System/36

Flexible communications

IBM

Making productive connections

In today's dynamic business environment, the communications function of a data processing system involves more than getting information from where it is created or collected to where it is needed and used.

In addition to linking devices and applications through physical and logical connections, communications must be extended to a wide variety of end users with different application needs. In short, communications must be automatic. For every user and every job, the integrity, routing and availability of the data transmitted over the system is critical.

That kind of communications demands a computer system of exceptional versatility. One that can be configured along a variety of organizational and functional lines, with the ability to connect different terminals within a common system architecture. And one that offers reliable, adaptable hardware...easy-to-use communications programs...and extensive interactive support for users.

That's the kind of communications capability you can put to work in your company with the IBM System/36 PC (5364), 5362 or 5360 System Units of IBM's System/36. An office or departmental system that can help keep information moving smoothly by maintaining connectivity among the devices and users in your network.

A flexible system

The communications flexibility of System/36 is delivered through a combination of desktop display stations, high-quality printers and a compact, powerful central processor. These products are complemented by communications-oriented software programs that support multiple work stations and even multiple systems.

With System/36, daily operating information can be brought to remote locations such as plant sites, branches, warehouses and sales divisions. And you can tailor this distributed processing system to fit the needs of headquarters as well.

In addition, the IBM Personal Computer combined with the System/36 allows executives to access and manage information from either a local or remote location.

What's more, the flexibility of System/36 allows it to be effective as a distributed processor in a large host network, or as a host to a network of smaller systems. That means—regardless of your business structure—information can be where you need it, when it's needed.

With proper communications equipment, there are, for example, opportunities for sending printed information to other IBM products. These opportunities include sending data, documents and document distribution commands from System/36 to an IBM Displaywriter, and directing reports from System/36 to the IBM 6670 Information Distributor for printing in a variety of type styles.

In addition, the System/36 can connect via communication protocols (SNA LU 6.2) with a variety of systems and products utilizing Advanced Program-to-Program Communications (APPC). The IBM Personal Services/36 (PS/36) licensed program supports document distribution with the Distributed Office Support System (DISOSS), System/36 and Displaywriter. Remote document distribution is via System Network Architecture Distribution Services (SNADS).

Because System/36 can communicate with other computers in either a batch or an interactive mode, you can use communications lines to interconnect multiple units and handle valuable functions such as:
- Interactive applications processing
- Remote batch transfer of summary data
- Remote entry of jobs to a host for processing
- Interactive entry, inquiry and updating of master files located at other sites.

Programs for communications

The key to the performance of System/36, and its ability to support the needs of a variety of end users, is IBM programming support. These programs:

- Allow multiprogramming with concurrent communications to other systems
- Provide Binary Synchronous Communications (BSC), Synchronous Data Link Control (SDLC) and Host Data Link Control (HDLC— X.25—except the IBM System/36 PC) communications capabilities for the transmission of data
- Support remote display stations and printers on communications lines
- Provide high-level interactive and batch communications support with other systems such as Displaywriter, DISOSS, other System/36s or System/38 for effective distributed data processing

- Offer a range of languages with communications support
- Provide utilities for designing work station display formats and creating programs to be used for interactive data entry and edit applications
- Provide program features for 3270 emulation and remote job entry
- Support the major IBM host communications subsystems
- Allow System/36 to adapt easily to changes in communications networks—while helping to preserve your investments in applications development.

Versatile data transmission

Communications adapters give System/36 the ability to transmit and receive information over phone lines. Information may be exchanged with other IBM systems and work stations at remote locations, while normal processing continues on the System/36.

From one to eight communications lines permit the system to function over switched or non-switched communications lines, point-to-point or multipoint.

The Multiple Line Communications Adapter (MLCA) on the 5362 and the Eight Line Communications Adapter (ELCA) on the 5360 can use BSC, SDLC or HDLC protocols, with the line protocol being set when the program is loaded. Autocall and autoanswer capabilities permit connections to be established under program control for either sending or receiving information. One communications line is available for the IBM System/36 PC (5364) and provides BSC and SDLC support.
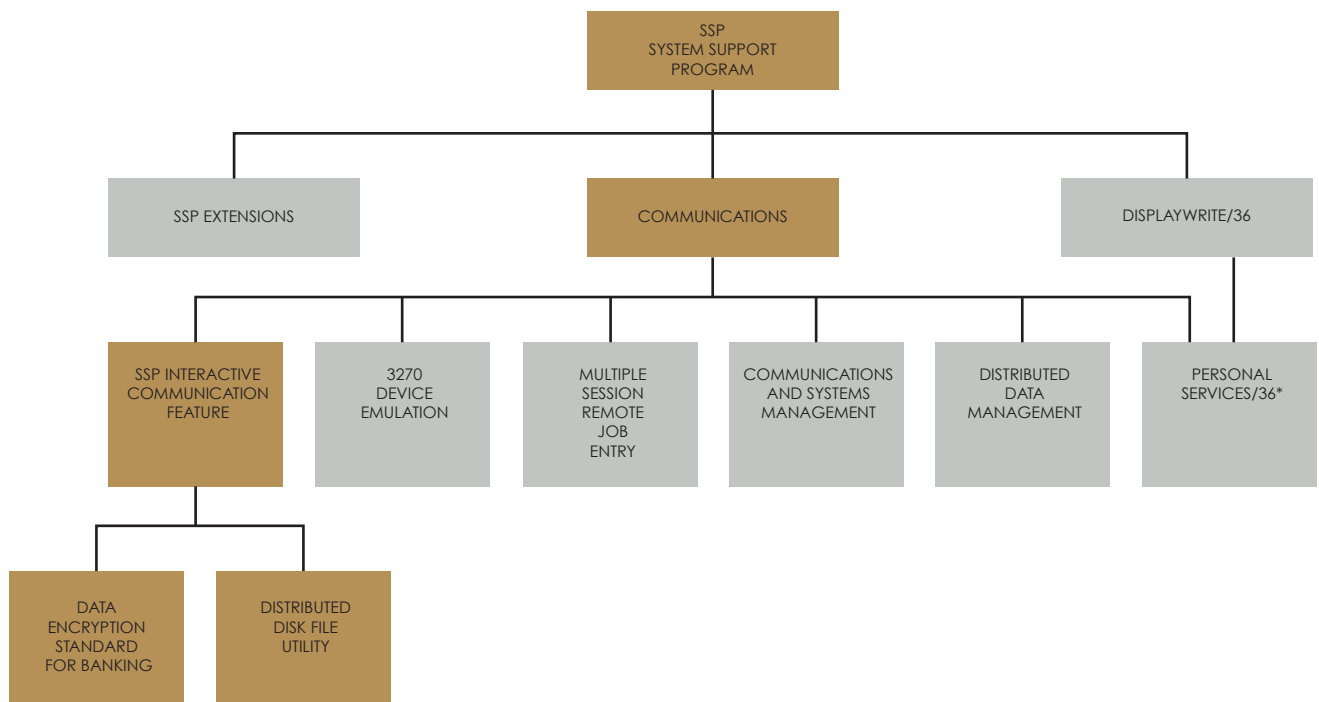
This chart outlines features available as part of the System Support Program packaging for System/36. Boxes linked with vertical lines indicate prerequisites for ordering a particular feature. Moving from bottom to top, and using the highlighted boxes as an example, you can see that both the Data Encryption Standard for Banking and the Distributed Disk File Facility require the SSP-Interactive Communication Feature. This feature, in turn, requires the Communications Feature, which cannot be installed without the System Support Program.

Interactive work stations—bringing people together

You can use System/36 for a range of interactive work station applications that involve entering data at the source: the local or remote locations in your organization where data is collected and used. For configuration flexibility, a terminal control unit is available which uses high-speed communications lines to provide central control of up to eight remote work stations per control unit.

In addition, the 5360 System Unit of System/36 can support a total of 100 work stations. This includes the local attachment of up to 36 interactive work stations and the remote attachment of up to 64 interactive work stations. The 5362 System Unit supports up to 86 work stations: 22 local and 64 remote. What's more, it provides all this distributed capability in a processor that's no larger than a two-drawer filing cabinet. The IBM System/36 PC (5364) supports four local work stations and remote work stations. It offers full-function processing capability in a unit that is small enough to fit on or beside a desk top.

With information entered at the source, many errors can be detected by the system and highlighted on the display as they happen. Display stations and printers can be located almost anywhere (up to 5,000 feet away from the System) that decision-making data is needed—for information on demand.

A variety of display stations is available for use with System/36—including the IBM 5292 Color Display The display stations have large screens that are easy to read and typewriter-like keyboards for fast, efficient data entry

You have a choice of printers as well. Tabletop and floor-standing printers are available with print speeds ranging from 40 characters per second up to 650 lines per minute. Printers that can be used to prepare charts and other graphics are also available.

Remote 5250 Emulation Program

The Remote 5250 Emulation Program and the appropriate attachments to the IBM Personal Computer allow the IBM Personal Computer to be attached via communications lines to the System/36. This means that the IBM PC in IBM 5250 Emulation mode has access to most functions of a display station on the System/36. The IBM PC can operate as a stand-alone personal computer or as a single 5250 display station in a remote environment. Users can access and transfer data files, source members and procedure members. The IBM PC printer can also be used by the System/36 as a work station printer.

When IBM PCs are remotely attached to the System/36 without the 5294 Remote Communications Control Unit, the DisplayWrite/36 text assist functions are not available.

System Support Program

Support for interactive work stations is provided by the powerful System Support Program. This versatile operating system allows menu selection of jobs and the sharing of application programs and data files by multiple work stations. It also offers spooling to all printers for improved performance. In addition, the System Support Program provides password security to help you determine who may have access to your system's programs and files.

Help for programmers

With the interactive functions of System/36, the productivity of your personnel can be improved because applications can be developed and implemented more rapidly. For programmers, there is a choice of the most popular languages—COBOL, FORTRAN IV, BASIC and RPG II. Work station support is available for each language. Display formats can be created interactively through use of the Screen Design Aid (SDA) utility. Entering, debugging and maintaining programs can also be accomplished at the work stations through use of the Source Entry Utility (SEU).

Data management—network participation

System/36 participates in SNA networks through a wide range of features including:

SNA/Distribution Services (SNADS) which provides remote document distribution with users of DISOSS/370) and Displaywriter Electronic Document Distribution (EDD)

Distributed Data Management (DDM) which allows two or more System/36s to share files without changing any user code.

Advanced Program-to-Program Communications (APPC) which allows user programs to communicate program-to-program to other systems

Personal Computer Support/36 which allows you to transfer data between the System/36 and IBM Personal Computers

Remote Job Entry (RJE) functions to submit jobs to a host system for processing and retrieving output from the host for on-site printing or storage.

Alert Support to facilitate network problem determination in a centrally managed SNA network using Network Communications Control Facility (NCCF) and Network Problem Determination Application (NPDA)

Distributed Systems Node Executive which allows you to send or retrieve System/36 data in a System/370 network with Distributed Systems Executive (DSX)

BSC support

· RPG II permits System/36 to communicate with a broad range of systems and terminals, using Binary Synchronous Communications in a batch environment.
· BSC Assembler macro instructions are available for user communications.

· The Multiple Session Remote Job Entry (MSRJE) feature allows users to submit jobs through System/36 to a host system where processing is performed under control of RES (OS/VS1) and JES 2 or JES 3 (OS/VS2). Multiple host locations can be active concurrently.
· The System/36 MSRJE program will also operate with VM/370 Remote Spooling Communications Subsystem (RSCS) as a HASP work station. MSRJE printers can have up to 198 characters per line for printer data sets.
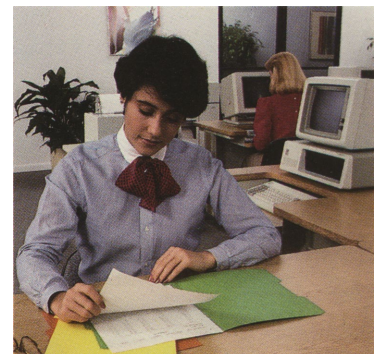
SNA/SDLC support

The MSRJE feature also allows System/36 to utilize Synchronous Data Link Control to submit, execute and obtain job results from a System/370-type host. All BSC features are also supported under SNA. The host subsystems for SNA are RES (OS/VS1), JES 2 or JES 3 (OS/VS2) and POWER/VSE (DOS/VSE).

Interactive communications for distributed data processing

Giving departments the capability to handle data entry, inquiry and local processing is only the first step toward an effective distributed network. The next step is to maintain centralized management over that processing power and over the interchange of information among distributed sites.

System/36 offers you a number of flexible solutions for these distributed processing needs. For example, one of the systems, the 5362 System Unit, is ideal for establishing a full-function system at a remote office or dealership where additional computing power is most effective. Order entry and payroll, for instance, can be processed at this remote site while inventory control and material purchases are being processed more economically at the central site. It can also make use of communications programs designed for System/36. This means that whatever the degree of decentralization, multiple sites can access and update a centralized system on almost any predetermined level without special communications programming.

Interactive communications support for System/36 is provided by the Interactive Communications Feature (SSP-ICF) which allows you to distribute System/36s to remote locations and provide interactive, intelligent communications with other IBM systems. The SSP-ICF adds even greater high-level support to the System Support Program and provides for:

- User programs written in high-level languages (BASIC, COBOL and RPG) to communicate program-to-program with other systems
- Multiple concurrent users
- Remote system initiation of programs in System/36
- Multiple concurrent communications sessions

- BSC, SDLC and HDLC communications line support
- Host communications subsystem support—including IMS/VS, CICS/VS, CCP and other System/36s
- SNA communications to the 4701 Finance Controller
- High-level program independence from line protocol and host subsystems.

System/36 can also be added to an existing 3270 network without modifying existing 3270 support programs. The 3270 Device Emulation feature allows a System/36 to function like a 3270 Control Unit and share a BSC or SDLC communications link with existing 3270 display stations.

With System/36 distributed data processing, the needs of your staff can be met with the resources of a local computer— whenever the data is needed. At the same time, its file capacity and communications features allow System/36 to meet the corporate information needs of general management as well.

Power today and power to grow

You can use System/36 to help meet your needs for accurate, up-to-date information—and help you tailor a distributed system to fit your business and organizational needs.

You can start simply—with just the display and printer you need to handle current volumes at a particular location. Then, you can phase in additional departments in different locations with more displays and printers. And as volumes grow at each site, you may connect multiple systems that share data and programs.

Expanding the processing and storage capacity of System/36 is easy, too. The 5360 System Unit is available in memory sizes ranging from 128,000 bytes to 1,792,000 bytes. For online storage, there are disk storage capacities from 30 million to 800 million bytes. The 5362 System Unit is available in memory sizes ranging from 128,000 bytes to 1,024,000 bytes. Disk storage capacities range from 30 million to 120 million bytes. For offline storage, reusable IBM Diskettes accommodate up to 1.2 million bytes of data. A magazine diskette drive is also available with the ability to read or write up to 20 diskettes without operator intervention. And, an optional magnetic tape drive provides inexpensive storage of information that's not needed on a regular basis. The IBM System/36 PC has 256,000 or 512,000 bytes of memory. Disk storage ranges from 40 to 80 million bytes.

The potential is clear

With System/36, you have a system designed for ease-of-use, reliability and exceptional communications versatility. As a result, you and your organization can now have new opportunities to:

- Develop an integrated network linking users of many systems through IBM's office-oriented architectures
- Utilize the IBM Personal Computer as an interactive work station with System/36, either locally or from a remote location

- Provide up-to-the-minute operating information and processing power to many locations
- Reduce errors by collecting and processing data where the people who understand the information and how it's used are located
- Improve productivity—by giving local and remote locations rapid and wide-ranging access to needed information

- Speed and simplify the installation of applications for user departments
- Improve the quality and timeliness of information you collect from remote locations
- Reduce the time it takes to process information—and get it into the hands of the people who need it
- Develop flexible interactive work station, batch transfer and applications processing functions to meet your needs for distributed processing.

The end result: a system that can be put to work solving problems today, as well as one that can return solid benefits in the future.

See your sales representative for more information about System/36. See how easy it can be to put this flexible and powerful business solution to work in your organization.

Some photographs in this brochure are of engineering and design models; some display screens are simulated computer displays, intended to serve only as examples. Any names of individuals, companies, brands, and non-IBM products are fictitious, and similarities to actual names are coincidental.

References in this publication to IBM products or services do not imply that IBM intends to make them available outside the United States.

Equipment and programming are available under separate agreements.

G580-0452-4