskettes	5 1/4-inch diskette	5 1/4-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	None	DEC VT 100, Liberty 100, TeleVideo 950, Zentec Cobra, Wyse 50/100/300
Synchronous terminals emulated	IBM 3278/3279 Model 2	3270 BSC or SNA, 3780 BSC, 3770 SNA	IBM 3278
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data at a time, capture an entire host file to diskette	Capture screenful of data at a time, capture entire host file to diskette, RJE	Full download/upload functions are managed for user via iDIS menu screens
Host database update capability	No	No	Yes
File formatting capability	No	No	Yes
Applications supported	—	Not applicable	DIF, SYLK, CSV supported for VisiCalc, dBasell, Lotus 1-2-3, Multiplan
Optional file formatting software	Yes	No	Yes
Other download/upload functions	None	None	No
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	No	No	User IDs; passwords, table file locking; read/write/execute prot.
Other program functions	User-changeable color & keyboard functions, hot key from DOS to emulation	Multiple LUs in 3270 emulation, hot key from emulation to DOS	Supports four local editors for host & job submission; spreadsheet modeling w/database files
SCREEN FUNCTIONS			
Terminal functions supported	All 3270 screen functions	All 3270 screen functions	Full edit & erase functions, visual attributes, windows, scrolling, function keys, others
On-screen help	Help menu	Help menu	Menus, help files, tutorials
Status line	Full alpha or graphic 3270 status line	Full alpha or graphic 3270 status line	Varies by function
COMMUNICATIONS			
Local/remote connection to host or controller	Direct coaxial connection to 3274/3276 controller	Remote connect to host	Remote to IBM, CDC, Sperry hosts; local to any RS-232-C async conn.
Interface provided	Coaxial	Synchronous modem interface	Synchronous modem interface
Other communications	None	19.2K bps file transfer	HASP, 2780/3780, 3270 BSC, TTY passthrough, SNA planned
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$995	\$785 w/bundled software	Hardware/software—\$10,000
Additional software support charges	File transfer—\$240	\$390 for any additional software emulation	\$20,000; software—\$1,500-\$7,500
Charges for support services	None	None	iPLAN—\$295; iWORD—\$395; iMenu—\$900; DBMS, Xenix included in base system
Date of first delivery	3/85	May 1984	\$200-\$3,000/yr. (varies by config)
Lead time on orders	1 week	1 week	July 1983
Number installed to date	Information not available	Information not available	Stock to 90 days ARO
COMMENTS			
	Linkup Coax is compatible with: Tempus Link (Micro Tempus); Panlink (Pansophic); Baseline (Electronic Technology);	Price includes one emulation software package, i.e., 3270 SNA or 3270 DSC, etc.	iDIS is a complete microsystem residing between PCs & mainframes. It is a department- or group-level computer providing a Data Pipeline gateway & network for local PCs; 1984 info.

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Intelligent Technologies SNA Exchange	Intelligent Technologies File Exchange	Intelligent Technologies Bisync Exchange 3270
PACKAGE	Plug-in conversion card plus software	Software only	Plug-in conversion card plus software
Converters supported	No additional converter required	Exchange Series communications board or coax Exchange board	No additional converter required
SYSTEM REQUIREMENTS			
Host systems supported	Any system supporting IBM SNA/SDLC PU Type 2 devices	Any system that supports IBM 3270 SNA or bisync	Any host that can communicate using IBM 3276/3274 Bisync protocol
Host operating systems supported	Any	Any	Any
Host end programming	No	Simple appl. subsystem procedures	No
Microcomputers supported	IBM PC, PC XT, PC AT, & compatibles	IBM PC, PC XT, PC AT, & compatibles	IBM PC, PC XT, PC AT, & compatibles
Microcomputer operating systems supported	DOS 2.0 or greater	DOS	DOS 2.0 or greater
Microcomputer system memory requirement	256K bytes	384K bytes	128K bytes
Media	5¼-inch diskette	5¼-inch diskette (PC); mag tape (mainframe)	5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	DEC VT100/VT52; ANSI available with software upgrade	Same hardware supports DEC VT100/VT52; ANSI w/software upgrade	Software upgrade for ANSI or DEC VT100 emulations
Synchronous terminals emulated	IBM 3278/3279; 3287 attached to 3271; 3274/3276 controller; 3777	IBM 3278/3279 terminals attached to 3274-51C cluster controller	IBM 3278/3279 attached to 3271/3274/3276 cluster controller
Host data download capability	Yes	Yes	Yes, using optional file transfer software
Download functions	Capture screenful of data, entire host file to diskette, specific items from host file	Capture screenful of data, entire host file to diskette, specific items from host file, more	Capture screenful of data at a time, entire host file to diskette, specific items from host
Host database update capability	Yes, using host utilities	Yes, using mainframe utilities	Yes, using host applications
File formatting capability	Yes	Yes	Yes
Applications supported	Any ASCII or DIF compatible	DIF	Any that will accept ASCII or DIF
Optional file formatting software	Yes	Yes	Yes
Other download/upload functions	Any file	Display files & directories/catalogs, local or host	Binary transfer supported
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	All host security supported; micro security within any shell	Mainframe determined	All host security supported
Other program functions	Redirect data streams to disk; extensive line trace diagnostic capabilities; hot key	Keyed-in data can be sent to host; utilities for copying, deleting, & renaming files; macro	Using any micro editor
SCREEN FUNCTIONS			
Terminal functions supported	Depends on host emulation or micro shell facilities	Full erase and editing functions, visual attributes, windows, scrolling, function keys	Depends on host functions or micro shell facilities
On-screen help	Help menu (3770); function keys	Menu selection by function key	Status line & diagnostics
Status line	Session progress, caps, numeric lock, printer status, insert	Session progress, file transfer status, date & time	As presented by host subsystem plus local indicators
COMMUNICATIONS			
Local/remote connection to host or controller	Remote using async modem or local to host using modem eliminator	Remote to mainframe or local to controller	Remote or local to host using modem or modem eliminator
Interface provided	Sync modem or modem eliminator	Sync modem or coaxial interface	RS-232-C, async modem/modem elim.
Other communications	Same hardware supports other Exchange series products	High-speed full-duplex	Concurrent printer and CRT sessions
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$895	(Mainframe) CICS—\$2,000; TSO—\$400; CMS—\$400; PC soft.—\$295	\$795
Additional software support charges	Exchange Series products	Numerous software upgrades available	Full range of Exchange Series products
Charges for support services	Free using 800 number	Toll-free 800 number	Toll-free 800 number
Date of first delivery	January 1984	January 1984	January 1984
Lead time on orders	Stock	30 days	Stock
Number installed to date	Information not available	Information not available	Information not available
COMMENTS	Capability to communicate with any host application including spooling systems	Works in conjunction with entire range of Exchange Series products; host utilities provide extract facilities for any file	

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Intelligent Technologies Bisync Exchange 3780	Intelligent Technologies ClusterNet 3270S	Intelligent Technologies Coax Exchange II
PACKAGE	Plug-in conversion card plus software	Plug-in conversion card plus software	Plug-in conversion card plus software
Converters supported	No additional converter required	No additional converter required	No additional converter required
SYSTEM REQUIREMENTS			
Host systems supported	Any system capable of supporting 3780 protocol	Any supporting IBM SNA/SDLC PU Type 2 devices	All that support a cluster controller using IBM SNA/SDLC or BSC protocols
Host operating systems supported	Any	Any	Not applicable
Host end programming	No	No	No
Microcomputers supported	IBM PC, PC XT, PC AT, & compatibles	IBM PC, PC XT, PC AT, & compatibles	IBM PC, PC XT, PC AT, & compatibles
Microcomputer operating systems supported	DOS	DOS 2.0 or greater	DOS
Microcomputer system memory requirement	128K bytes	256K bytes	128K bytes
Media	5¼-inch diskette	5¼-inch diskette	5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	Same hardware supports DEC VT100/VT52; ANSI w/software upgrade	DEC VT100/VT52; ANSI available with software upgrade	None
Synchronous terminals emulated	IBM 2780/3780 console; software upgrade to 3278/3279	IBM 3278/3279, 3287 attached to 3271/3274/3276 controller	IBM 3278/3178, 3279/3179, 3180
Host data download capability	Yes	Yes, menu driven using optional file transfer software	Yes
Download functions	Capture screenful of data, entire host file to diskette, specific items from host file, binary	Capture screenful of data at a time, entire host file to diskette, specific items from host	Capture screenful of data, entire host file to diskette, specific items from host file, more
Host database update capability	Yes, any accessible by host spooler	Yes, using host utilities	Yes; host dependent
File formatting capability	Yes	Yes	Yes
Applications supported	Any ASCII file	Any ASCII or DIF compatible	DIF format compatible
Optional file formatting software	No	Yes	No
Other download/upload functions	Mainframe print files direct to printer	Any file	Transparent
Ability to upload data for processing	Yes; multiple files	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Line monitor, line error statistics logging, auto dial/answer	All host security supported; micro security within any shell	Supports all mainframe features
Other program functions	Take advantage of host command language	Extensive line trace diagnostics; toggle to DOS during comm. session from slave PCs	None
SCREEN FUNCTIONS			
Terminal functions supported	Scrolling, function keys, complete control of destination: screen, file, or printer	Depends on host application or micro shell facilities	Full erase and editing functions, visual attributes, windows, scrolling, function keys, more
On-screen help	Menu selection by function key	Function keys	Help menus
Status line	Complete file counts & communications status	Session progress, printer status, session identifier	Extended 3270 type
COMMUNICATIONS			
Local/remote connection to host or controller	Remote using sync modems, local using modem elim./digital PBX	Remote w/sync modem or local to host w/modem eliminator	Local or remote to controller
Interface provided	Any RS-232-C	RS-232-C, sync modem/modem elim.	Coaxial
Other communications	Automatic control file	Same hardware supports other Exchange Series products	Diagnostics
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$695	Contact vendor	\$995
Additional software support charges	Software upgrade to async or SDLC communications	Contact vendor	Upgrade available to include multi-sessioning—\$250
Charges for support services	Toll-free 800 number	Toll-free 800 number	Toll-free 800 number
Date of first delivery	January 1984	January 1984	Information not available
Lead time on orders	Stock	Stock	Stock
Number installed to date	Information not available	Information not available	Information not available
COMMENTS			
	PC-to-PC communication, including full file transfer capability	Allows up to three other PCs to be connected by RS-422 cable at up to 4,000 feet	Single key transfer to PC applications

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	InterChart Software TalkShow/PC	Intercomputer Communications Intercom Series for Burroughs	Intercomputer Communications Intercom Series for Sperry
PACKAGE	Software only	Software, conversion card & software, converter & software	Software only, plug-in conversion card plus software
Converters supported	None required	None required, unless TDI direct connect is used	None required
SYSTEM REQUIREMENTS			
Host systems supported	All mainframes, including IBM, DEC, and VAX	Burroughs CMS, B1000 Series, A Series Systems, medium and large systems	Sperry 1100 Series, System 80, System 90
Host operating systems supported	IBM VM, MVS; VAX VMS	OS contained in the above mainframes	1100 Sperry and Sperry OS3
Host end programming	No	Intercom 300B only	Intercom 600S only
Microcomputers supported	IBM PC, PC XT, PC AT, & compatibles	IBM PC, PC XT, PC AT, & compatibles; Wang PC; TI Professional; Burroughs B20/B25; Data General	IBM PC, PC XT, PC AT, & compatibles; Sperry PC; Wang PC; others
Microcomputer operating systems supported	PC-DOS, MS-DOS	MS-DOS, PC-DOS; BTOS	MS-DOS, PC-DOS
Microcomputer system memory requirement	128K bytes	192K bytes	192K bytes
Media	5¼-inch diskette	5¼-inch diskette; mainframe tape	5¼-inch diskette; tape
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	DEC VT100	Burroughs MT983, TD830, ET1100	None
Synchronous terminals emulated	None	None	Sperry UTS 20/UTS 30/UTS 40/UTS 400
Host data download capability	Yes	Yes	Yes; Intercom 600/600S—numerous download/upload capabilities
Download functions	Capture an entire host file to diskette	Capture screenful of data, entire host file to diskette, specific items from host files	Capture screenful of data, entire host file to diskette, specific items from host file, more
Host database update capability	No	Yes; through edit file	Yes, with edit file
File formatting capability	No	Yes	Yes
Applications supported	Not applicable	Automatically reformats CANDE, flat file & extracted file data into SDF	Lotus, Wordstar, Multiplan, dBase, others
Optional file formatting software	No	No; it is built into basic software	No
Other download/upload functions	Complete script file capability for auto, unattended term. ops.	Background file transfers; unattended batch file transfers	Background file transfers; unattended file transfers; other
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Script file capability, full screen editor, unattended terminal	Several levels possible in XTRACT	Limited
Other program functions	Ability to run DOS commands, simultaneous data transfer between PCs	None	None
SCREEN FUNCTIONS			
Terminal functions supported	Erase & edit, visual attributes, windows, scrolling, function keys thru full screen editor	Full erase and editing functions, visual attributes, scrolling, function keys, screen-to-disk	Erase & edit, visual attributes, scrolling, function keys, Uniscope capability
On-screen help	FIO function key help at any pt.	Help section	Help function
Status line	Complete status; all listed, plus status of data being transferred	Full	Yes
COMMUNICATIONS			
Local/remote connection to host or controller	Dial up remote, or hardwire	TDI, sync, async, concatenation, serial port (one comm. card)	Direct connect (two wire) asynchronous/synchronous
Interface provided	Asynchronous	All	TMUX cables
Other communications	None	See above	None
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$395 (perpetual license)	Various, by product configuration starts at \$295	Varies by product; starts at \$495
Additional software support charges	None	None for micro products; 15% of software price for mainframe products	None; 1-year warranty, 30-day trial period
Charges for support services	None	None	15% of mainframe fee after 1st yr
Date of first delivery	March 1984	1983	1984
Lead time on orders	2 days	15 days	15 days
Number installed to date	200	More than 10,000	Numerous
COMMENTS		Intercom 102—Burroughs terminal emulation; Intercom 1000—TDI/RS-232-C communications card; Intercom 300/300B—Advance File Transfer	Intercom 500 and Intercom 600/600S

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	IBM Personal Computer 3278/3279 Emulation	IBM Mainframe Communication Assistant	Linkware Corporation Linkware: Information Server and PC connection
PACKAGE	Plug-in conversion card plus software	Software only	Software only
Converters supported	No additional converter required	Requires async card or DCA 3278/3279 emulation adapter card	Not applicable
SYSTEM REQUIREMENTS			
Host systems supported	IBM 370, 30XX, 43XX	IBM S/370, 43XX	IBM 43XX, 30XX, DEC VAX
Host operating systems supported	MVS/TSO or VM/SP 2.1	VM/CMS, MVS/TSO	VM/CMS, MVS/TSO, VAX (VMS), Unix Berkeley 4.1 and 4.2
Host end programming	None required	Yes; packaged w/product	No
Microcomputers supported	IBM PC, PC XT, PC AT	IBM PC, PC XT, PC AT, Portable PC, PCjr.	IBM PC, PC AT, PC XT, compatibles
Microcomputer operating systems supported	PC-DOS	DOS 2.0 & above	DEC Rainbow, DECMate II, Apple Macintosh, Lee Data 4000, Wang PC
Microcomputer system memory requirement	128K bytes	96K bytes recommended; 72K poss.	256K bytes
Media	5¼-inch diskette, mag tape	5¼-inch diskette, mag tape	5¼-inch diskette—PC Mag tape—host
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	IBM 3101	All
Synchronous terminals emulated	IBM 3278-2, 3279 2A/S2A	IBM 3278/3279	3278/79
Host data download capability	Yes	Yes; ASCII, binary, extended ASCII	Yes
Download functions	Capture screenful of data, capture entire host file	Capture entire host file to diskette, download directly into Filing Asst. database, upload change	Capture specific items from host file
Host database update capability	No	Only via terminal emulation	Yes, with proper authorization
File formatting capability	None	Yes	Yes
Applications supported	Not applicable	Sample programs to convert QMF & TIF data to DIF & VC format	Any common PC format, (i.e. WKS, DIF, SYLK, PRN, CSV, or custom templates)
Optional file formatting software	No	No	No
Other download/upload functions	File transfer with 3270-PC File Transfer Program	See above	Either direction
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes, with proper authorization
Security features	No	No	on a per user basis
Other program functions	Users can alternate between concurrent PC and 3270 sessions, screen print function	Various	User defined individually, or as a group; ID codes; audit trail
SCREEN FUNCTIONS			
Terminal functions supported	Most 3270 screen functions	Erase & edit, scrolling, function keys; can window live session & saved screens under Topview	Line/char., insert/delete, visual attributes, scrolling, function keys (with proper authorization)
On-screen help	Help menus	Function keys; menu mode	help menus, tutorials
Status line	25th status line	Same as 3278/3279 terminals; system avail.; running node ID	Session progress, time-of-connect clock, file size, remain. memory
COMMUNICATIONS			
Local/remote connection to host or controller	Local connect to IBM 3274, 4321, 4331	Async modem-to-modem or direct via coaxial cable to 3274	Information not available
Interface provided	Coaxial	Either	Information not available
Other communications	None	Several	
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	Emulation control program—\$235; 3278/79 emulation adapter—\$905	\$199	\$6,000-\$35,000—Information Server
Additional software support charges	Mainframe 3270-PC File Transfer Program—\$600 (VM/SP 2.1 or MVS/TSO versions)	None	\$650—PC Connection ¹
Charges for support services	None	None	12% maint. fee after 1st year; includes updates, corrective maint., telephone hotline
Date of first delivery	January 1984	Information not available	See above
Lead time on orders	Information not available	Information not available	July 1984
Number installed to date	Information not available	Information not available	Immediate
COMMENTS		A wide variety of communications functions are available	¹ Quantity pricing available Corporate, Site licenses avail.

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Local Data Inc. FileLynx/3278 and FileLynx/5251	Mackensen Corporation File Transfer System	Management Science America PeachPak II w/PeachLink
PACKAGE	Standalone converter plus software	Software only	Software only
Converters supported	Local Data DataLynx/3274, InterLynx/3278, DataLynx/5251	DCA IRMA DSI, AST PCOX, AST 3270/Coax, AST SNA, AST BSC, Gateway ¹	DCA Irma (direct), modem & protocol converter sup. 3101 (dialup)
SYSTEM REQUIREMENTS			
Host systems supported	IBM 43XX, S/34, S/36, S/38	S/370, 43XX, 303X, 308X	IBM 370, 303X, 308X, 43XX
Host operating systems supported	DOS/VSE, OS/VS1, OS/MVS	MVS TSO, CICS, IDMS, IMS, VM CMS	OS & DOS
Host end programming	None required	Host software optional	No, host software prov. by MSA
Microcomputers supported	IBM PC, Columbia, Compaq	IBM PC, PC XT, PC AT, and compatibles	IBM PC, PC XT, & compatibles
Microcomputer operating systems supported	PC-DOS, MS-DOS	PC-DOS 2.0, 2.1, 3.0	MS-DOS (1.1, 2.0 & above)
Microcomputer system memory requirement	128K bytes	128K bytes	192K bytes
Media	5¼-inch diskette	5¼-inch diskettes	5¼-inch diskette (micro software) magnetic tape (mainfr. software)
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	Lear Siegler ADM 3A, TeleVideo 925	Information not available	IBM 3101 (3270 functionality provided)
Synchronous terminals emulated	IBM 3278, 5251	Information not available	IBM 3278 & 3279
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data or entire host file, capture 3287/5256 print output to disk	Capture an entire host file to diskette or hard disk	Capture screenful of data, capture specific items from host file data selectivity & key range spc.
Host database update capability	Provided by customer; CMS/SPF supported	Optional	Yes, most MSA financial mfg. & payroll/personnel
File formatting capability	Yes	Optional	Yes
Applications supported	Hex data conversion utility permits transfer of packed data such as object code, spreadsheet data	DIF and CSV formatting	Native formats, plus DIF Lotus 1-2-3, dBase II, VisiCalc, PeachCalc, PeachText, Bus. Graph. DIF
Optional file formatting software	No	See above	
Other download/upload functions	Ability to window upload/download to limit the no. of lines	Text and binary files supported	Yes, Interface from MSA mainframe acctg. pack., offline data capt.
Ability to upload data for processing	Yes	Yes, on-line and batch modes provided	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Password protection	Information not available	Micro based (limits access to feat.) & mainframe based security
Other program functions	No	Information not available	Distributed accounting features, telecommunications feature (comm. w/subscriber news services)
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and editing functions, visual attributes, scrolling, function keys	Information not available	Full erase & edit functions, visual attr., windows, scroll, function keys (all 3270 term. func.)
On-screen help	Help menus	Prompts and messages	Help menus & tutorials
Status line	25th status line	Continuous file transfer status-no. bytes & records transferred	Session progress, file size, etc.
COMMUNICATIONS			
Local/remote connection to host or controller	Local or remote connect to standalone converter	3270 type communication adapters, coax to controller, cluster emul.	IBM 3274/3276 (local & remote), remote S/1 & protocol converter
Interface provided	Via asynchronous adapter	Information not available	Coax (IrmaBoard); modem (S/1)
Other communications	Auto dial of Hayes compatible modems and modem cards		Telecommunications feature (sub. news services i.e. Dow Jones)
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	PC software—\$200; converter—\$500-\$1,395 per PC	\$295-PC software	Contact vendor
Additional software support charges	Additional PC licenses—\$100; unlimited site charge—\$1,000	\$5,000-\$7,500 mainframe software	None
Charges for support services	Approx. 10% of purchase price/yr.	Information not available	None
Date of first delivery	September 1982	Included	Information not available
Lead time on orders	45 days	February 1983	Contact vendor
Number installed to date	Over 3,000	Off shelf	Information not available
		500-600	
COMMENTS	1984 info.	¹ many others	1984 info.

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Martin Marietta Data Systems RAMlink	Martin Marietta Information Technology pcMainframe	Masterlink Handshake Plus
PACKAGE	Software only	Software only	Software only
Converters supported	No converter required	DCA IRMA, Forte, CXI, Quadram, AST-BSC, AST-SNA, ¹	No additional converter required
SYSTEM REQUIREMENTS			
Host systems supported	IBM 370, 30XX, 43XX, and PCMs (plug-compatible mainframes)	IBM 370, 303X, 308X, 43XX	All Burroughs hosts, including B7900/6900, B4800, B1900, B90
Host operating systems supported	IBM DOS/VSE, OS/VS1, MVS, VM/CMS and VP/CSS	DOS/VSE, OS/VS1, MVS, SSX	All Burroughs OS
Host end programming	Prerequisite software: RAMIS II	No, provided	Host Cobol program compile, load
Microcomputers supported	IBM PC, PC XT; provides access from a PC or ASCII terminal linking to host system with mainframe	IBM PC, PC XT; or plug-compatibles	IBM PC/XT, compatibles, Victor 9000, Burroughs B20
Microcomputer operating systems supported	PC-DOS 2.0	PC-DOS 1.1, 2.X, 3.0 MS-DOS 1.1, 2.X	MS-DOS, CTOS
Microcomputer system memory requirement	256K bytes	128K bytes	128K-256K bytes
Media	5¼-inch diskettes	5¼-inch diskettes, RAM disks, hard disks, dual drives, LANs	5¼-inch diskette, mag tape
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	A variety of ASCII terminals w/ 80-column screen width or more	IBM 3101, VT 52/102	Burroughs MT983, TD830
Synchronous terminals emulated	IBM 3278-type terminals	IBM 3278/79	Burroughs MT983, TD830
Host data download capability	Yes	Yes, capture entire screenful of data at a time	Yes
Download functions	Capture entire host file to diskette, capture specific items from host file	Capture entire host file to dskt, Capture specific items from host file	Capture files, either character or binary mode
Host database update capability	Uploads data between mainf. RAMIS II & diskettes or hard disks	Databases are accessible through user exit	No
File formatting capability	Yes	Yes	Yes
Applications supported	Automatically formats data for most popular PC pkgs., from spreadsheets to word processors	Any data type on mainframe to Basic, DIF, Fixed, Transparent (binary). SS, BASIC programs ²	DIF, SLYK, CSV (comma separated value)
Optional file formatting software	Through DIF to 1-2-3, etc.	No	Information not available
Other download/upload functions	Automatic reformatting of micro data sent to mainframe	Select mainframe records, specific fields within records	Parameter file definitions, binary XFER w/compression
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Password security from database to field level; audit trail log	Int. protocol sec., user-ID, profile class-password, audit trail	Audit trail
Other program functions	Automatic logon menu, single keystroke commands	Central library facility, data compression, re-start, error detection	Utility record builder program included, for building a data dictionary
SCREEN FUNCTIONS			
Terminal functions supported	Erase & edit functions, visual attributes, window, scroll, function keys, data entry split scrn	Full erase functions, line/char. insert/delete, visual attributes, windows, scrolling, function keys	Full erase and editing functions, visual attributes, windows, scrolling, function keys
On-screen help	Full-screen menus	Prompts and messages	Tree structure help menus
Status line	Prompts user for output	Continual file transfer update, number of records transferred	Status line
COMMUNICATIONS			
Local/remote connection to host or controller	Async via modem-host, sync supp-IRMA, Forte, etc. board-IBM 3274	IBM 3278/79 terminal emul.boards, direct async conn, AST-BSC/SNA ⁴	Local (TDI) or remote connect to host
Interface provided	Information not available	Information not available	Via async or sync adapters
Other communications	Screen refresh compares next screen to previous screen		Information not available
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$4,500-\$9,000 (based on performance level rating of CPU)	\$9,000 DOS/VSE, \$12,000-OS/VS1	\$495
Additional software support charges	Information not available	None	None
Charges for support services	Information not available	None	90 days free; service contract
Date of first delivery	Async-Dec. 1984; bisync-May 1985	1984	June 1983
Lead time on orders	Immediate	Contact vendor	Stock
Number installed to date	109	709	1,000
COMMENTS		¹ Bridgette, async comm card, 3270 protocol converter ² programs in object form, non-text files ³ breaks, summarize 1 or more fields ⁴ 3270 protocol converters	Interaction patterned after Lotus 1-2-3; provides for the definition of host control file for sign-on/off, single key file transfers

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	McCormack & Dodge Interactive PC Link	The Mega Group MegaCalc	The Mega Group MegaLink/3270
PACKAGE	Plug-in conversion card plus software	Software only	Software only
Converters supported	No additional converter required	No converter required	No converter required
SYSTEM REQUIREMENTS			
Host systems supported	IBM 43XX & 308X	IBM 370, 43XX, 30XX, & PCM (plug-compatible mainframes)	IBM 370, 43XX, 30XX, & PCM (plug-compatible mainframes)
Host operating systems supported	OS & DOS	OS, MVS/TSO, VM/CMS, CICS, MULTICS	VM/CMS, MVS/TSO, CICS
Host end programming	PC Link mainframe software req.	No	Software program for mainframe
Microcomputers supported	IBM PC & PC XT	IBM PC, Apple II, Osborne, etc.	IBM PC, PC XT, & compatibles
Microcomputer operating systems supported	DOS 2.0 or 2.1	MS-DOS, Apple DOS	PC-DOS
Microcomputer system memory requirement	256K bytes	64K bytes	128K bytes
Media	5½-inch diskette (micro); magnetic tape (mainframe)	5¼-inch diskette	5¼-inch diskette, 1600 or 6250 bpi tape
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	Any IBM 3101 emulator	None
Synchronous terminals emulated	IBM 3278 & 3279	All IBM 3270 emulators	IBM 3279 including 7-color support
Host data download capability	Yes	Yes	Yes
Download functions	Capture specific items from host file; 3 methods of download are avail.: selective, chain, direct	Capture an entire host file to diskette	No
Host database update capability	Real-time update to production files; budgeting & data entry	Yes, can be updated from database & saved as Lotus, VisiCalc, etc.	Yes, any SPF or application program supported
File formatting capability	Yes	Yes	Yes
Applications supported	Lotus 1-2-3 provides information management, spreadsheet, & graphics	Lotus 1-2-3, VisiCalc, SuperCalc, Multiplan, others	All mainframe applications supported
Optional file formatting software	Templates for Lotus spreadsheets are avail. for acctg. functions	No	Yes—MegaCalc & MegaFile
Other download/upload functions	Reformat, manipulate, & summarize mainframe data before downl.	Entire spreadsheets, including logic (formulas)	Yes
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Security can be defined for each user (record/field level); audit	Existing mainframe security	Full mainframe security supported
Other program functions	No	No	No
SCREEN FUNCTIONS			
Terminal functions supported	Full erase & edit functions; visual attributes; scroll; function keys; all functions of term. emul	Full erase & editing functions, visual attributes, windows, scrolling, function keys	All IBM 3278 & 3279 functions; full 3270 keyboard emulation
On-screen help	On-line for every screen/field	Help menus, tutorials, ref. cards	Help menus
Status line	No	All status line functions supported	All status line functions supported
COMMUNICATIONS			
Local/remote connection to host or controller	Local to IBM 3274/3276 (remote available 7/84)	Remote (async) or via controller	Async modems of any type are supported
Interface provided	Coaxial cable required	No	None required
Other communications	None	No	None
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$25,000 (mainframe software); \$1,700 per PC (micro package)	\$15,000	\$7,500
Additional software support charges	\$2,200 (micro package w/real-time update); \$750 (upgrade package for real-time update)	MegaGraph: \$4,000; MegaFile: \$4,000	None
Charges for support services	15% of mainfr., 10% of micro/yr.	Included	Included
Date of first delivery	November 1983	April 1983	1984
Lead time on orders	2 weeks from contract approval	1 week	10 days
Number installed to date	60 sites; 280 links	Over 175	Information not available
COMMENTS	PC Link permits user-specified calculations to be performed on mainframe data before downloads begin	MegaCalc is a full function spreadsheet for IBM mainframes; included are all utilities necessary to upload/download entire micro spreadsheet models, including logic, structure, & cables; 1984 info.	1984 info.

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Micro Tempus Inc. Tempus Link	Microlog, Inc. Baby Talk	Midwest Data Source, Inc. Burple
PACKAGE	Software only	Plug-in conversion card plus software	Plug-in conversion card plus software
Converters supported	Not applicable	Not applicable	No additional converter required
SYSTEM REQUIREMENTS			
Host systems supported	S/370, 43XX, 30XX	S/360, S/370, 43XX, plug-compatible mainframes	Any Burroughs mainframe from B90 to B7900
Host operating systems supported	MVS, VS1, DOS/VSE, VM/CMS	Bisync 3270, Bisync Hasp, ASCII, TTY	NDL
Host end programming	CICS, TSO, CMS knowledge	No	No
Microcomputers supported	IBM PC and compatibles	AT&T; IBM PC, PCXT, 3270; Compaq; Kaypro 16; Radio Shack 1200; WYSE Eagle XL, PC, 1600; Televideo	Apple II, II+, IIe, III
Microcomputer operating systems supported	MS-DOS	MS-DOS, PC-DOS	Apple DOS, Apple SOS
Microcomputer system memory requirement	128K bytes	64K bytes	48K bytes
Media	5 1/4-inch diskettes	5 1/4-inch diskettes	5 1/4-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	Async, 3101 (for protocol emulation)	Televideo 950, DEC VT100, Hazeltine 1500, IBM 3101	Any Burroughs terminal
Synchronous terminals emulated	3278/79	3270 Bisync, 2770, 2780, 3770, 3780 Batch/Bisync	Any Burroughs terminal
Host data download capability	Yes	Yes	No
Download functions	Capture screenful of data at a time, capture entire host file to diskette	Capture screenful of data at a time, capture an entire host file to diskette	No
Host database update capability	No	No	Not included in package
File formatting capability	Yes	No	Yes
Applications supported	DIF, WKS, CSV	Not applicable	Spreadsheets
Optional file formatting software	No	No	Yes
Other download/upload functions	Application Program Interface, Host Appl. Program Interface	File uploading and downloading	No
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Virtual disks password protected at file and virtual disk levels	Information not available	Audit trail on file upload/download
Other program functions	Information not available		User has the ability to write micro programs which will communicate with the mainframe
SCREEN FUNCTIONS			
Terminal functions supported	Information not available	Full erase functions, line/char. insert/delete, visual attributes, windows, scrolling, function keys	Full erase functions, line/char. insert/delete, scrolling, function keys
On-screen help	Help menus	Help menus	Menus for installation
Status line	Information not available	Information not available	Operator messages, screen page no., forms mode, Xmit-Rcv-local
COMMUNICATIONS			
Local/remote connection to host or controller	3274/6 or protocol converters, emul boards, pure Async-TTY comm	Remote to host	Local and remote connect
Interface provided	Supports most popular boards	Sync modem	Asynchronous or synchronous
Other communications	Information not available	Onboard Bell 103, 202, V.21, V.23	Speed to 38.4K bps
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$6,200-DOS/VSE, VM (5 mcu's) \$9,800-MVS/TSO/CICS (10 mcu's)	\$895 with modem \$695 without modem	\$695 for emulation, \$700 for file transfer
Additional software support charges	Information not available	\$499-bisync \$99-VT100 \$195-background header	None
Charges for support services	15% after the 1st year	None	Included in base price
Date of first delivery	September 1983	1983	April 1983
Lead time on orders	1 week	2 weeks	1 week
Number installed to date	1,100	Information not available	Over 200
COMMENTS			1984 info.

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Midwest Data Source, Inc. Intercom	The MOM Corporation PC/COM	NCR Corporation Data Pathing 3270 AIM
PACKAGE	Software only (async), conversion card plus software (sync) No additional converter required	Software only	Plug-in communication card plus software, SDLC or bisync board Not required
Converters supported		DCA IRMA, IRMALINE, Forte PJ 3278 Quadram Quad3278, CXI PCOX	
SYSTEM REQUIREMENTS			
Host systems supported	Any Burroughs mainframe from B90 to B7900	IBM 43XX, 30XX	Any supporting bisync or SDLC/SNA 327XS
Host operating systems supported	NDL	TSO/CMS, CICS	Not applicable
Host end programming	No	Yes, host software loading	No
Microcomputers supported	IBM PC, Columbia, Compaq, Eagle, Corona, Wang PC	IBM PC and compatibles	NCR PC-4, PC-6, any IBM compatible
Microcomputer operating systems supported	MS-DOS	PC-DOS, all versions	Concurrent PC-DOS, MS-DOS
Microcomputer system memory requirement	64K bytes	256K bytes	256K bytes
Media	5 1/4-inch diskette	5 1/4-inch diskettes, mag tape	5 1/4-inch diskettes
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	Any Burroughs terminal	None	None
Synchronous terminals emulated	Any Burroughs terminal	Function of converter	3270 CU emulation with attached devices
Host data download capability	Yes	Yes	Capture screenful of data at a time, entire host file to dskt.
Download functions	Capture an entire host file to diskette	Capture screenful of data at a time, capture an entire host file to diskette	Capture specific items from host file through application interface
Host database update capability	Not included in package	Yes	Through application interface
File formatting capability	Yes	Yes	No
Applications supported	Spreadsheets	DIF, WKS	Not applicable
Optional file formatting software	Yes	None	No
Other download/upload functions	Bidirectional file transfer optional	Bidirectional, text/binary transfers, virtual diskette	None
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes, NCR DPS-5 PC acts as cluster controller front-ending IBM syst.
Security features	Password	Passwords, user IDs, audit trail	None
Other program functions	Ability for user to write programs for the micro which include communications routines	Auto-command option	Information not available
SCREEN FUNCTIONS			
Terminal functions supported	Full erase functions, line/char. insert/delete, visual attributes, scrolling, function keys	Full erase functions, line/char. insert/delete, visual attributes, scrolling, function keys, windows	Information not available
On-screen help	Menus for installation, Help scr.	Menu driven, command-level instr.	Information not available
Status line	Operator messages, screen page no., forms mode, Xmit-Rcv-Local	Information not available	Information not available
COMMUNICATIONS			
Local/remote connection to host or controller	Local and remote connect	Converter dependent	Remote bisync, SDLC to host (3705, etc.)
Interface provided	Async, sync, TDI direct connect	Coax (Irma), RS-232-C (Avatar)	Bisync, sync modem
Other communications	Speed to 38.4 K bps		
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	See Comments	\$400 (mainframe) \$395 (PC-each)	\$1,495
Additional software support charges	None	CICS version \$2,000 (MF side)	Information not available
Charges for support services	Included in base price	Toll-free support	Information not available
Date of first delivery	July 1983	Information not available	Third quarter 1985
Lead time on orders	1 week	Stock	Information not available
Number installed to date	Over 1,500	1,200	Information not available
COMMENTS	Software only for async operation—\$200; hardware and software for sync operation—\$465		

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Network Research Corporation Fusion	Network Software Associates, Inc. AdaptSNA 3270	Network Software Associates, Inc. AdaptBSC 3270
PACKAGE	Software only	Software only	Software only
Converters supported	3Com, Interlan, Excelan, CMC, DEC	IBM SDLC Communications Adapter Card	IBM Bisync Communications Adapter Card
SYSTEM REQUIREMENTS			
Host systems supported	VAX 785, 750, 730, 780, 8600, 43XX, 30XX, Amdahl VX	IBM 30XX, 43XX	IBM 30XX, 43XX
Host operating systems supported	Amdahl, VMS, Ultrix, Unix 4.2/BSD Sys V	OS/VS, MVS, VM, DOS, CICS, TSO, CMS, IMS	OS/VS, MVS, VM, DOS, CICS, TSO, CMS, IMS
Host end programming	Reconfig. to add device driver	No	No
Microcomputers supported	IBM PC, PC XT, PC AT, Compaq, Compaq Plus, DEC Pro 350, Pro 380 ATT 6300	IBM PC, PC XT, PC AT and compatibles	IBM PC, PC XT, PC AT and compatibles
Microcomputer operating systems supported	MS-DOS 3.0, Venix, Venix II	PC-DOS	PC-DOS
Microcomputer system memory requirement	256K bytes, Ethernet interface	192K bytes	192K bytes
Media	5¼-inch diskette, 9-track mag tape-host	5¼-inch diskettes or hard disk	5¼-inch diskettes or hard disk
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	Transparent terminal attribute passthrough (not emulation)	None	None
Synchronous terminals emulated	None	IBM 3278/79	IBM 3278/79
Host data download capability	Capture screenful of data at time entire host file to diskette, Capture specific items from host file, any host file sent to PC and reverse	Capture entire host file to disk	Capture entire host file to disk
Download functions		Information not available	See above
Host database update capability	No	TSO, CICS, IMS	TSO, CICS, IMS
File formatting capability	No	No	No
Applications supported	Not applicable	Not applicable	Not applicable
Optional file formatting software	No	No	No
Other download/upload functions	Information not available	None	Information not available
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Password	None	None
Other program functions	Remote command execution, micro can initiate host command, results returned to host	Information not available	Information not available
SCREEN FUNCTIONS			
Terminal functions supported	Full erase functions, line/char. insert/delete, visual attributes, scrolling	Full erase functions, line/char. insert/delete, visual attributes, function keys	Full erase functions, line/char. insert/delete, visual attributes, function keys
On-screen help	Menus, network stats, test progr.	Help menus	Help menus
Status line	None	Session progress	Session progress
COMMUNICATIONS			
Local/remote connection to host or controller	Ethernet to VAX VMS, VAX Unix, Unix Workstation, Unix PCs	Remote to IBM mainframe	Remote to IBM mainframe
Interface provided	Ethernet	Sync modem interface	Sync modem interface
Other communications		IBM 3287 printer emulation, application progr. interface avail.	Application programming interface available
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	Source code \$25,000, micro h/w & s/w \$1,500, host dependent	\$585	\$475
Additional software support charges	\$1,500 per year, subscription update service	Information not available	Information not available
Charges for support services	\$150/hr.-consult. \$75/hr.-tech.	Information not available	Information not available
Date of first delivery	September 1983	August 1983	August 1983
Lead time on orders	30 days	Immediate	Immediate
Number installed to date	More than 1,000	80	20
COMMENTS			

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Network Software Associates, Inc. AdaptSNA RJE	OBS Software Omnilink	OBS Software Excellink
PACKAGE	Software only	Software only	Software only
Converters supported	IBM SDLC Communications Adapter Card	DCA Irma, AST PCOX, IBM BSC/SDLC async adapters	IRMA supported, but not required
SYSTEM REQUIREMENTS			
Host systems supported	IBM 30XX, 43XX	43XX, 370, 30XX	IBM mainframe 370, 30XX, 43XX
Host operating systems supported	OS/VS, MVS, DOS, JES2, and POWER	Any operating system that supports CICS/VS	MVS/TSO, VM/CMS
Host end programming	No	No	Host software loading
Microcomputers supported	IBM PC, PC XT, PC AT and compatibles	IBM PC, PCXT, 3270 PC, XT/370, Compaq, additional plug compatibles	IBM PC, PC XT, PC AT, Apple II
Microcomputer operating systems supported	PC-DOS	PC-DOS 2.0 and up	PC-DOS 1.1 or later, Apple DOS, CP/M
Microcomputer system memory requirement	192K bytes	256K bytes	64K bytes
Media	5 1/4-inch diskettes or hard disk	5 1/4-inch diskette for micro; mag tape for mainframe	Diskette-micro version Mag tape-mainframe version
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	IBM 3101	IBM 3101, Generic TTY
Synchronous terminals emulated	IBM 3770	3278/79 via coax connection to 327X controllers	3278-2
Host data download capability	Capture entire host file to disk	Yes	Capture host file to dskt, text or binary using packets to 1K
Download functions	See above	Capture screenful of data at a time, capture entire host file to diskette	16-bit CRC error checking, errors automatically recovered, packet counter or content displayed
Host database update capability	JES2, POWER	No direct update prov; uploaded data placed in holding area	No
File formatting capability	No	Yes	DIF files may be transferred
Applications supported	Not applicable	Spreadsheets, databases, word processing	Files allocated dynamically at host and PC, standard file format supported for VM/CMS, MVS/TSO
Optional file formatting software	No	Yes	No
Other download/upload functions	Information not available	Routing of PC files to other PCs via mainframe	Automatic over-rideable file attribute selection
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	None	10 levels of security assigned to users and to fields	Security provided by host software under MVS or VM ¹
Other program functions		CRC 16 error checking on async communications, restart/recovery procedures	Files transferred manually from menu scrn., program. from w/in LOGON script
SCREEN FUNCTIONS			
Terminal functions supported	Scrolling	Full erase functions, line/char. insert/delete, visual attributes, windows, function keys	Full erase functions, line/char. insert/delete, visual attributes, scrolling, function keys, home
On-screen help	Help menus	Help menus, tutorials	Menus, help screen, comm. switch
Status line	Session progress	3278 status line maintained when interacting with host	Sending signal displayed when terminal buffer being sent.
COMMUNICATIONS			
Local/remote connection to host or controller	Remote to IBM mainframe	Local and remote host connections supported	Dial-up through VTAM/NTD, TCAM or CP, hardwired to 3705, remote
Interface provided	Sync modem interface	Coax, sync modem, async modem	Coaxial-IRMA, async-serial port
Other communications	Application programming interface available		3278 emulation and file transfer IBM 3101 from w/in LANS
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$585	Mainframe software-\$28,000	\$7,000 including 10 copies of IBM PC version, Add. copies-\$150
Additional software support charges	Information not available	No charge	No charge
Charges for support services	Information not available	Included in maintenance	Free-1st yr; 15% price thereafter
Date of first delivery	August 1983	November 1983	December 1983
Lead time on orders	Immediate	2 days	1 week
Number installed to date	95	40	Over 100
COMMENTS		Optional upgrade modules avail; Omnilink Electronic Mail-comprehensive electronic message filing system that connects hardware devices and distributes information throughout a CICS network	¹ Logon passwords prompted from autologon scripts (not on dskt) ² settings Sessions w/host exited & resumed w/o dropping host connect Remote via 3270 Protocol Convert. 3274/6, X.25 VAN

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	On-line Software International Omnalink	Oracle Corporation Oracle	Orcima Corporation Portable 3270/3780
PACKAGE	Software only	Software only	Standalone computer plus software
Converters supported	DCA Irma, AST PCOX, IBM BSC/SDLC/async adapters	Not required	Not required
SYSTEM REQUIREMENTS			
Host systems supported	43XX, 370, 30XX	IBM 370, 4300, 30XX, Amdahl, NAS compatibles, VAX 11, 8600, DEC PDP 11/44, 11/73, Microvax VM/CMS, MTS, MVS, UTS, Unix	All IBM mainframes
Host operating systems supported	Any operating system that supports CICS/VS		Systems which support 3270/3780s
Host end programming	No	No	No
Microcomputers supported	IBM PC, PC XT, 3270 PC, XT/370, PC AT, Compaq, and additional compatibles	IBM, TI, DEC, Zenith 150/151, Compaq Plus, ATT 6300, Honeywell	Orcima
Microcomputer operating systems supported	PC-DOS 2.0 and up	MS-DOS	CP/M
Microcomputer system memory requirement	256K bytes	640K bytes	64K bytes
Media	5¼-inch diskette for micro; Mag tape for mainframe	5¼-inch diskettes	3½-inch diskettes
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	IBM 3101	VT100	3270 dial in, direct 3780 dial in 3270, 3780
Synchronous terminals emulated	3278/79 via coax connection to 327X controllers	Information not available	
Host data download capability	Yes	Capture specific items from host file	No
Download functions	Capture a screenful of data at a time, capture an entire host file to diskette	See above	Not applicable
Host database update capability	No direct update prov. Uploaded data placed in holding area	Yes	No
File formatting capability	Yes	Data loaded into Oracle RDBMS	No
Applications supported	Spreadsheets, databases, word processing	Information not available	Not applicable
Optional file formatting software	Yes	Extracts/loads to IBM SQL/DS	Will provide as needed
Other download/upload functions	Routing of PC files to other PCs via mainframe	Full relational extract/update facilities, Oracle database	Binary file transfers
Ability to upload data for processing	Yes	Yes	Yes, in 3780 mode
Ability to download files for local processing	Yes	Yes	Yes, in 3780 mode
Security features	10 levels of security assigned to users and to fields	Full SQL security to the field value level and full auditing	None
Other program functions	CRC16 error-checking on async communications, restart/recovery procedures		Orcima to Orcima transfers (dial-up)
SCREEN FUNCTIONS			
Terminal functions supported	Full erase functions, line/char. insert/delete, visual attributes, windows, function keys	Line/char. insert/delete, visual attrib, windows, scroll, color graph., funct. keys, num. keypad	Full erase functions, line/char. insert/delete, visual attributes, normal 3270
On-screen help	Help menus and tutorials	On-line help	None
Status line	3278 Status line maintained when interacting with host	Session, number records inserted in host or local db, Caps unlock	Normal 3270
COMMUNICATIONS			
Local/remote connection to host or controller	Local and remote host connections supported	async, sync links	Dial in, direct 2400 baud sync
Interface provided	Coax, sync modem, async modem	None	Integrated modem
Other communications	None		Async modes-300 baud, 1200 baud
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	Mainframe software—\$28,000	\$1,000-Oracle RDBMS, Oracle Link is provided with RDBMS	Single terminal with oper. sys., 3270 and 3780—\$3,095
Additional software support charges	None	\$1,200 site license support \$200 package license support (Oracle RDBMS)	No charge
Charges for support services	Included in maintenance	Information not available	90-day warranty, depot support
Date of first delivery	November 1983	October 1984	January 1985
Lead time on orders	2 days	Information not available	Information not available
Number installed to date	More than 40	1,500	Information not available
COMMENTS			
	Optional upgrade modules avail.: Omnalink Electronic Mail-This component is a comprehensive, electronic messaging filing system that connects hardware devices and distributes info. throughout a CICS network		

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Packaged Solutions BicomM-3270 BicomM-3700	Pansophic Systems, Inc. Panlink	Pathway Design—Pathway SNA 3270/3770, BSC 3270/ 3780 Emulator Packages
PACKAGE	Software only, or conversion card plus software	Software only	Plug-in conversion card plus software
Converters supported	No additional converter required	IBM Series 1, IBM 7426, Atianthus C80, Icot Corp VTS/362, others	No additional converters required
SYSTEM REQUIREMENTS			
Host systems supported	IBM S/34, S/36, S/38, Series/1, 360, 370, and 4300; DEC 20, PDP-10/11, VAX; Burroughs; Wang	IBM 308X, 303X, 43XX, 370	43XX, 30XX, 370, 8100, Series 1, SNA or BSC networks
Host operating systems supported	Most IBM OS; 4 options: spooler, Hasp, Power, Res	MVS/CICS, VSE/CICS, MVS/TSO, CMS	OS/VS, MVS, VM, DOS, CICS, TSO, CMS, IMS
Host end programming	Information not available	No	No
Microcomputers supported	IBM PC/XT, Columbia, Compaq, DEC Rainbow, Corona, Eagle, HP 150, DG One, Sperry, Hyperion, Victor	IBM PC, PCXT/AT/JR, PC Portable, AT&T, 3270/PC, Compaq, Sperry Univac, Columbia, Ericsson, Eagle	IBM PC and all compatibles
Microcomputer operating systems supported	MS-DOS, PC-DOS	PC-DOS 2.0, 3.0 MS-DOS 2.11	PC-DOS, MS-DOS
Microcomputer system memory requirement	64K bytes	64K bytes	256K bytes (IBM PC, compatibles)
Media	5¼-inch diskettes	5¼-inch diskettes—PC Mag tape—mainframe	5¼-inch diskettes
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	Information not available	3101	None
Synchronous terminals emulated	BicomM 3270: 3275/76/77/78 BicomM 3700: 2770/80, 3741/80	Not provided with system; supports 3278/79 emulation	IBM 3270 devices, including 3278, 3279, 3277
Host data download capability	Yes	Capture an entire host file to diskette	Yes
Download functions	Capture entire host file to diskette	See above	Capture screenful of data at a time, capture entire host file to diskette
Host database update capability	Yes	No, Yes with Easytrieve Plus, companion product	Yes
File formatting capability	No	No	Information not available
Applications supported	Not applicable	Not applicable	Information not available
Optional file formatting software	No	Yes (Easytrieve Plus)	No
Other download/upload functions	Information not available	Upload//download using simple PC-DOS copy command; supercopy ¹	Information not available
Ability to upload data for processing	Yes	Yes	Yes, 3270/3280/3770
Ability to download files for local processing	Yes	Yes	Yes, 3270/3280/3770
Security features	Information not available	4 levels of security access to libraries and files	Provided by host
Other program functions		Virtual disk capability allows user to avoid downloading—treats mainframe as PC hard disk	Pathway products feature user, programming facility, hot key, multiple session support
SCREEN FUNCTIONS			
Terminal functions supported	All 3270 screen functions supported	Full erase functions, line/char. insert/delete, visual attributes, windows, scrolling, function keys	Full erase functions, line/char. delete/insert, visual attributes, scrolling, function keys
On-screen help	Help line, menu-driven programs	Tutorial diskette, on-line help	Fully functional on-screen help
Status line	Yes	DOS IOs, terminal IOs, terminal buffer site, Error retry freq. ²	Full 3270 status, communications session status
COMMUNICATIONS			
Local/remote connection to host or controller	Local and remote connection to host	Same as supported environment list noted above	Remote connect to communications controller (3704, 3705, 3725)
Interface provided	Sync modem	3278, 3274/6 emulators, TWX/TTY ³	RS-232, sync
Other communications		Continued development of commun. interfaces; list updated monthly	Transmission speeds to 9.6K bps on SNA/BSC, multi-drop line
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	3270: \$895, \$395 w/o conv. card	\$6,500-DOS, 5 multiple conc. user	\$595—software emulator license;
Additional software support charges	3700: \$895, \$450 w/o conv. card No charge	\$9,900-10 multiple conc. user Price information not available	\$295—plug-in conversion card No charge
Charges for support services	No charge	24 hour telephone support, extensive documentation	Free software support
Date of first delivery	Information not available	12% purch. after 1st yr.-maint.	October 1983
Lead time on orders	48 hours	November 1984	30 days
Number installed to date	Information not available	None 450	Information not available
COMMENTS		¹ verify necessary space before down/upload; checkpoint/restart capability, data compression ² Comp/expansion factor, transmission time, incoming bytes, remaining disk space ³ protocol converters	

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Pathway Design netPath SNA-3270, netPATH SNA-3770	Performance Software MasterLink	Performance Software MasterLink/1100
PACKAGE	Plug-in conversion card plus software	Software only	Software only
Converters supported	No additional converters required	DCA Irma, Persyst, AST, others	Computer Logics
SYSTEM REQUIREMENTS			
Host systems supported	43XX, 30XX, 370, 8100, Series 1,	IBM 370, 4300, 30XX	Univac 1100
Host operating systems supported	OS/VS, MVS, VM, DOS, CICS, TSO, CMS, IMS	DOS/VSE, MVS	DEMAND
Host end programming	No	Host software loading	Host software loading
Microcomputers supported	IBM PC and all compatibles	IBM PC, compatibles	IBM PC, compatibles
Microcomputer operating systems supported	PC-DOS, MS-DOS, with Netware	MS-DOS, PC-DOS, all versions	PC-DOS, MS-DOS, all versions
Microcomputer system memory requirement Media	256K bytes-gateway and user node 5¼-inch diskettes	128K bytes 5¼-inch diskette, magnetic tape	128K bytes 5¼-inch diskette, magnetic tape
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	Function of the conversion card installed	Function of the conversion card
Synchronous terminals emulated	IBM 3270 devices, including 3277, 3278, 3279	Function of the conversion card	Function of the conversion card
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data at a time, capture entire host file to diskette	Capture screenful of data at a time, capture entire host file, capture specific items	Capture screenful of data at a time, capture entire host files, capture specific items
Host database update capability	Yes	Yes, anything downloaded; direct access to VSAM files	Yes, anything downloaded
File formatting capability Applications supported	Information not available Information not available	Yes Spreadsheets, others	Yes Spreadsheets, others
Optional file formatting software	No	No	No
Other download/upload functions	Information not available	No	No
Ability to upload data for processing	Yes, 3270, 3770	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Provided by host	Defined levels of access (user profiles); by files, fields	Defined levels of access
Other program functions	Programming facility, hot key, supports up to 32 concurrent communications sessions	Ability to download host programs and generate or modify them locally	No
SCREEN FUNCTIONS			
Terminal functions supported	Full erase functions, line/char. delete/insert, visual attributes, scrolling, function keys	Function of the conversion card installed	Function of conversion card installed
On-screen help	Fully functional on-screen help	On-line access to help menus	On-line access to help menus
Status line	Full 3270 status, communications session status	No	No
COMMUNICATIONS			
Local/remote connection to host or controller	Remote connect to communications controller (3704, 3705, 3725)	Function of converter card	Function of converter installed
Interface provided	RS-232, sync	None	None
Other communications	9.6K bps-dial up, leased, point-to-point, multi-dropped lines	None	None
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$1,390-8 sessions; \$1,990-16 sessions; \$2,590-32 sessions	One PC—\$2,500; unlimited license—\$15,000	One PC—\$2,500; unlimited license—\$25,000
Additional software support charges	No charge	None	None
Charges for support services	No charge	One year of support included	One year of support included
Date of first delivery	August 1985	May 1984	January 1984
Lead time on orders	30 days	Stock	Stock
Number installed to date	New product	Information not available	Information not available
COMMENTS	netPATH allows multiple IBM and compatible PCs on LAN to communicate with IBM hosts through single gateway PC, can share modems and phone lines	File transfer utility; data dictionary based on the mainframe provides for user profile by file name for ease of retrieval.	See MasterLink Comments; 1984 info.

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Quadram Quad 3278	Ryan-McFarland Corporation RM/COBOL	SAS Institute Inc. base SAS Software SAS/RTERM Software
PACKAGE	Plug-in conversion card plus software	Information not available	Software only, base SAS software under PC-DOS
Converters supported	IBM 3274/3276 controllers	Information not available	IRMA Decision Support Interface, Async Card, or IBM 3270 PC
SYSTEM REQUIREMENTS			
Host systems supported	IBM 370, 43XX	S/36, 43XX/380X	IBM 370/30XX/43XX and compatible machines, DEC VAX 8600 and 11/7XX series
Host operating systems supported	ACP; DOS/VSE/MUS/XA; MUS/SP/OS/VSI; SSX; VSE; VM/SP; CICS; TSO	S/36—SSP version 2, 3 Mainframe—VM/CMS	OS, CMS, and VMS
Host end programming	For file transfer	Inter-machine link	SAS Software, Version 5, on host
Microcomputers supported	IBM PC & compatibles	IBM PC family, all AT&T computers	IBM PC AT, PC XT, 3270 PC and compatible machines
Microcomputer operating systems supported	MS DOS	PC-DOS, Xenix, Unix, Network DOS 3.1	IBM PC AT/XT—PC-DOS 2.0 or more 3270 PC—Control Program V1.2
Microcomputer system memory requirement	64K (1.1 DOS); 128K (2.0 DOS)	128K bytes	512-640K bytes 10M on fixed disk
Media	5¼-inch diskette	5¼-inch diskettes	5¼-inch diskettes, XT formatted
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	Not applicable	VT100, Tektronix 410X via SAS/RTERM Software
Synchronous terminals emulated	IBM 3278/3279 (BSC & SNA/SDLC)	Not applicable	Via IRMA Decision Support Interface
Host data download capability	Yes	No	Yes
Download functions	Capture screenful of data at a time	Not applicable	SAS data sets move host to micro, micro to host; data sets display full screen or list file format
Host database update capability	Yes	Not applicable	Yes
File formatting capability	No	Not applicable	Yes
Applications supported	Not applicable	Not applicable	SAS applications
Optional file formatting software	No	Not applicable	Convert dBASE II/III and DIF, write specific file formats
Other download/upload functions	No	Object code same on all machines	Statements submitted from PC to host
Ability to upload data for processing	No	Not applicable	Yes
Ability to download files for local processing	No	Not applicable	Yes
Security features	No	Not applicable	Password on host, other standard op. sys. security features
Other program functions	No	GSA certified, ANSI 74 COBOL implementation, multi-key index files, record/file locking	System files and program output are directed back to the PC
SCREEN FUNCTIONS			
Terminal functions supported	Full erase & edit features, visual attributes, scroll, function keys	Not applicable	Full erase functions, line/char. insert/delete, visual attributes, windows, scrolling, function keys
On-screen help	None	Not applicable	Full screen help windows
Status line	3270 status line (25th)	Not applicable	Insert mode, running mode, window mode
COMMUNICATIONS			
Local/remote connection to host or controller	Local to 3274, remote to 3274 to mainframe	Not applicable	Local or remote IRMA DSI, async card, IBM 3270 PC
Interface provided	Coaxial RG 62 A/U	Not applicable	Coaxial, RS-232-C—PC-DOS
Other communications	None	Not applicable	RS-232-C—SAS/RTERM Software
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$1,195; cabling kit—\$95	\$950 one-time license for PC-DOS RM/COBOL compiler and runtime	\$2,500 base SAS-50 workstations ¹ \$1,500 SAS/RTERM-50 workstations ²
Additional software support charges	None	Information not available	Updates, technical support, maintenance included in price; Renewal: \$1,700 \$1,000
Charges for support services	None	\$2,500/yr-Appl. Dev/Reseller sup.	No charge
Date of first delivery	May 1984	1979	3rd quarter 1985
Lead time on orders	7 days	10 days	10 days
Number installed to date	Information not available	250,000	New product
COMMENTS	Quad 3278 has features which allow the user to toggle between a PC/MS-DOS environment & the terminal emulation modes; 1984 info.	Generates portable source and object code which can run on any computer system that supports the language, regardless of where the code is generated. High-level file access methods, interactive scrn. handling and debugging	Future plans include support for Forte-PJ card, IBM 3270 full scrn. card, IBM asyn commun., asyn comm. support for Digital VAX, Data General Eclipse, and Prime Computer's 50 Series.

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Simware Inc. Sim 3278	Simware Inc. SimPC	SIS/SunData PC-Plus
PACKAGE	Software only	Software only	SNA/SDLC or 2780/3780 card, software, and modem
Converters supported	Not required	Not required	No additional converter required
SYSTEM REQUIREMENTS			
Host systems supported	IBM 370 or equivalent host	IBM 370 Systems	IBM 30XX running MVS with JES-2
Host operating systems supported	VM, MVS/VTAM	VM, MVS/VTAM	MVS
Host end programming	None required	None required	Host DBMS or host software
Microcomputers supported	IBM PC and plug compatibles	IBM PC and plug compatibles	IBM PC XT and compatibles
Microcomputer operating systems supported	MS-DOS	MS-DOS	PC-DOS, MS-DOS
Microcomputer system memory requirement	192K bytes	192K bytes	256K bytes
Media	5 1/4-inch diskettes	5 1/4-inch diskettes	5 1/4-inch diskettes
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	None	None
Synchronous terminals emulated	IBM 3278 Model 2	IBM 3278 Model 2	IBM 2780/3780, 3777
Host data download capability	Yes	Yes	Yes
Download functions	Capture an entire host file to diskette	Capture an entire host file to diskette	Capture specific items from host file
Host database update capability	Not applicable	Information not available	Yes, off-line formatted screen entry
File formatting capability	Yes	Information not available	Yes
Applications supported	DOS supported programs	Information not available	Data supplied via download is formatted for data management system supplied with PC-Plus
Optional file formatting software	No	Information not available	User exit instructions supplied
Other download/upload functions	File protection, error detection and correction	Information not available	Information not available
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Security exit	Security accounting exit	'Keydisk' feature allows limitation of data access
Other program functions	Information not available		
SCREEN FUNCTIONS			
Terminal functions supported	Full erase functions, line/char. insert/delete, visual attributes, function keys	Full erase functions, line/char. insert/delete, visual attributes, function keys, 3278 functions	Only data item/record selection and updating
On-screen help	Help menus	Help menus	Tutorials
Status line	Information not available	Information not available	Information not available
COMMUNICATIONS			
Local/remote connection to host or controller	Remote connect to host	Remote to System 370	Local or remote connect
Interface provided	Async adapter	Information not available	Modem interface (2400 bps)
Other communications	Dial-up manager	Information not available	
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$195/PC—SimPC, corporate license available	\$195, corporate licenses available	\$3,500-(1 PC); \$2,000 (2-5 PCs); \$1,800 (over 6 PCs)
Additional software support charges	Not applicable	\$70-single copy updates	Custom tailoring of system available
Charges for support services	1st yr. free, 15%/yr. thereafter	1st yr. free, 15%/yr thereafter.	Information not available
Date of first delivery	April 1982	April 1984	April 1984
Lead time on orders	1 week	1 week	30 days
Number installed to date	More than 2,000	More than 2,000	2
COMMENTS			

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Software AG of North America Inc. Natural/Connection	Software Dynamics, Inc. SDI3780/2780/2770	Software International Smart Link
PACKAGE	Software only	Software and adapter card	Software only
Converters supported	Not required	Not required	DCA IRMA DSI for 3278 emul.; IBM IDE5251 & AST for 5251 emulation
SYSTEM REQUIREMENTS			
Host systems supported	IBM 43XX Series and above	Any that support IBM 3780/2780/2770	IBM 360/370, 3030, 3032, 3033, (30XX), 4300, plug compatible mainframes, IBM System 38
Host operating systems supported	OS/VS1, DOS/VSE, SSX, MVS (/XA) VM/CMS, Com-plete, CICS, TSO, CMS	Same as above	DOS, DOS/VS/VSE, OS, OS/VS, MVS under CICS
Host end programming	Only in Natural or Super/Natural	None required	No
Microcomputers supported	IBM PC/XT/AT, PC3270, XT/370, AT/370, any computer that is operationally compatible	IBM PC, PC XT, PC AT	IBM PC, PC XT, PC AT
Microcomputer operating systems supported	PC-DOS, MS-DOS	PC-DOS 1.0 through 3.0	PC-DOS 2.0, 2.1
Microcomputer system memory requirement	256K bytes RAM	DOS 1.0, 1.1-64K; 2.0-128K bytes	256K bytes
Media	5¼-inch diskettes	5¼-inch diskettes	5¼-inch diskettes
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	Requires async communications hardware board	Information not available	None
Synchronous terminals emulated	IRMA board, or other emulator boards	IBM binary sync terminals 3780/2780/2770	IBM 3278, 3279, 5251
Host data download capability	Yes	Yes	Yes
Download functions	Capture entire host file to skt, capture screenful of data at a time	Capture an entire host file to diskette, printer, or hard disk	Capture specific items from host file
Host database update capability	Yes, from PC's local disk storage —update a database on mainframe	Batch transfer disk/diskette files, keyboard messages to host	Yes, update budget information in the general ledger
File formatting capability	Yes	None	Yes
Applications supported	Framework, dBase, DOS ASCII, Basic, DIF, WKS, Multiplan, Lotus Symphony	Not applicable	Formatting to DIF format and/or sequential/line file; supports Lotus 1-2-3, VisiCalc, dBase II
Optional file formatting software	Information not available	No	Yes
Other download/upload functions	Reports generated by mainframe Natural programs	Batch transmit/receive/query from keyboard	Download specific selective data & upload specific selective data
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Encryption, audit trails, Natural Security System	Up to 15 graphic characters may be sent or checked for security	Integrated with financial package
Other program functions	Download for storage, upload for storage or execution	Transmit file or multiple files with concatenation, transmit an entire disk as a data file	Help screens, menu driven
SCREEN FUNCTIONS			
Terminal functions supported	Customize menus and applications, hot keys, PC-DOS functions, generalized command file	Batch file data is scrolled as transmitted/received unless operator turns off scrolling	Full erase functions, line/char. insert/delete, visual attributes, windows, scrolling, function keys
On-screen help	On-line help, tutorial	Help key	Help menus
Status line	Integrated into menu screens	Four screen lines always show last four status messages	Communications status, external error messages
COMMUNICATIONS			
Local/remote connection to host or controller	With use of hardware board, dial-up phone line requires modem	Locally or remotely via RS-232-C interface	Local to host, local to controller
Interface provided	IRMA board, 328778/9 emul. boards	SDI communications adapter	Coaxial
Other communications		Point-to-point dial or leased multipoint communications	Information not available
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$250-1,000—microcomputers \$15,000-25,000—mainframes	\$399-software \$300-hardware	\$3,500
Additional software support charges	None	Information not available	Information not available
Charges for support services	15% current of price after 1st yr	Support included in price	Information not available
Date of first delivery	June 1984	May 1983	May 1984
Lead time on orders	Minimal	Immediate, (3 wk hdwe-possible)	Two weeks
Number installed to date	More than 60	300	250
COMMENTS		Double buffering and overlapping line activity with disk/diskette activity makes package extremely efficient with regards to line use; designed so that systems programmer can configure batch command file	

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Solaris Computer Corporation Solaris 1000/3000	Sterling Software Marketing PC-Tracs	The Systems Center, Inc. Network Datamover-MVS Network Datamover-PC
PACKAGE	Standalone converter plus software; MS-DOS provided Not required	Plug-in conversion card plus software No additional converter required	Software only Not required
Converters supported			
SYSTEM REQUIREMENTS	VAX plus IBM	IBM mainframes & minicomputers (any Bisync mainframe supporting 2780/3780 RJE operation)	IBM plug compatible-370 Arch
Host systems supported	All	Any system that supports IBM RJE or BSC file transfer	MVS
Host operating systems supported	No	No	No
Host end programming	8088	IBM PC and PC-board compatibles	IBM PC and compatibles
Microcomputers supported	MS-DOS, Xenix, CP/M	MS-DOS, PC-DOS (all versions)	Dos 2.0, 3.0
Microcomputer operating systems supported	256K bytes	64K bytes	Information not available
Microcomputer system memory requirement	5¼-inch diskettes	5¼-inch diskettes	5¼-inch diskettes/PC Magnetic tape/NDM-MVS
Media	PROGRAM FUNCTIONS	Information not available	Not applicable, planned sometime in within 1985
Asynchronous terminals emulated	VT100, VT220 plus compatibles	IBM 2780/3780	SNA Gateway, 3278/79 emulator
Synchronous terminals emulated	IBM 3278, 3178/79 plus compatibles	Yes	Yes
Host data download capability	Yes	Transfers files in either direction	Capture entire host file to diskette, application interface
Download functions	Capture entire host file to diskette	No	CICS, IMS, IDMS
Host database update capability	Yes, all	Yes	No
File formatting capability	Yes	Yes	Not applicable
Applications supported	All	EBCDIC to ASCII	No, works with any available conversion packages
Optional file formatting software	Yes, Kermit	Information not available	Unattended, timed transfers
Other download/upload functions	Information not available	Yes	Yes
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Sign-on, remote & systems IDs	Interface-RACF, ACFZ, Top Secret, audit trails
Security features	Complete host-micro functionality	PC to PC binary file transfer	Internal security to NDM functions/user basis, MVS job & task automatically started by NDM
Other program functions	All specified above	IBM 2780/3780 functions plus additional functions	Information not available
SCREEN FUNCTIONS	Full erase functions, line/char. insert/delete, visual attributes, windows, scrolling, function keys	No	Menu driven, applic. interface
Terminal functions supported	Menus	Yes	Audit trail file by host NDM
On-screen help	Time/date	Local and remote dial-up	Forte & Irma Cards, SNA Gateway (Omninet attached PCs)
Status line	Information not available	Sync modem	Coaxial attached boards
COMMUNICATIONS	COAS, RS-232-C, parallel printer	Information not available	Gateway replaces 3274 controller, unattended, timed transfers
Local/remote connection to host or controller	Information not available	\$950 (quantity discounts available)	Approx. \$18,500-MF
Interface provided	None	None	\$300-PC
Other communications	None	None; toll-free telephone support	Maintenance available
PRICING AND AVAILABILITY	Not applicable	1983	Information not available
One-time license or purchase price, basic package	November 1983	24 hours	1984
Additional software support charges	30 days	Information not available	Contact Systems Center
Charges for support services	1,000		Information not available
Date of first delivery			
Lead time on orders			
Number installed to date			
COMMENTS			

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Techland Systems, Inc. Blue Lynx	Tecmar Inc. Power Link	Tesseract Corporation Merlin/IDL Intelligent Data Link
PACKAGE	Plug-in conversion card plus software	Plug-in conversion card plus software	Plug-in conversion card plus software
Converters supported	No additional converter required	Converter included	Conversion card included
SYSTEM REQUIREMENTS			
Host systems supported	IBM S/34, S/36, S/38, 308X, 43XX, all 360s and 370s	IBM 3270	Any 370, 43XX, or 80XX compatible IBM mainframe
Host operating systems supported	TSO, IMS, CICS, CMS	TSO, CMS	VM, MVS, DOS
Host end programming	No	No, host software included	No special programming required
Microcomputers supported	IBM PC, PC XT, PC AT, and compatibles	IBM PC, PC XT, PC AT and compatibles	IBM PC and compatibles
Microcomputer operating systems supported	MS-DOS, PC-DOS	DOS 2.0, 2.1, 3.0	MS-DOS, PC-DOS
Microcomputer system memory requirement	96K bytes	192K bytes; 512K (windowing)	256K bytes
Media	5 1/4-inch diskettes	5 1/4-inch diskettes	5 1/4-inch diskettes
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	Information not available	Information not available	No
Synchronous terminals emulated	IBM 3276/3278/3279, 5251, Model 12, 5292, 5251/11, 2780/3780	3278 models 2, 3, 4 3279 model S2A	Yes
Host data download capability	Yes	Yes	Capture screenful of data at a time, entire host file to disk
Download functions	Capture an entire host file to diskette, emulator transfer utility	Capture screenful of data at a time, capture entire host file to diskette	Capture specific items from host file, data dictionary functions supported
Host database update capability	Yes, as terminal indicated	Information not available	Yes, Human Resource, and others
File formatting capability	Yes	No	Yes
Applications supported	Data reader	Not applicable	dBase II, dBase III, SDF and Lotus
Optional file formatting software	Included with ETU and 3270	No	Yes, utilities provided
Other download/upload functions	Information not available	Software supports text, binary, compressed, non-compressed xfer	Information not available
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Information not available	Information not available	Passwords, user IDs, data views, user procedure control
Other program functions	Information not available	Screen control application program interface facilitates development of user-written appl. ¹	Download PC commands from host, data transformation functions, link command language
SCREEN FUNCTIONS			
Terminal functions supported	Full screen emulation	Visual attributes, windows, scrolling, function keys	Full erase functions, line/char. insert/delete, visual attributes, windows, function keys
On-screen help	Information not available	In workstation control mode	Yes
Status line	Full status line function	Communications link status, printer status, inhibited status	Line status, time, user IDs-selectable
COMMUNICATIONS			
Local/remote connection to host or controller	Remote to S/34, S/36, S/38, 308X, 43XX	Local or remote to 3274, local to 3299, remote to 3705/3725	Local and remote 327X
Interface provided	Sync modem interface	Coaxial	Coaxial, sync
Other communications	Information not available		
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$690-2780/3780; \$745-5251/12; \$945-3270 remote; \$1,295-3270 coa	\$1,099	Information not available
Additional software support charges	Emulator Transfer Utility (ETU): \$875-S/38; \$500-S/34; \$600-S/36	None	Information not available
Charges for support services	None	Information not available	Information not available
Date of first delivery	November 1982	November 1984	November 1984
Lead time on orders	2 days	2 weeks	2 weeks
Number installed to date	18,000	Information not available	10
COMMENTS	3270 LAN Gateway also available; 5251/11 with hot key, print support, multi-windowing, virtual disk support and 3180 keyboard	Keyboard remapping software allows keyboard generation of foreign character sets; menu driven transfer software, progress messages	

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Thomas Engineering Co. Uni-Tec Product Line	Thorn EMI Computer Software MicroFCS and FCS	3Com Corporation Ether 3270
PACKAGE	Standalone converter plus software	Software only	Software only
Converters supported	Not applicable	Not applicable	Server PC: IBM SDLC cord Server-workstation: 3Com Ethernet
SYSTEM REQUIREMENTS			
Host systems supported	All Honeywell, IBM 3270, SNA, other	IBM mainframes & comp, Wang VS Ser., Digital VAX Ser. HP 3000/64	43XX, 30XX
Host operating systems supported	Various	Honeywell DPS8, DG MV/Eclipse Ser AOS, AOS/VS, GCOS, CICS, CMS, TSD	VM, MVS
Host end programming	No	No	For file transfer (Forte)
Microcomputers supported	IBM PC and compatibles, Apple II	HP 150, IBM PC, PC XT, PC AT, Wang PC	IBM PC and compatibles
Microcomputer operating systems supported	MS-DOS, Apple DOS, CP/M	MS-DOS	DOS 2.0 or higher
Microcomputer system memory requirement	Information not available	192K bytes	256K (workstation) 512K (server)
Media	3½-, 5¼-inch diskettes	5¼-inch diskettes	5¼-inch diskettes
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	Not applicable	Not applicable	None
Synchronous terminals emulated	3278, VIP 7760	Not applicable	3278, 3279
Host data download capability	Yes	Yes	Yes
Download functions	Capture an entire host file to diskette, print spooling	Capture entire host file to dkst, whole moves host files from mainframe to micro diskette	Capture screenful of data at a time, capture entire host file to diskette
Host database update capability	Information not available	Yes, move files on diskette onto mainframe file	TSO, CICS, IMS
File formatting capability	Information not available	Yes	None
Applications supported	Information not available	Micro and mainframe files are FCS formatted as binary or symbolic	Not applicable
Optional file formatting software	Information not available	No	None
Other download/upload functions	Information not available	Information not available	File transfer and printing to and from network storage, printers
Ability to upload data for processing	Yes	Yes	Information not available
Ability to download files for local processing	Yes	Yes, file transfer both ways	Yes
Security features	File access accounting, password, access control	Defined levels of access, password protection on files & acctns	User ID, password access to gateway server
Other program functions	Runs all Unix System V applications on files to/from host	Screen manipulation of data and data base management	Program execution from network volumes, menu system for transport access; support diskless PCs
SCREEN FUNCTIONS			
Terminal functions supported	Full erase funct, line/char. insert/delete, visual attr, windows scroll, funct. keys, VI	Scrolling, function keys	Line/char, insert/delete, visual attributes, scrolling, function keys
On-screen help	Information not available	On-line help messages	Information not available
Status line	Information not available	None	Standard 25th line status messages
COMMUNICATIONS			
Local/remote connection to host or controller	Remote VIP, SNA, BSC	Coaxial cable w/BNC adaptor connects IBM PC to IBM 3274/76	SDLC to host, Ethernet work- o station to server
Interface provided	Sync	Async, bisync supports IRMA	Sync modem
Other communications	High speed dedicated comm. processors	Not applicable	
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$7,000-8 port, 2 host system	\$2,000-Micro/quantity dsct avail.	\$1,595 per PC server, user software included
Additional software support charges	Information not available	\$20,000-150,000-FCS	Dealer supported
Charges for support services	Information not available	Mainframe-3.75% purch. price/yr ¹	Information not available
Date of first delivery	February 1985	Information not available	July 1985
Lead time on orders	15-30 days	Information not available	2 weeks
Number installed to date	200	Information not available	More than 50
COMMENTS	Uni-Tec supports microcomputers as host terminals, Unix terminals or network nodes	¹ \$300 + 15% purch price/yr. Command driven, report generation what-if anal., hierarchical and multi-dimensional consolidation, risk anal, statistical anal, high res. graphics, over 160 financial funct for budget & forecast appl.	Sold through 3Com dealers who have been specially qualified to sell and support Ether 3270

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Uccel Corporation Perfect Link	Urgeo Software, Inc. Apple-Bisync	VM Personal Computing Relay/Please/PC3270
PACKAGE	Software only	Plug-in conversion card plus software	Software only
Converters supported	Not applicable	Not applicable	No converter required
SYSTEM REQUIREMENTS			
Host systems supported	IBM 370, 30XX, 43XX, and IBM compatible machines	Any computer that supports bisync communications (IBM 360/370/43xx/30xx, System 34, etc.)	IBM 370/158, 3033, 3083, 43XX, & PCMs
Host operating systems supported	DOS/V5/VSE, OS/V51/V52/MVS	All known IBM operating systems (DOS, DOS-VSE, DOS-MVT, VM, etc.)	VM/CMS (Please), VM/SP (PC3270)
Host end programming	No, host software loading	No	Please (upl./downl.), PC3270
Microcomputers supported	IBM PC, PC XT, PC AT, 3270 PC, IBM plug compatibles	Apple II, II+, IIe	IBM PC & PC XT, Columbia, Compaq, Corona, Wang PC
Microcomputer operating systems supported	MS-DOS	DOS 3.3, PRO-DOS	PC-DOS, MS-DOS
Microcomputer system memory requirement	256K bytes	48K bytes	128K bytes
Media	5¼-inch diskette—micro Mag tape—mainframe	5¼-inch diskettes	5¼-inch diskette
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None, screens are built at the PC level	None	DEC VT100 & VT52, TTY, Telex, async. IBM 3277/3278 (PC3270)
Synchronous terminals emulated	327X	3271, 3275, 3276, 3780	IBM 3270/3278 (async. emulation)
Host data download capability	Yes	Capture entire host file to dskt, screenful of data at a time	With Please
Download functions	Capture specific items from host file, selectively download data	Multiple files transmitted/rec'd in any order as defined by a command file	Downloads any kind of VM/CMS file to Relay on IBM or Wang PC, error free; asynchronous only
Host database update capability	Yes, to virtual disk or transaction file, security dependent	Yes	Yes
File formatting capability	Yes	Yes	No
Applications supported	ASCII text, DIF, dBase II	Apple DOS text files only	Not applicable
Optional file formatting software	No, format can be changed at the PC to a format mentioned above	No	No
Other download/upload functions	Mailbox features, virtual storage at mainframe, model sharing	Information not available	Allow/suppress EBCDIC-ASCII conversion, compression
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Complete audit trails (on-line) 8 levels of security	As defined by host system	Various levels/types of passwords for Relay PC-to-PC communications
Other program functions	Elect. memo list, save models to be shared on host, generate request at predetermined time	Self-contained text editor for creating/updating files	Full-screen editor to create or revise files on PC; can be used during upload/download
SCREEN FUNCTIONS			
Terminal functions supported	Full erase function, line/char. insert/delete, visual attributes, scrolling	full erase functions, line/char. insert/delete, visual attributes, function keys, all 3270 functions	Full erase & edit functions, visual attributes, scrolling, function keys
On-screen help	Help menus	Some	Context-sensitive Help
Status line	Mainframe messages, session progress, memory remaining	Full screen status indicators displayed upon request	Date, time, event messages, prompts, toggle key status
COMMUNICATIONS			
Local/remote connection to host or controller	Local and remote processing	Remote to mainframe, 2701/3704/3705 or terminal control required	Direct or local connection, remote asynchronous dial-up
Interface provided	Coaxial, modem	Bell 201C/206B, compatible modem	Asynchronous modem
Other communications	Uses IRMA, FORTE, ITT Emulators	CRC-error checking-block transfer space compression, 3780 forms ¹	Proprietary protocol to detect & fix errors transparent to user
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	Priced from \$25,000 depending on mainframe configuration	\$750-3780; \$750-3270	Relay: \$149/PC; Please: \$2,495;
Additional software support charges	Workshops are given for both systems and user, 24-hour telephone support	\$899-both	PC3270: \$6,995
Charges for support services	Available upon request	See above	None
Date of first delivery	November 1984	None	None
Lead time on orders	Immediate	February 1984	April 1983 (Relay)
Number installed to date	15	None-on shelf inventory	1 week
		Information not available	5,000 (Relay)
COMMENTS			
	Continual development of product at all times; two new releases since original product introduction.	¹ feed emulation, right hand space truncation	Relay: async. communications pkg. for IBM PC; transfers files error free in both directions; Please runs simultaneously with PC3270, allowing IBM 3270 terminal emulation; 1984 info.

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Wall Data Inc. DCF, DCF/5251	Winterhalter Inc. Datataker II	Winterhalter Inc. Datataker/PC
PACKAGE	Standalone converter plus software, standalone converter only Not applicable	Standalone converter plus software No additional converter required	Plug-in conversion card plus software No additional converter required
Converters supported			
SYSTEM REQUIREMENTS			
Host systems supported	IBM S/370 type mainframes running 3270 BSC &/or 3270 SNA IBM S/34/36/38 running 5251 SNA Transparent	Any host that supports 3780, X.25 or 3270 BSC/SDLC workstations	Any host that supports 3780 or 3270 BSC/SDLC workstations
Host operating systems supported		See above	See above
Host end programming	No	No	None required
Microcomputers supported	IBM PC and compatibles (terminal emulation & S/36/38 file xfer) Macintosh (terminal emul only)	All major microcomputer models equipped with a serial port	IBM PC, PC XT, and compatibles
Microcomputer operating systems supported	MS-DOS, PC-DOS, Macintosh	CP/M-86, Unix, MS-DOS, PC-DOS	PC-DOS, MS-DOS, CP/M-86
Microcomputer system memory requirement	128K bytes	64K bytes	128K bytes
Media	3½-, 5¼-inch diskettes	5¼-, 8-inch diskettes	5¼-, 8-inch diskettes
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	VT100, HP 2600, Televideo, IBM 3101, & other asyn terminals	None	None
Synchronous terminals emulated	IBM 3278-2, 5251-11	IBM 3274, 3271, 3275, 3276, 3780, 2780, 3741, 2968, 2770-BSC/SDLC	IBM 3274, 3271, 3275, 3276, 3780, 2780, 3741, 2968, 2770-BSC/SDLC
Host data download capability	Yes	Yes	Yes
Download functions	Capture entire host file to diskette, PC file to host	Capture screenful of data at a time, capture an entire host file, capture specific items	Capture screenful of data at a time, capture an entire host file, capture specific items
Host database update capability	No	Yes	Yes
File formatting capability	No	Yes	Yes
Applications supported	Not applicable	Information not available	Information not available
Optional file formatting software	No	ASCII-to-Lotus, Visicalc, etc. file formatting available	ASCII-to-Lotus, Visicalc, etc. file formatting available
Other download/upload functions	Information not available	ASCII/EBCDIC translation, record blocking/unblocking	ASCII/EBCDIC translation, record blocking/unblocking
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Interguard dialback security, logon ID, host security	Function of the host system	Function of the host system
Other program functions	Location security, password security	Binary file transfer, quickscreen fast screen retrieval from PC disk	Binary file transfer
SCREEN FUNCTIONS			
Terminal functions supported	Full erase functions, line/char. insert/delete, visual attributes, windows, scrolling, function keys	Full erase and edit functions, visual attributes	Full erase and edit functions, visual attributes
On-screen help	None	Menu-driven functions	Menu-driven functions
Status line	25th line	Yes	Yes
COMMUNICATIONS			
Local/remote connection to host or controller	Remote and/or local to any host	Remote connection to host or controller	Remote connection to host or controller
Interface provided	Sync modem interface, RS-232	Three serial ports included	One serial port included
Other communications		On-line diagnostics	On-line diagnostics
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	Information not available	\$1,095	\$695
Additional software support charges	Information not available	None	None
Charges for support services	Information not available	None	None
Date of first delivery	June 1983	June 1983	January 1984
Lead time on orders	30 days	2 days	2 days
Number installed to date	350	1,500	1,000
COMMENTS		Z80A based; 3 serial devices, e.g. printers and other PCs can be connected; 30-day money-back guarantee/1 year warranty; communications test center to verify operation on-line	30-day money-back guarantee/1 year warranty; Winterhalter maintains an on-line communications test center

Integrating Micros in the Mainframe Environment

VENDOR/PRODUCT	Winterhalter Inc. Datatalker/PC+	Winterhalter Inc. DataTalker/Coax	Xerox Computer Services File Transfer
PACKAGE	Plug-in conversion card plus software	Plug-in conversion card and software	Software only
Converters supported	No additional converter required	PC Coax board 3278 MOD 2	IRMA Board
SYSTEM REQUIREMENTS			
Host systems supported	Any host that supports 3780, X.25 or 3270 BSC/SDLC workstations	All hosts supporting IBM 3270 protocols	43XX, 30XX
Host operating systems supported	See above	TSO, CMS, CICS	VM, MVS, DOS/VSE
Host end programming	None required	No	Yes, host software required ¹
Microcomputers supported	IBM PC, PC XT, and compatibles	IBM PC and compatibles	IBM and compatibles
Microcomputer operating systems supported	PC-DOS, MS-DOS, CP/M-86, Concurrent CP/M-86	MS-DOS, PC-DOS	PC-DOS
Microcomputer system memory requirement	64K bytes	128K bytes	256K bytes
Media	5¼-, 8-inch diskettes	5¼-inch diskettes	5¼-inch diskettes
PROGRAM FUNCTIONS			
Asynchronous terminals emulated	None	Information not available	3270 emulation
Synchronous terminals emulated	IBM 3274, 3271, 3275, 3276, 3780, 2780, 3741, 2968, 2770-BSC/SDLC	3278 MOD 2	3278/79
Host data download capability	Yes	Yes	Yes
Download functions	Capture screenful of data at a time, capture an entire host file, capture specific items	File transfer for TSO, CMS, CICS	Capture entire host file to diskette, specific items from host file
Host database update capability	Yes	Yes	Updates Xerox Business Mgmt System (XBMS) database
File formatting capability	Yes	Yes	Yes
Applications supported	Information not available	Calctran ASCII to spreadsheet format	DIF, SYLK, dBase II, Comma separated
Optional file formatting software	ASCII-to-Lotus, Visicalc, etc. file formatting available	Calctran STD, no charge	Yes, reporting format
Other download/upload functions	ASCII/EBCDIC translation, record blocking/unblocking	Information not available	Download on-line or print jobs
Ability to upload data for processing	Yes	Yes	Yes
Ability to download files for local processing	Yes	Yes	Yes
Security features	Function of the host system, OES encryption hardware option	Information not available	Mainframe security
Other program functions	Binary file transfer, quickscreen-fast screen retrieval from PC disk	Information not available	Information not available
SCREEN FUNCTIONS			
Terminal functions supported	Full erase and edit functions, visual attributes	Information not available	Full erase functions, line/char. insert/delete, scrolling, function keys
On-screen help	Menu-driven functions	Information not available	Help screens
Status line	Yes	Information not available	Session progress
COMMUNICATIONS			
Local/remote connection to host or controller	Remote connection to host or controller	Information not available	Local and remote to 327X terminal controller
Interface provided	One serial port included	Information not available	Coaxial
Other communications	On-line diagnostics		
PRICING AND AVAILABILITY			
One-time license or purchase price, basic package	\$1,095	\$1,095	\$1,500
Additional software support charges	None	None	Information Center Products Extractor, Filer) on the mainframe: \$25,000
Charges for support services	None	None	Incl. in total software maint. fee
Date of first delivery	January 1984	May 1984	March 1985
Lead time on orders	2 days	2 days	Immediately
Number installed to date	2,000	500	10 (beta test sites)
COMMENTS	Z80A based; 30-day money-back guarantee/1 year warranty; Winterhalter maintains an on-line communications test center		¹ EXEC/VS, Information Center Products Extractor, Filer