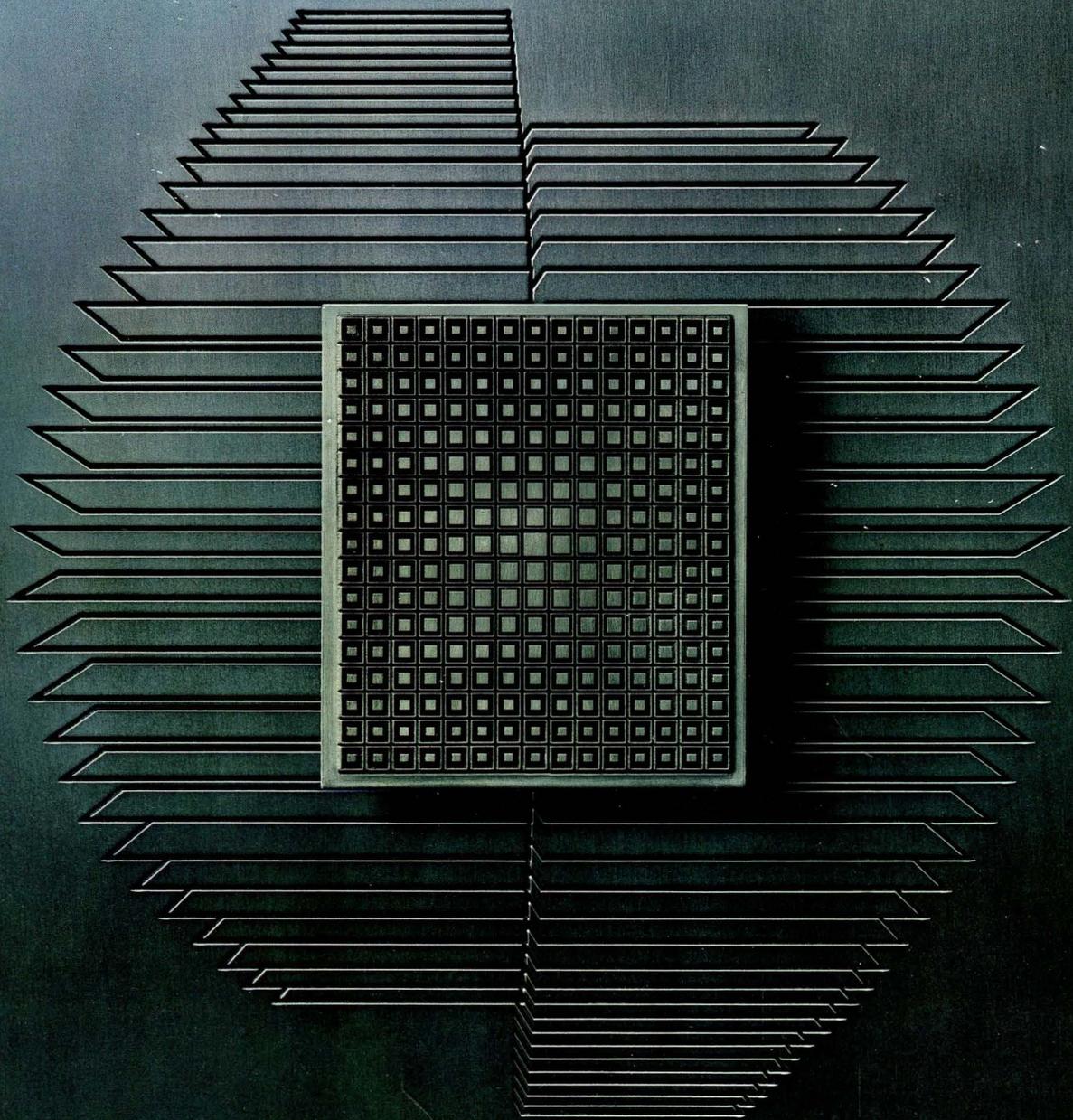


SPERRY UNIVAC
1100/90
The Total System



Introduction



Very few systems can do it all when it comes to data processing and data communications.

But for computer systems to satisfy the needs of a modern organization, they must be capable of doing it all . . . which means they must be total systems.

Such total systems are here. Our new SPERRY UNIVAC 1100/90 Systems.

The new SPERRY UNIVAC 1100/90 Systems bring the Series 1100 to its highest stage of development.

The new equipment is built with the latest technological advances to provide the ultimate in performance, availability, reliability, maintainability and economical operation. New software, designed and produced with state-of-the-art techniques, makes the 1100/90 systems industry leaders in functionality . . . for tremendous benefits in productivity.

The 1100/90 is the latest advance in the fully compatible Series 1100 Family of systems, which span several decades in time, thousands of man years in development and millions of hours of field operation and laboratory testing.

SPERRY UNIVAC Series 1100 computers are—and have been—successfully in use around the world by education, communications, energy, transportation, financial, manufacturing and governmental organizations. The 1100/90 will carry on this tradition of excellence, serving some of the world's largest customers with the world's most advanced concepts and sophisticated techniques.

The 1100/90 systems are at home . . . and most useful . . . in large-scale operations.

The 1100/90 systems are extremely effective in handling large masses of batch, interactive or transactions processing—either separately or concurrently in a centralized or distributed operation.

The 1100/90 systems have the most reliable hardware and direct-access devices available for handling large data bases. They give you instant inquiry-response capabilities against extensive on-line files. You can benefit immediately from these state-of-the-art data base management systems for handling central on-line files.

The 1100/90 systems feature outstanding capabilities for the consolidation of multiple computer installations into one large-scale central system. They have truly unexcelled communications capabilities.

And the 1100/90 systems, like the entire Series 1100, is efficient and cost-effective—unmatched by any competitive systems.

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The Modular System

**Inside the
1100/90**

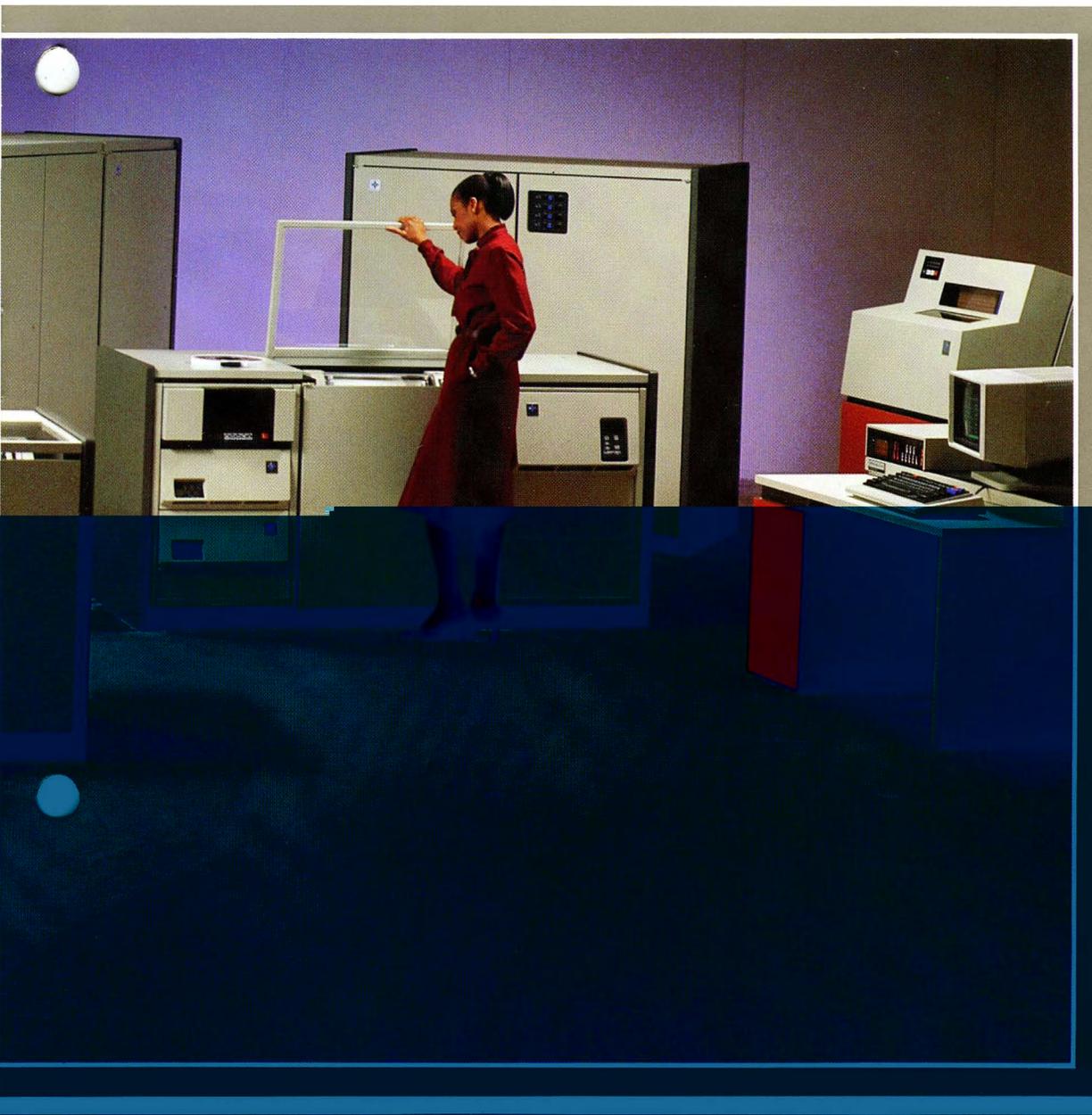


All the components that form the total system are in themselves independent systems.

To lessen overhead on your central processor unit, all input/output functions are entirely removed, self-standing with their own logic. Word-oriented channels provide a high-performance interface for high-speed communications and disk storage subsystems. Byte channels also provide efficient communications with disk and tape storage subsystems and paper peripherals, such as card readers and printers.

This module independence—which by no means stops with the input/output unit—makes the 1100/90 truly a “system of systems” that can be partitioned for separate operations or for maintenance without significant disruption of the total system. That means flexibility, maintainability and reliability.

The 1100/90 features advanced semiconductor, integrated-circuit memories and buffers with larger capacities and better implementation techniques than competitive systems.



The hardware has of course retained compatibility with previous Series 1100 systems, and thus it remains compatible with previous systems... which means you can run programs developed for those systems on your 1100/90 *without change*.

The 1100 Operating System is also compatible throughout the Series 1100, thus assuring you of either upward or downward compatibility. Whether you want to pull back, or move ahead, the 1100/90 can go with you.

If you want to move ahead, the 1100/90 can stay with you. Already large-scale, the 1100/90 is just a start.

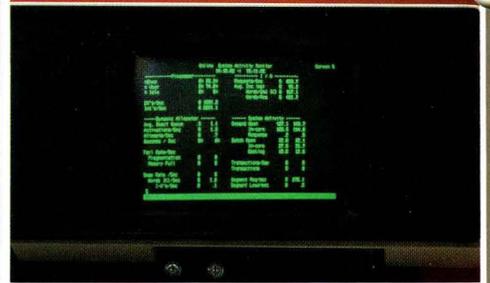
The 1100/91 contains one Instruction Processor, one Input/Output Processor, an Instruction Processor Cooling Unit, a System Support Processor, a Main Storage Unit and an Operator's Display Console.

Main storage, which starts at two million words (8 million bytes), can be expanded to 16 million words (64 million bytes). Instruction Processors can be added, expanding the 1100/91 to an 1100/92 (two processors), an 1100/93 (three processors) and an 1100/94 (four processors).

The Input/Output Processor with the 1100/91 has four block-multiplexor channels. This basic processor can be expanded to include up to 16 multiplexor channels. In addition, there is an enlarged Input/Output Processor that allows either eight more multiplexor channels or 16 more word channels, giving total I/O channel capability of 24 multiplexor channels or four multiplexor channels and 48 word channels. As Instruction Processors are added, more Input/Output Processors can be used.



SPERRY UNIVAC 1100/90



For true redundancy in a multi-processing environment, you can add multiple Instruction Processor Cooling Units, System Support Processors and Operator's Consoles.

The choice of peripheral subsystems for data storage, paper generation and communications is exceptionally rich.

Perhaps the most significant advance for increased efficiency in the 1100/90 system memory organization are two high-speed buffers in front of the relatively lower speed main storage memory. These buffers, one for

instructions and the other for data, greatly enhance the performance of main storage. Both have a capacity of 8K words (32K bytes).

The most significant reliability feature of the 1100/90 systems, as well as the entire Series 1100, is the free-standing automatic maintenance processor. It diagnoses and isolates faults in the components of the central processing complex by comparing internal logic status against known correct data. Your system keeps running, keeps working, full time.

The Flexible System



The 1100/90 system can meet your data processing needs today and tomorrow. Its modular design means that it can be precisely tailored to meet your operational and workload needs when installed—and quickly retailed to fit changing needs. That's flexibility.

Flexible, too, is the 1100/90's ability to handle any mix of processing modes—or an enormous amount of work in a single processing mode.

Batch, interactive or transaction operations are accommodated with equal ease by the 1100/90.

This flexibility shows itself in other areas:

- The 1100/90 has the high performance and functionality needed for a centralized data processing operation. And it can be combined with lower performance 1100/80, 1100/60 and SPERRY UNIVAC intelligent UTS terminal systems in a distributed data processing environment.
- The 1100/90 can adapt to new applications. In fact, software features in the system make it

simpler than ever to use the computer in new ways. Beyond a wide variety of already proven applications packages designed for Series 1100 systems, there is the cooperation that exists among the many users of Series 1100 systems who freely exchange application information. And even beyond that, there are facilities that make program and applications development easier, simpler and far less costly than ever before, significantly raising the productivity of your programmers. They can do far more, in far less time, with far less effort.



- The modular design of the 1100/90 means easy step-by-step growth in the functional areas you require, whether main storage, peripheral storage or communications capability.
- With the 1100/90, you have device independence. With this feature, you can allocate files across multiple mass-storage devices of different types and always have them available. This provides a high degree of control over the allocation of your files . . . without the burden of heavy bookkeeping. And it enables

many users to share file space, taking advantage of the system's flexibility and capacity.

Functionally separate processing—a concept of functional independence implemented throughout the Series 1100—has reached a new high in the 1100/90. The separation of the central processor, input/output unit and memory provides highly desirable front-end capabilities for large communications networks. And microprogrammable control units for 1100/90 subsystems provide highly extended “intelligence” that further

relieves the central processor of burdensome—and expensive—control functions. In this manner, flexibility leads to economy, to a greater and faster return on your data processing investment.

The flexibility that highlights the 1100/90 system is largely attributable to the advantages of the 1100 Operating System. Acknowledged to be the most capable and highly developed Executive system of its type, it is used consistently throughout the Series 1100 family. It can be



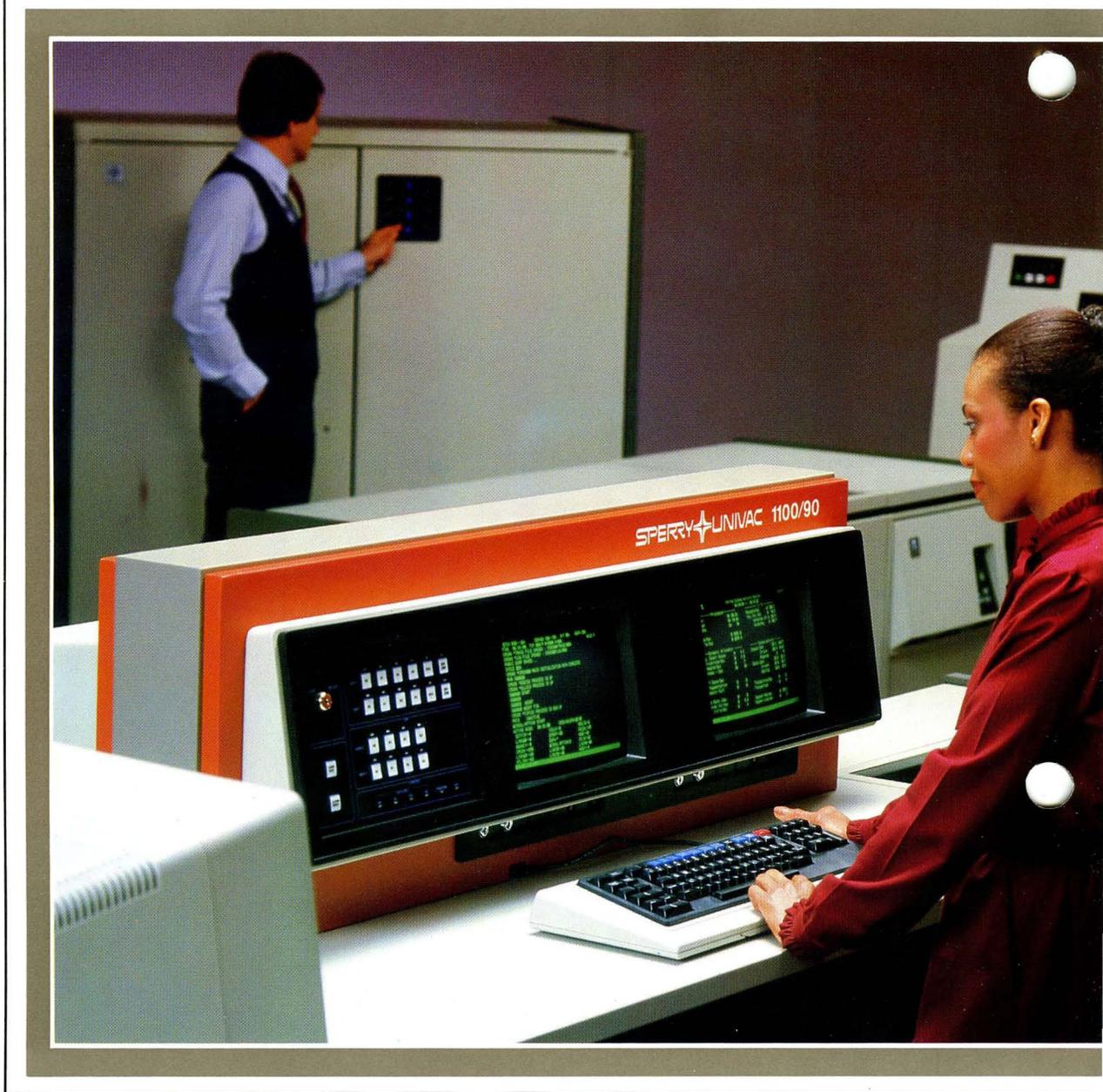
tailored to any desirable configuration without penalty in the form of unnecessary code. It is the totally capable, totally flexible, totally adaptable center of the evolutionary concept carried forward in the 1100/90.

The multitasking activity concept used in the 1100/90 aids the operating system in maintaining its great flexibility advantages. In multitasking, the environment within the central processor is maintained in such a manner that every "activity" has in effect full processor power as long as

it requires—even though the operating system may be simultaneously giving many other activities the same full attention.

This "activity" concept is the key to the multiprocessing capabilities of the 1100/90. It gives all programs within the system the apparent full attention of the total system, whether those programs are simple or complex—and you need never concern yourself about where or how your activity will execute: the system worries for you, and takes the proper steps.

The Secure System



Investment security, operational security, data security: all three aspects of security are important to you, and all three have received special attention in the 1100/90.

The investment you make for hardware and software in a large-scale data processing system is bound to be a heavy one. Therefore, you want security before you buy—and after the sale.

You want to be certain that your considerable investment in hardware, software and complex application programs is secure against obsolescence and the need to re-invest. You want a system that will

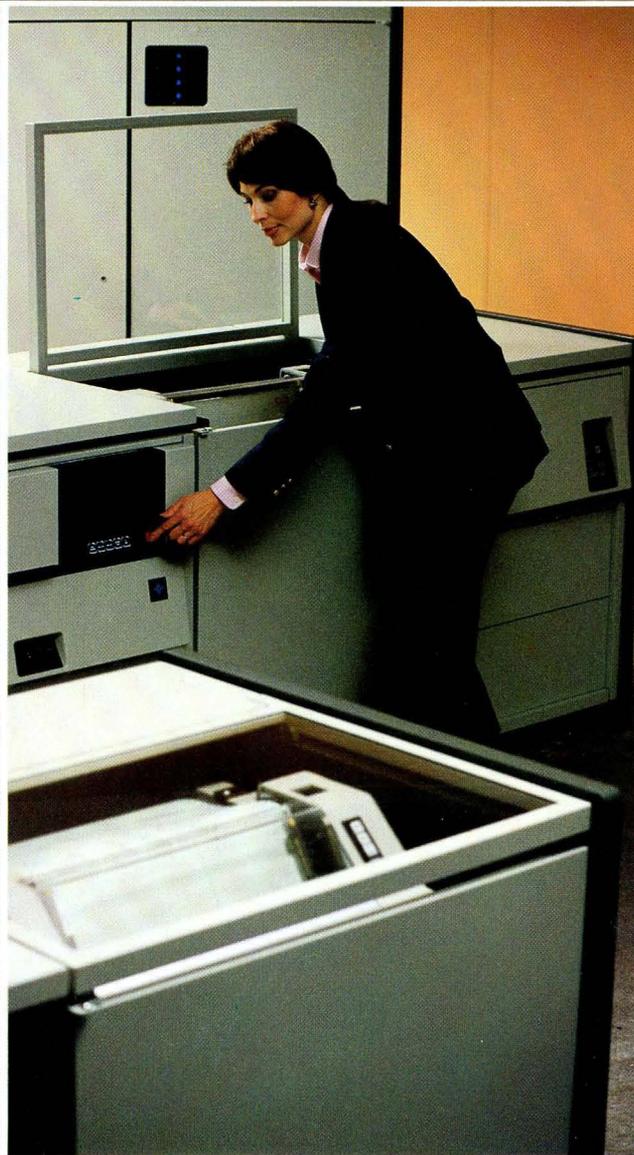
last, and one that provides you with an assured path for expansion.

The SPERRY UNIVAC 1100/90 gives you everything you want in investment protection. Compatible with its predecessors in the Series 1100 family, it is in itself capable of growth to meet the needs of any conceivable expansion. And as the Series 1100 itself evolves higher, the compatibility of the past and present will extend into the future.

That means that neither your hardware, software nor programs need ever become obsolete. The 1100 Operating System provides complete upward and downward compatibility within the

Series 1100 family, and most peripherals are usable throughout the Series 1100. You don't lose your investment through a need to upgrade or downgrade.

Security also means data integrity and data privacy. The 1100/90 possesses extensive control functions within its 1100 Operating System and within the hardware to protect you from accidental or deliberate data destruction. All user programs run in a "user" mode with extensive storage protection provided. As many system components as possible—including processors—also run in "user" mode, with the 1100 Operating System controlling any shifts between modes.



The operating system also controls all transfers between memory and on-line storage, with a limits check on data transfers before initiation. In addition to address limits checks, a lock and key mechanism is used for storage protection. If the user's key matches the lock that is held by one of the system's registers, the user is granted appropriate access.

Security from unauthorized access is provided in a variety of ways. In a communications environment, access to the system via a demand terminal is controlled by a unique identification/password combination as part of terminal log-on procedures. File access based on security

classification is controlled by restricting files to those knowing the proper keys.

System privacy and integrity are also insured by an extensive logging mechanism which records all significant events during system operation—including attempted security violations.

Operational security—the certain knowledge that the system you invest in for performance will deliver what it promises, full time—is of particular concern to us at Sperry Univac because we know it is of extreme importance to you. We have gained a reputation for availability, reliability and

maintainability in our equipment, in our service, and in our determination to help our customers achieve success. It is a reputation based on fact: excellent relations with many customers in many lines of work and in many lands. We, and our systems, are always available to do the work that must be done.

The Available System



The useful computer system is the available computer system. Never has this been more true than today, in the age of large on-line data bases, extensive communications and the increasing dependence of all operations for the even flow of information.

A computer has to work. It has to be available, reliable, maintainable. It must put vast resources at your command and help you use those resources to the maximum.

We have used all our resources to make the 1100/90 the best available, reliable, maintainable and usable data processing system in its class today.

Availability is assured in numerous ways. Many years of testing and development have resulted in mature components to begin with. Advanced technology adds new dimensions to that proven reliability. Built-in error correction techniques and fault tolerances assure you of continuity without delay. Special fault detection and fault isolation circuits allow the

system to quickly determine the precise location of a fault, should it occur. An emphasis on modularity in system components prevents any possibility of large-scale interruption. The provision of interchangeable data paths to the central processor assures you that work goes on. Dynamic reconfiguration and advanced auto-recovery capabilities promote stable operations.

There is "usability" within that availability and reliability, as well. Simplicity promotes the ease of operator interface with the system, and many features make the 1100/90 less difficult and less costly to program than competing systems. The re-entrancy and reuseability feature of the 1100/90 language processors help you to use available resources more efficiently and thereby improve performance. Only one copy of a re-entrant compiler, for example, needs to be active in memory at any one time for two or more programs to use the code simultaneously—or serially, in the case of reuseability. Thus you can achieve a significant reduction in the

storage space you need for compilers and keep more programs active at the same time.

"Tuneability" is another 1100/90 feature which lets you control batch versus demand usage according to workload. And dynamic storage allocation at high resolution gives you optimal use of main storage resources.

Maintainability is a significant 1100/90 advantage. Because of its module independence, the system can be readily partitioned into separate, smaller systems for maintenance without disruption of the total system.

Beyond this, the 1100/90 features a separate, free-standing, automatic maintenance processor which is in itself a small computer. It diagnoses and isolates faults in the central processor and input/output units by comparing internal logic status against known correct data. And its independence from the central processor means lower overhead for fault-checking—and thus more available system resources for all your other processing needs.

The Evolutionary System



We have already spoken about the benefits of an evolutionary system in terms of reliability and flexibility, but the ideas are so important they bear repeating and expansion.

As an executive responsible for the soundness of your organization's investment in capital equipment, you want to be certain that the computer you choose is tested, proven, capable and dependable. At the same time, you want to be certain that your system will benefit from the continuing technical advances that raise the state of the computer art even higher.

Though these seem to be conflicting requirements, they truly describe the realities you will find in the 1100/90 system and the entire SPERRY UNIVAC Series 1100. It is a series that has remained stable and compatible—

where it counts—since 1964. At the same time, it is a series that has continually improved and advanced as the state-of-the-art has advanced. Customers who installed our 1108 systems in 1966 are still using them successfully, and taking advantage of scores of improvements that have been made in the intervening years. There is no better proof of the benefits of our Series 1100 evolutionary concept.

We are committed to a policy of progress, investing our own research and development funds to bring our customers the benefits of technological advances as soon as they are tested and proven. You will find that you and your 1100/90 will also receive the benefits in the years to come.

In the new SPERRY UNIVAC 1100/90, we have carried forward our determination to combine the stability of the past with the sophistication of the present and the potential of the future. Like your organization, and our Series 1100 computers, we at Sperry Univac are also on an upward evolutionary course, building on the success of the past to create the success of the present to take advantage of the opportunities of the future.

With the 1100/90 systems, we offer you the benefits of capability, flexibility, availability, reliability, maintainability and evolution. We believe that your success is the only way we can insure our success. And we offer our determined expertise, service and price-consciousness to back up that belief.

The Total System for Your Complete Success

Summary



As your organization has evolved to become what it is today, its data processing needs have grown and diversified. As you continue to evolve, so will your requirements.

The SPERRY UNIVAC 1100/90 system can be there to evolve with you, to help you meet your needs and make the most of your opportunities. It is a *complete* system—as comprehensive as a data processing and data communications system can be. It is equally efficient in batch, interactive, communications and information management processing—or a combination of them all.

The hardware, the software, the peripherals and subsystems combine with extremely high throughput and an unexcelled price-performance ratio to give you the most cost-effective and capable answer possible to your large and growing requirements.

Investment protection; operational security; data protection; growth path security; effective modularity; availability; maintenance security; software continuity; power; speed; capacity; versatility—The 1100/90 has it all and does it all.

Evolution—not revolution—has been our approach to developing and extending our Series 1100 systems: controlled evolution to bring our customers and potential customers the benefits of technological advances and growth without disruption.

We invite you to consider the SPERRY UNIVAC 1100/90 as a complete data processing and data communications system designed to help you achieve complete success.

SPEERY  UNIVAC

The computer people who listen.