UNIVAC 1108-II

The big system with the big reputation



UNIVAC 1108-II

MARK.

3



FEATURES

Lowest priced true general purpose, large-scale system.

Multiprogramming and multiprocessing including real time, time sharing, and batch processing concurrently in any combination.

Centralized computer facility together with efficient and flexible local management control.

Multi-application capabilities based on extensive experience in multiprogramming of high-speed, fast-access drum oriented systems.

EXEC 8—the industry's most comprehensive operating system.

Complete business and scientific processing featuring full 36-bit word size and double-precision hardware.

Extensive array of peripherals includes fast-access drums, large-capacity FASTRAND mass-storage units, high-speed UNISERVO tape handlers, and other UNIVAC computer systems. The UNIVAC 1108 II System is the first, and still the only true general-purpose, multiprocessor system. Right now, 1108 II Systems, with a proven extensive array of software, are dependably performing virtually every type of data processing for numerous prominent manufacturing, communications, transportation, educational and governmental organizations.

The UNIVAC 1108 II Multiprocessor System is equally adept in complex real time and massive volume batch processing scientific or business—in any combination. The 1108 II System is offered in many forms—from a simple unit-processor up to a multiprocessor system simultaneously handling and processing large volumes of data through numerous local peripherals, while servicing an extensive network of remote terminals. Jobs and tasks are processed through the system as if each one had exclusive use of it.

The 1108 II System in any of its forms is a large-scale system. Because of designedin overlapping and interleaving capabilities, its high-speed memory cycle time of 750 nanoseconds is reduced to an effective 375 nanoseconds. All versions of the 1108 II System are directed by the versatile, broad-coverage EXEC 8 Operating System which ensures optimal utilization of the entire system under varying complexity and volume of demands.

THE COMPUTING SYSTEM WITH THE RIGHT BACKGROUND

The UNIVAC 1108 II Multiprocessor System is a logical progression from the well established and highly successful UNIVAC 1107 System. The software for the 1107 System was based on extensive use of high-speed drums. Each element has been checked out in a wide variety of high-volume applications. Here the techniques of simultaneous computation and peripheral operation were extensively employed. From this well-grounded basis, the software packages have been modified and expanded to take advantage of the intrinsic multiprogramming and multiprocessing capabilities of the 1108 II System.

MULTIPLE PROCESSORS-ALL IN ONE SYSTEM

The 1108 II System is an extremely flexible, modularly constructed system that enables a precise blend of system components to meet the exact speed and capacity requirements of your specific applications. It can include up to three central processors, up to two input/output controllers, and a main storage expandable in 65,536 word increments up to 262,144 36-bit words. Besides overlapped and interleaved access to main storage, it includes redundancy between components, dynamic program address relocation, and the capability of directly addressing 6, 9, 12, 18-bit word-portions, as well as full-word (36-bits) and double-word (72-bits).

Up to three processors can simultaneously perform a large number and a wide variety of real time, time sharing and batch processing tasks under the direction of the EXEC 8 Operating System. To meet these extensive requirements, the entire system is organized so that:

 Each component can have more than one access path to the Central Processor.

- Possible access conflicts are virtually eliminated by advanced priority logic.
- Individual system components can be removed for servicing without disabling the entire system.

CENTRALIZED CONTROL THAT PAYS

With an 1108 II System, its associated high-speed drums, along with a variety of remote communication terminals, you can have a practical centralized computer utility without any of your remote divisions losing control or flexibility.

Because of the extensive multiprogramming and multiprocessing capabilities of the 1108 II System, you can employ a few, or a vast array of remote terminals, such as the UNIVAC DCT 2000 Data Communication Terminal for data collection and distribution of accounting, production, and inventory functions. In addition, you can utilize these terminals for engineering and any other major applications with which your remote locations are concerned.

Furthermore, through the UNIVAC UNI-SCOPE 300 visual communication terminals, information concerning events can be applied to your 1108 II System as it occurs. Costs, for example, from all locations, can be entered into the system and immediately broken down. This information can serve as a basis for projection and control of production, pricing of products, and optimization of profits. Cost accounting can be accomplished on a dynamic, rather than a historical basis. And key financial data can be obtained on demand for financial control on a day-to-day basis.

As a direct by-product, various levels of your management team can also be provided with current, historical and projectional data pertinent to their needs. They can utilize this information to significantly improve the accuracy of forecasting of sales, parts usage, and inventory levels. Furthermore, they can statistically evaluate existing and contemplated shifts or changes in sales structures, sales coverages, and distribution patterns.

At the same time that this confluence of business data is being processed, your scientists and engineers at widely dispersed locations can be taking advantage of the wide selection of the ready-now scientific software—all implemented through the vast computational facilities of the 1108 II System in a multiprogramming and multiprocessing environment.





BIG CAPABILITY HARDWARE FOR A BIG SYSTEM

main storage

The main storage is modularly expandable in 65,536 word increments up to a total of 262,144 words. Each word is 36 bits in length and carries two additional parity bits in non-addressable levels, one bit for each half word. Each module is independently accessible, yet the entire main storage presents a continuous addressing structure to the processor(s). And this storage can be accessed simultaneously by up to three processors.

central processor

The central processor is equipped with functions for executing a broad array of scientific, business, and input/output instructions. Meeting the test of a true multiprocessor system, each central processor has equality. In addition, each one has its own set of integrated circuit control registers featuring a 125 nanosecond cycle time.

The central processors can expedite vast quantities of data in batch, real time and demand modes—concurrently. Control of extremely fast-access storage subsystems, complex communication systems and their associated terminals, plus a wide variety of local peripherals resides in the central processors.

An unusually powerful and flexible instruction repertoire is provided in the central processor . . . most instructions are accessed and completed in one storage cycle.

input/output controller

The Input/Output Controller is a selfcontained unit with its own high-speed index memory. It provides up to 16 independent by-directional data paths between peripheral subsystems and main storage.

auxiliary storage subsystems

The entire 1108 II Processor, in both software and hardware, is oriented to substantial use of high-speed magnetic drums. This technique greatly reduces handling, and access and transfer time when compiling and assembling. The use of highspeed drums also significantly reduces the size of main storage needed for the Executive Control System.

system interconnection components

To share both established and reactive priorities between the components of the 1108 II Multiprocessor System, two unique devices are employed:

The Multiple Module Access (MMA) unit—allows the individual storage modules to share up to three central processors and up to two I/O controllers on a fixed priority basis.

The Shared Peripheral Interface (SPI) unit—enables up to four input/output channels to access peripherals on a shared basis.

peripheral subsystems

The multi-access capabilities of the input/ output channels and input/output controllers of the 1108 II System allow an array of local and remote peripherals to meet the requirements of the largest enterprises, today and for many years to come.

Here is a sampling of some of the on-site peripherals that can be used in various quantities and combinations in an 1108 II System :

- Magnetic Drum Subsystems
- Magnetic Tape Subsystems
- Card Reader Subsystems
- Card Punch Subsystems
- High-Speed Printer Subsystems

Plus, the following systems, on-site and remote :

- UNIVAC 1004 Card Processor
- UNIVAC 9000 Series Systems
- UNIVAC DCT 2000 Data Communication Terminals
- UNIVAC UNISCOPE 300 Visual Communication Terminals
- Other computer systems
- · Other communication terminals



FLT1177.5-



WIDE ARRAY OF COMMUNICATIONS

The practical implementation of a wide array of remote terminals and computer systems to the UNIVAC 1108 II System is primarily due to a modular communication control device and a built-in indexing technique, both pioneered by Univac.

The communication device, called a Communication Terminal Module Controller or CTMC, enables up to 32 communication circuits to transmit and receive at the same time.

The CTMC aids in increasing the effective throughput of the system by performing most of the routine, time-absorbing functions associated with communications. The CTMC also enables the 1108 II System to receive and transmit data via any common carrier in any of the standard rates of transmission up to 4800 bits per second. And this data may be in any combination of low, medium or high speed.

The indexing technique, called Externally Specified Index or ESI, in conjunction with the CTMC, allows the communication lines to automatically transfer characters to and from main storage on a self-controlled basis without disturbing the program sequence of any of the central processors.

PROVEN SOFTWARE—READY FOR YOUR APPLICATIONS NOW

The software package of the 1108 II System makes maximum use of its extensive multiprocessing and multiprogramming facilities. All of the techniques employed have been tried and proven in existing systems. And as expected from Univac—they are continually updated to meet the most challenging requirements. The following is a brief insight into the extensive UNIVAC 1108 II Software:

EXEC 8 operating system

The EXEC 8 Operating System controls and coordinates the interaction of all elements of the1108 II System for every local and remote user. In addition, it allows for the concurrent operation of many unrelated programs; it ensures that the system will react immediately to your inquiries, requests and demands and to those of every one of its other users; it absorbs and executes the stringent demands of real time applications; it allows simple programs to have a simple means of expressing their requirements; it permits the storing, filing, retrieving and protection of large blocks of data; and it assigns mass storage dynamically to respond to your specific needs.

The EXEC 8 System, through its broad range of mass storage data handling techniques reduces to an absolute minimum the handling of cards and magnetic tapes. Now many programmer and operator errors associated with other large-scale software systems have been eliminated.

the ASSEMBLER

The ASSEMBLER provides for rapid automatic translation from symbolic coding to machine language usable by the 1108 II.

UNIVAC FORTRAN V

UNIVAC FORTRAN V is the only scientific and engineering source language with bit manipulation capabilities.

LIFT (Logically Integrated FORTRAN Translator)—FORTRAN II to FORTRAN V LIFT is a source language translator which bridges the incompatibility between FORTRAN II and FORTRAN V.

UNIVAC 1108 COBOL

UNIVAC 1108 COBOL is an enhanced version of 1107 COBOL. It includes many electives above those required by USAI COBOL standards.

ALGOL allows mathematicians and engineers to communicate with the system in their own language—mathematics—and ALGOL will automatically compile the information into machine language.

SORT/MERGE

The UNIVAC 1108 II SORT/MERGE package is a collection of subroutines which are fully modular with every functional unit in the 1108 II System. These subroutines are callable from any processor or source language, or from any of your own I/O programs.

APPLICATION PROGRAMS

The UNIVAC 1108 II Multiprocessor System has an extensive library of application programs and subroutines. Chief among these are :

LINEAR PROGRAMMING

Tried and proven package for the simultaneous consideration of the variables which affect a situation with a view to determining that plan of action which effects the most efficient use of the variables according to the defined goals.

APTIII (Automatically Programmed Tools) A system for the computer-assisted programming of numerically controlled machine tools.

PERT/COST

A generalized applications program for determining and comparing work project cost to estimates for purposes of cost control.

MATH-PACK

A vast collection of mathematical routines and functions, including matrix arithmetic. STAT-PACK

A wide assortment of common statistical routines, including tests on statistical parameters.

Act now—learn why the UNIVAC 1108 II Multiprocessor System has its high level of acceptance among numerous prominent manufacturing, communication, transportation, educational and governmental organizations. Ask your Univac representative for more details today.





UNIVAC is a registered trademark of Sperry Rand Corp. Other trademarks of Sperry Rand Corp. appearing in this brochure are: FASTRAND, UNISERVO and UNISCOPE.