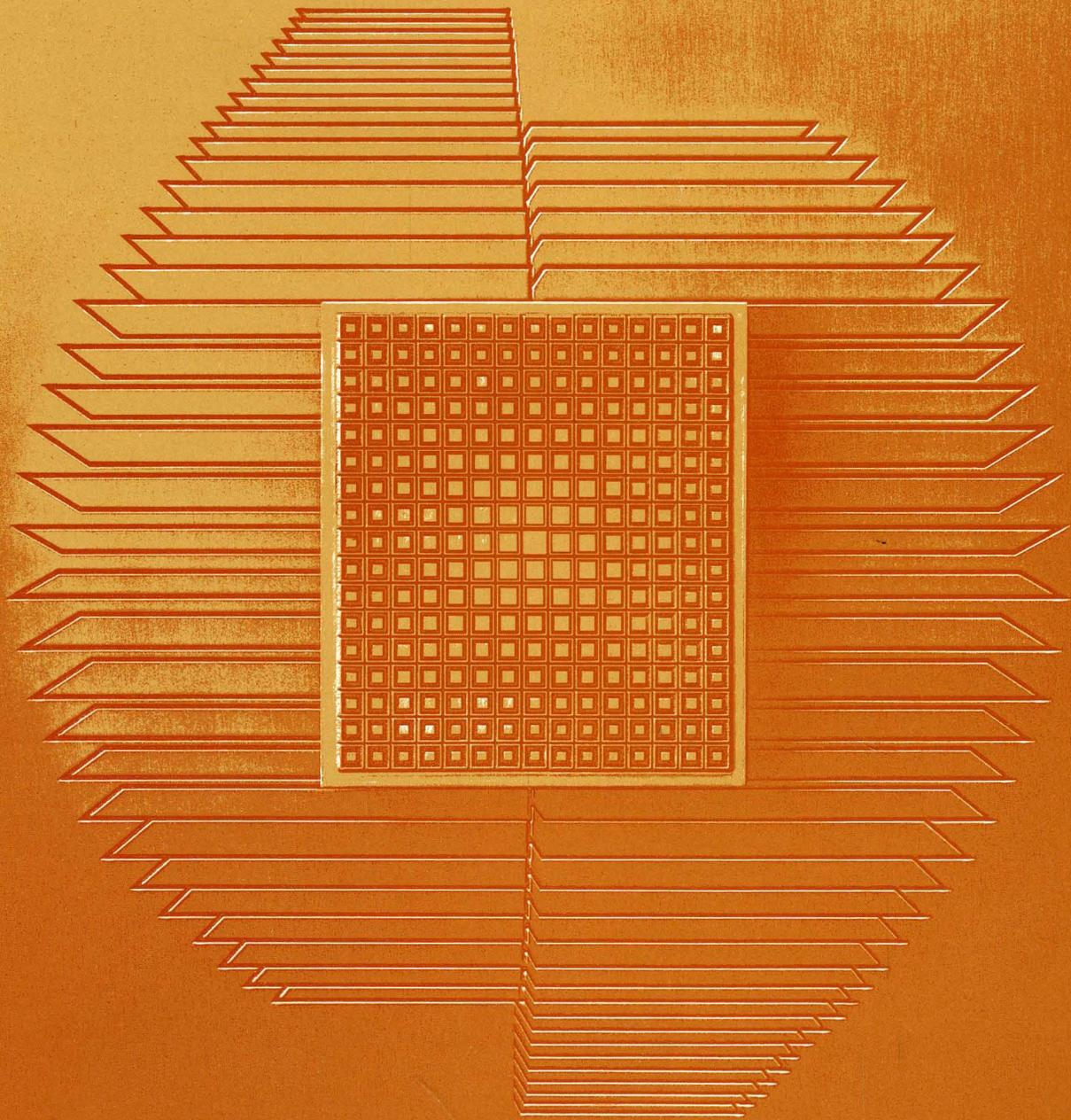SPERRY
Series 1100
Multiprocessors
The Available Computer Systems

✧SPERRY

Series 1100 Multiprocessors—Always Available

It's not unusual these days for a company to be dependent on its computer system. You've probably experienced that as a manager *and* as a customer.

In fact, some companies are so dependent on the computer that they install *two* systems, so that one will always be available.

A Series 1100 Multiprocessor is effectively two computers—or more—in one. So you always have a back-up computer built into your main computer.

And you have in one system the reliability and availability of separate systems—without unnecessary duplication of resources.

Actually, a Series 1100 Multiprocessor has only one large storage area and one operating system—but the multiprocessor can be effectively divided into more than one separate system, and each of these can do separate jobs using separate features.

Thus, if one part of your computer system needs maintenance, another part of your system carries on.

This means that your Series 1100 Multiprocessor is available to give your customers immediate answers and your managers immediate reports. It means that your computer, and your profits, stay up.

Sperry is the industry leader in the development of multiprocessors. No other manufacturer can match our experience. And Series 1100 Multiprocessors have been so right for so many applications that they constitute one-third of all the Series 1100 systems currently installed.

We'd like to tell you why a Series 1100 Multiprocessor can be right for you, as well.

Add To Your Productivity

When you eliminate the need for two computers by operating one Series 1100 Multiprocessor, you automatically improve your productivity.

First, A single component failure does not halt your production. Thus, you get more work done. No matter what happens in a single processor of your Series 1100 Multiprocessor, another processor is available to do your jobs. Components can be removed or serviced without the need to halt production.

Second, if you have two separate computers, you have two separate operating systems using up valuable and expensive main storage space—and that means less room for jobs. With a Series 1100 Multiprocessor there's only one operating system, so there's more space available for the work you want to do. And a feature we call "central resource management" keeps all your peripherals busy and makes sure that your on-line jobs are well serviced during peak periods.

Third, there are the benefits of centralized file management. With separate computers, you must contend with separate file catalogs. With a Series 1100 Multiprocessor you have just one file catalog, so that your system always knows where your files reside.

Fourth, with a multiprocessor instead of separate computers, your data processing people will not be bogged down in transferring operations from a main computer to a back-up. Your operations always continue normally.

And last, you need fewer people to run a Series 1100 Multiprocessor than you need for separate computers.

Flexibility

You get highest productivity from your Series 1100 Multiprocessor when it operates as a normal multiprocessor, sharing files, main storage and the common operating system. But some times you want flexibility, too—such as when absolute security is a must. Do you then have to go to another computer, or make all your other jobs wait?

The answer is NO with a SPERRY Series 1100 Multiprocessor. The 1100 is so flexible that it can actually be partitioned into two or more completely separate computers, each with its own operating system and discrete storage. And this same feature permits business-as-usual when units or peripherals have to be removed for maintenance.

Growth Potential/Investment Protection

There's no denying that a new computer system is a major expenditure. So you want to be certain that you won't need to change again in a year or two because your needs have grown. You want investment protection, and you want to know that you won't have to face the difficulties of another conversion.

Series 1100 Multiprocessors are designed to grow with you and to protect your investment indefinitely. If you begin with the SPERRY 1100/72 E1 Multiprocessor, for example, you can easily add features and processors that can increase its power by up to three-fold.

And further growth without expensive program conversion is offered by the Series 1100/80 and 1100/90 Multiprocessors.

Let's look at your options in Series 1100 Multiprocessors.

The 1100/70 Multiprocessors

The 1100/70 systems are your entry level into multiprocessing. Multiple microprocessors and large-scale integration make the 1100/70's among the lowest priced multiprocessors in the general purpose market.

With an entry level 1100/72 you get two central processors, two input/output processors and shared main memory all in two cabinets, each of which requires only 12½ square feet of floor space. Cooling and power requirements are low. A "dual processor" version is also available with just one input/output processor.

Integrated circuits make the 1100/72 small in size and low in cost; they also make it large in power and high in functionality.

And the 1100/72 can grow. for example:
- central processing complexes can be added to a maximum of four. Each central processing complex contains a Central Processor and can contain an optional input/output unit.
- main storage can be expanded from a basic 1 million words (4 million bytes) to 8 million words (32 million bytes).
- buffer storage can expand from a basic 2K words (16K bytes) to 8K words (32K bytes) for each central processor in a multiprocessor system. Maximum buffer storage with a four processor multiprocessor system (1100/74) is 32K words (128K bytes).
- the basic instruction set can be expanded with an extended instruction set.
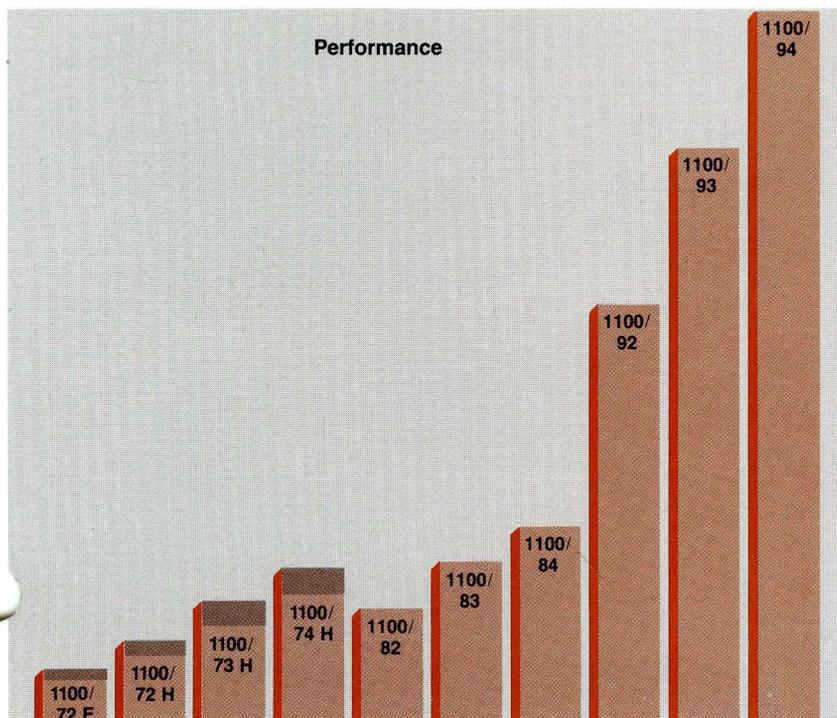- basic peripherals can be expanded to high-performance peripherals.

Figure 1   Series 1100 Multiprocessor Performance Levels.

The SPERRY 1100/72 E1 is the ideal system for you if you need total availability but not extended power. It gives you all the basic features needed for multiprocessing. Its buffer memory is part of the storage Interface Unit (Figure 2); this is where all the instructions are executed. The 1100/72 E1 is both powerful and cost-effective, and it leads the industry in functionality.

The next step up is the SPERRY 1100/72 E2. It has an extended instruction set to accelerate processing for on-line data base and data communications jobs, as well as for business batch jobs.

The 1100/72 H1 and H2 systems offer more power. They have a larger buffer memory (8K words or 32K bytes) per processor. This means that instructions execute at a faster rate than in the E1 and E2 models. Thus more jobs get through in less time. If you start out with an E1, you can easily move to an H1 by having your Sperry customer engineer install the larger buffer memory right at your site.

Growth to the H2 model can also be accomplished at your site with the addition of the extended instruction set.

And if your requirements call for more performance, the 1100/73 and 1100/74 offer several more growth steps. Additional central processor complexes can be added to your 1100/72H models to form the three-processor 1100/73 and the highest performance four-processor system, the 1100/74. Each of these systems is available as the H1 model with the standard 1100 instruction set or as the H2 model with the extended instruction set.

The 1100/70 multiprocessing systems provide a growth path that is orderly and has a wide performance range to meet your business needs. Processing power growth of up to three times is available from the entry level 1100/72 E1 multiprocessor to the top-of-the-line 1100/74 system. And every growth step, right up to the 1100/74, can take place at your site without a processor swap-out, and without a software conversion.

All the SPERRY 1100/70 Multiprocessors are available, reliable and maintainable. To give them these qualities we feature our System Support Processor, which:
□ initiates system load and automatic recovery
□ loads microcode into the system
□ diagnoses errors
□ maintains both local and remote operations
□ controls the logic analyzer
□ monitors performance (optional)
□ and controls partitioning to allow the system to be divided into two independent systems, which allows the removal of peripherals for maintenance and the isolation of jobs for security reasons.

The modular design of all the 1100/70's lets you build a system to fit your needs for now and the future, with top performance today and growth tomorrow.
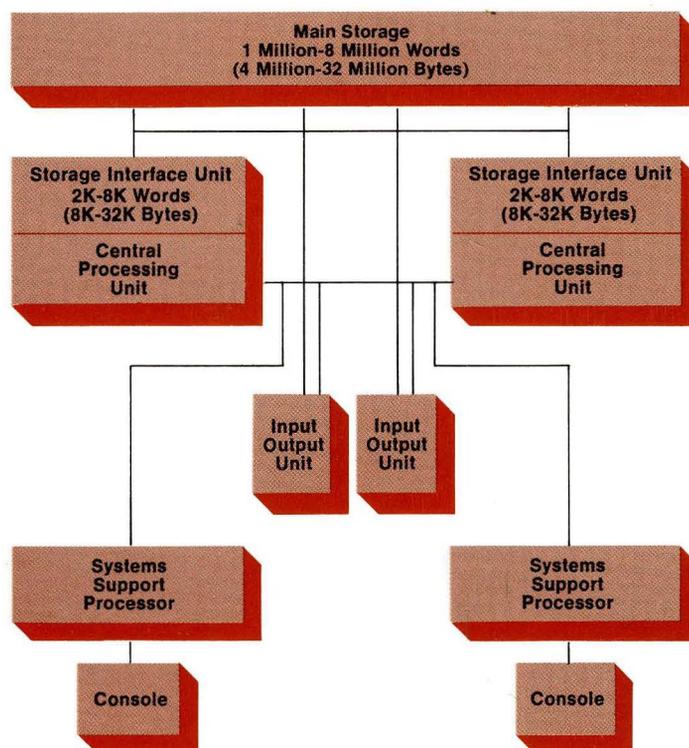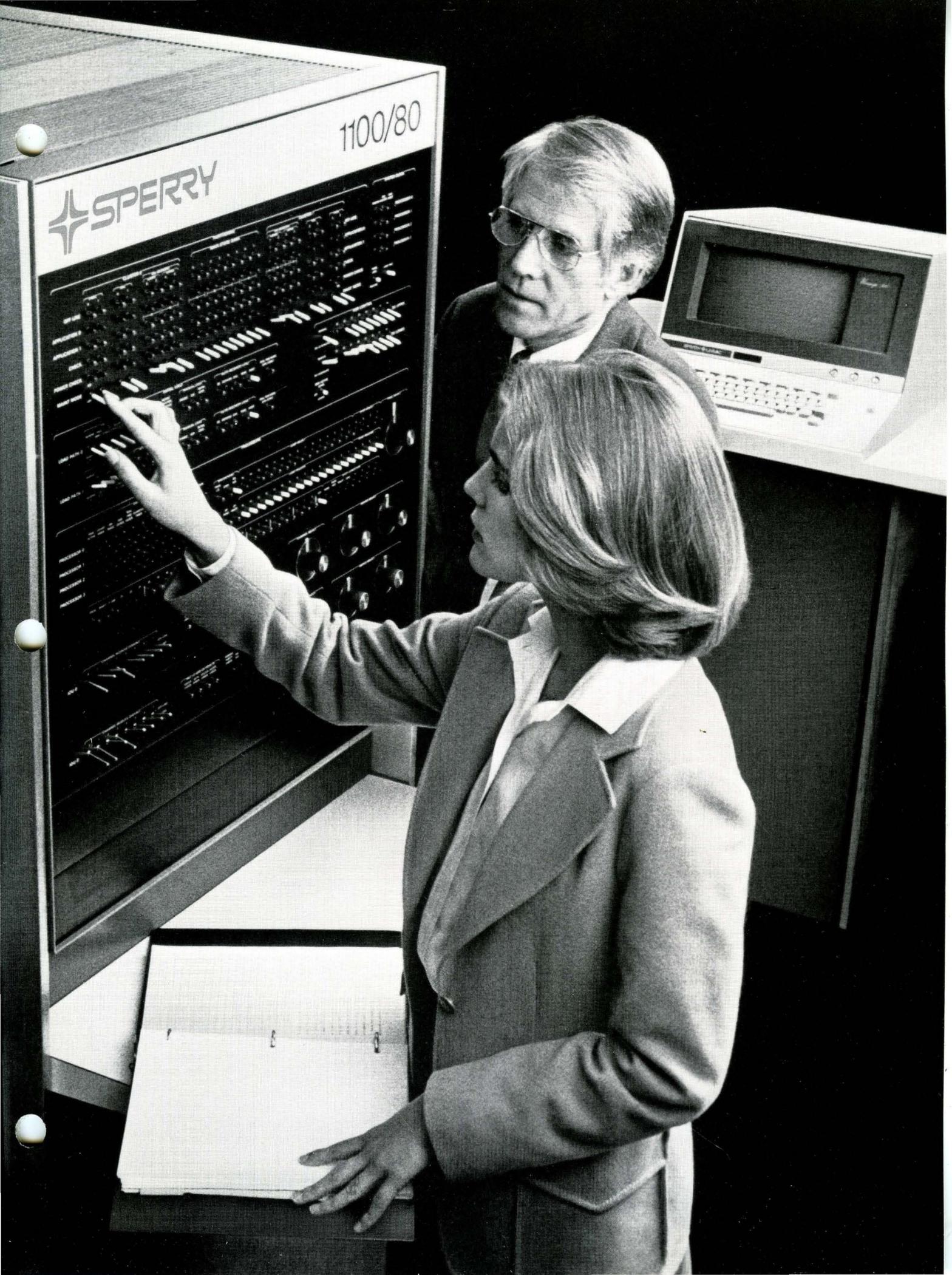

Figure 2   1100/62 Multiprocessor

The 1100/80 Multiprocessors

SPERRY 1100/80 Multiprocessors are ideal for large-scale operations. They give you the power and reliability you need for large data bases and major on-line operations.

1100/80 Multiprocessors are actually made up of independent systems. Separate logical units in the 1100/80's mean that you get the flexibility you need to tailor your system to your requirements. The 1100/80 Multiprocessors offer you:

□ 2 to 4 central processing units
□ 1 to 4 input/output units (each are completely freestanding processors)
□ 1 to 8 million words of main storage (4 to 32 million bytes)
□ 8K to 32K words of buffer memory in the storage interface unit arranged in two clusters (32K to 128K bytes)
□ a system transition unit that controls the assignment of the various units and monitors the proper functioning of the processors
□ 1 or 2 system maintenance units that provide on-line diagnostic check-out and analysis of the central processing unit and input/output units. This system maintenance unit also functions as a maintenance processor for Sperry customer engineers.
□ 1 or more motor alternators to provide high-quality power to the system
□ multiple system consoles (optional).

The entry level to the 1100/80 Multiprocessor is the 1100/82. It gives you:

□ 2 processors
□ 1 or 2 input/output units
□ 1 million words of main storage (4 million bytes) to 8 million words (32 million bytes)
8K to 32K words of buffer memory (32K to 128K bytes)

□ a system transition unit
□ a system maintenance unit
□ a system console
□ a motor alternator.

To move up, there's the SPERRY 1100/83 Multiprocessor. This adds another processor to the configuration described above and increases your processing power significantly.

Maximum power in the Series 1100/80 comes with the 1100/84. Here you get four processors and additional input/output units, buffer storage and system maintenance units. The 1100/84 is divided into two clusters that share main storage and the Systems Transition Units. It can also be separated into two independent computers when you want to perform two completely distinct jobs or when you need to perform maintenance.

Growing from an 1100/82 up to an 1100/84 can be accomplished in easy steps. You simply add memory, processors and input/output units as needed. You can also add a Scientific Accelerator Module to each processor to improve the performance of floating-point instructions.
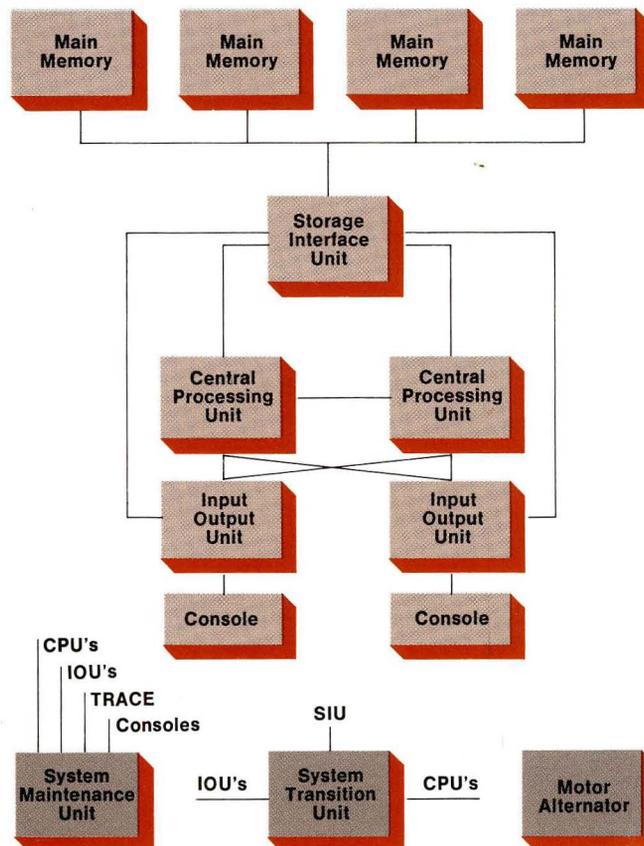

Figure 3 1100/82 Multiprocessor

The 1100/90 Multiprocessors

SPERRY 1100/90 Multiprocessors greatly expand the power of the Series 1100, providing performance levels and features far beyond previous systems. For example, an 1100/90 CPU provides between three and four times the performance of the 1100/80 CPU.

1100/90 Multiprocessors are again made up of independent systems. You can configure the system to meet your specific requirements. The 1100/90 Multiprocessors offer you:

- 2 to 4 central processing units
- 1 to 4 input/output units
- 2 to 16 million words of main storage (8 to 64 million bytes)
- 2 to 4 high speed memory access buffers—16K words (64K bytes) for each CPU
- 2 to 4 cooling units for liquid cooling of the CPUs
- multiple master consoles with controller, display, and keyboard, plus auxiliary consoles (optional)
- 1 or 2 system support processors for system control, configuration partitioning, and maintenance
- 1 or more motor alternators
- subsystem access unit for peripheral subsystem partitioning (optional)
- subsystem power control for automatic power up (optional)

The entry level 1100/90 Multiprocessor is the 1100/92. It gives you:

- 2 central processors, each with high speed buffer
- 1 or 2 I/O processors
- 2 million words of main storage (8 million bytes)
- 2 system consoles
- a system support processor
- a cooling unit
- a motor alternator

The 1100/93 and 1100/94 Multiprocessors offer increased capability. Additional main storage units and input/output units can be added to tailor a system to meet your application.

A fully configured 1100/94 offers twice the performance of an 1100/92, while providing memory and channel capacity to match its high performance.

If you want maximum power, the 1100/90's can provide it—at the pace you choose.

The Series 1100 Operating System

The key to functionality in the Series 1100 Multiprocessors is the Series 1100 Operating System—compatible throughout the Series 1100 family. It gives you a cost-effective answer to your multiprocessing needs.

Especially designed for multiprocessing, the Series 1100 Operating System is the culmination of thousands of man-years of development and millions of hours of operation. It is used on all models of computers in the Series 1100 line.

With it, you get support for on-line data base, data communications, distributed data processing, interactive program development, research and analysis, and traditional batch and remote-batch processing, as well as multiprocessing.

Furthermore, the Series 1100 Operating System is constantly evolving. It is continually being enhanced to support new hardware. It constantly acquires new software capabilities. And we are always working to make it more and more efficient.

To protect your investment, we carry out our Series 1100 enhancements based on a stable and refined foundation. Over the years, we have analyzed the experiences of our customers and used them to validate each new software component before it is introduced. We will go on doing that in the future.

The Series 1100 Operating System is above all a proven product, adding stability to its capability and flexibility.

We Help You Reach Your Goals

Reliability.
Availability.
Better customer service.
Tighter control.
Higher profits.

You can realize all these goals with a SPERRY Series 1100 Multiprocessor.

With a Series 1100 Multiprocessor, we at Sperry bring you a wide performance range, advanced functionality, highest availability, maximum maintainability.

With a Series 1100 Multiprocessor, you get a real return on your investment and assurance that your investment will be protected and enhanced.

As your business grew to what it is today, your needs also grew and diversified.

You know that growth will continue.

And as you grow, the SPERRY Series 1100 Multiprocessors will continue to respond dynamically to your needs.
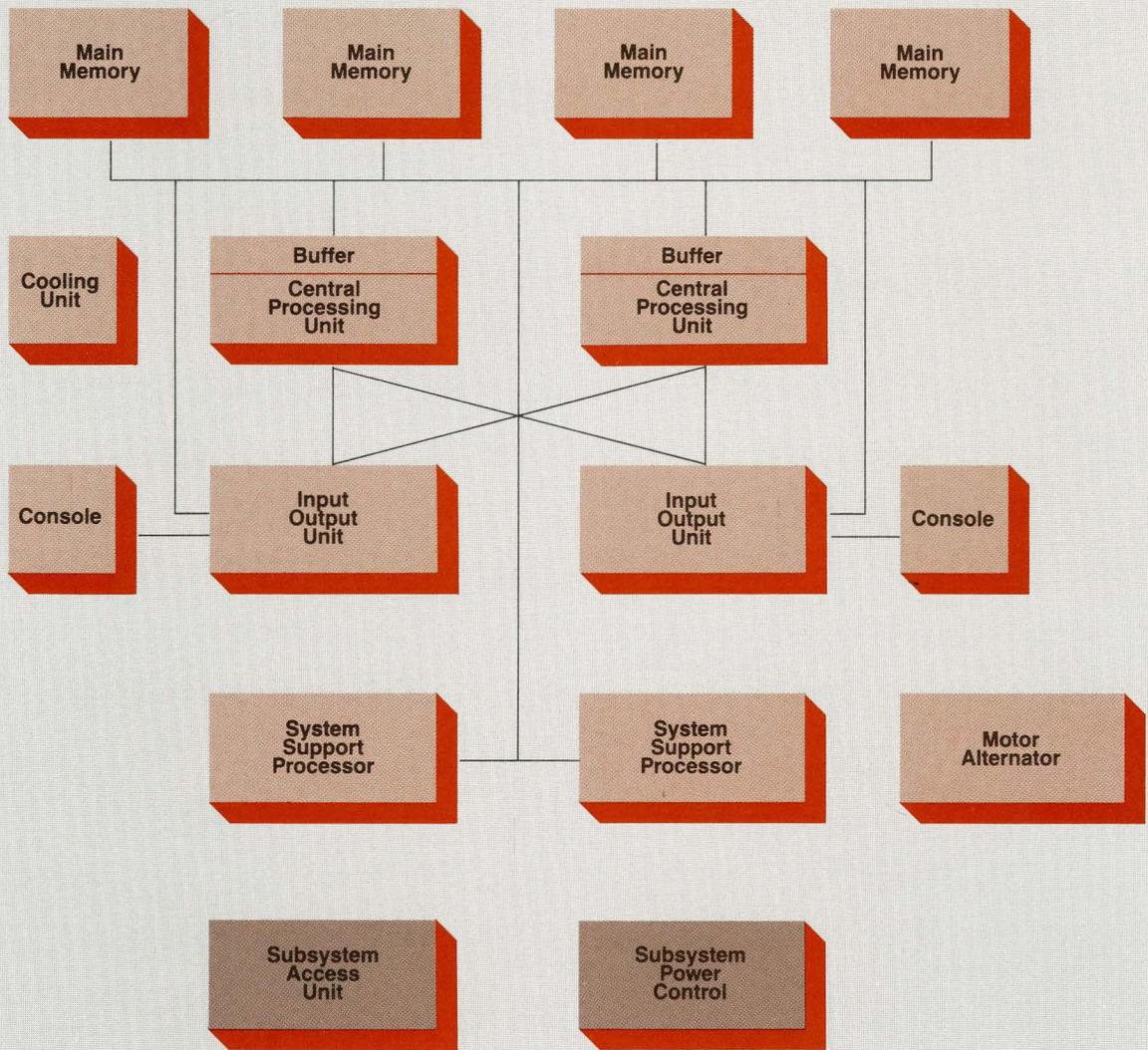
Figure 4 1100/92 Multiprocessor

Optional

⟡SPERRY

We understand how important it is to listen.