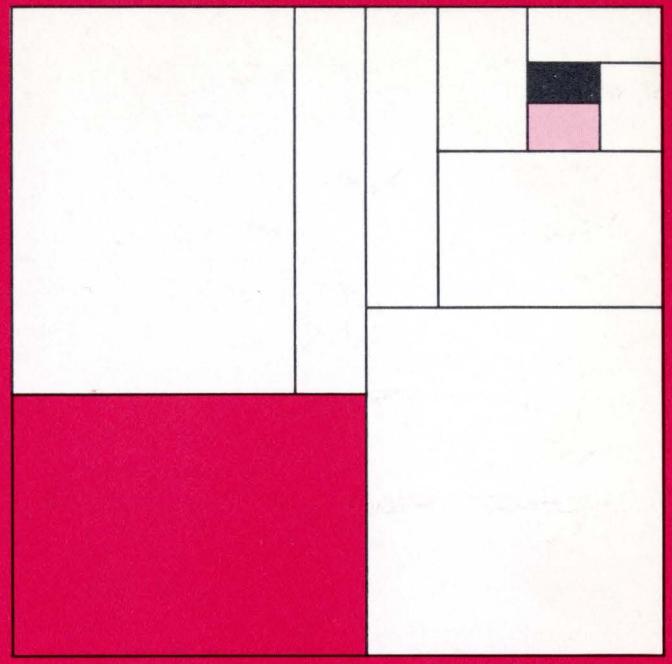
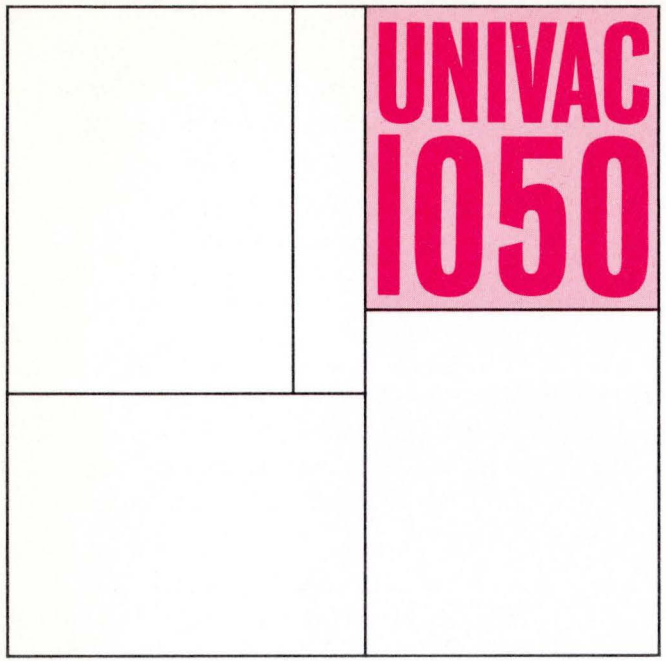


UNIVAC® 1050 SYSTEMS

A POWERFUL NEW SERIES OF SMALL TO MEDIUM SCALE COMPUTER SYSTEMS



UNIVAC 1050 SYSTEMS DESIGNED FOR SPECIFIC NEEDS

Card Systems — The C Series

Tape Systems — The T Series

Mass Storage Systems — The M Series

Satellite Systems — The S Series

Real Time Systems — The R Series

1004 Expansion Systems — The —4 Series

UNIVAC 1050 SYSTEMS—A WIDE SELECTION OF COMPUTING POWER

UNIVAC 1050 Systems comprise a new series of powerful and versatile computers ranging from small to medium scale in capacity and size. These systems were designed to fill a definite need in data processing. That need is tailor-made computing power that corresponds directly to the requirements of the individual organization.

UNIVAC 1050 Systems offer important advantages over computers that require conformity of the applications to an inflexible system. Whatever your need in data processing, it can now be done *your* way, with less preparation at less cost, and in less computer time.

There are additional UNIVAC 1050 features that give you greater value for your computer dollar. These systems include an extremely wide selection of configurations, with field-expandable capacities. This extreme selectivity provides you with a system that fully meets your immediate needs without excessive processing abilities and costs that are often incurred with standard systems. With a UNIVAC 1050 System, you are assured of the most efficient configuration possible.

UNIVAC 1050 Systems offer you planned growth from a small, powerful card-oriented data processing system to a complete, high-speed sophisticated mass storage, tape, or real-time oriented system. Each of these systems is program compatible with the others to assure you of maximum protection of your programming investment.

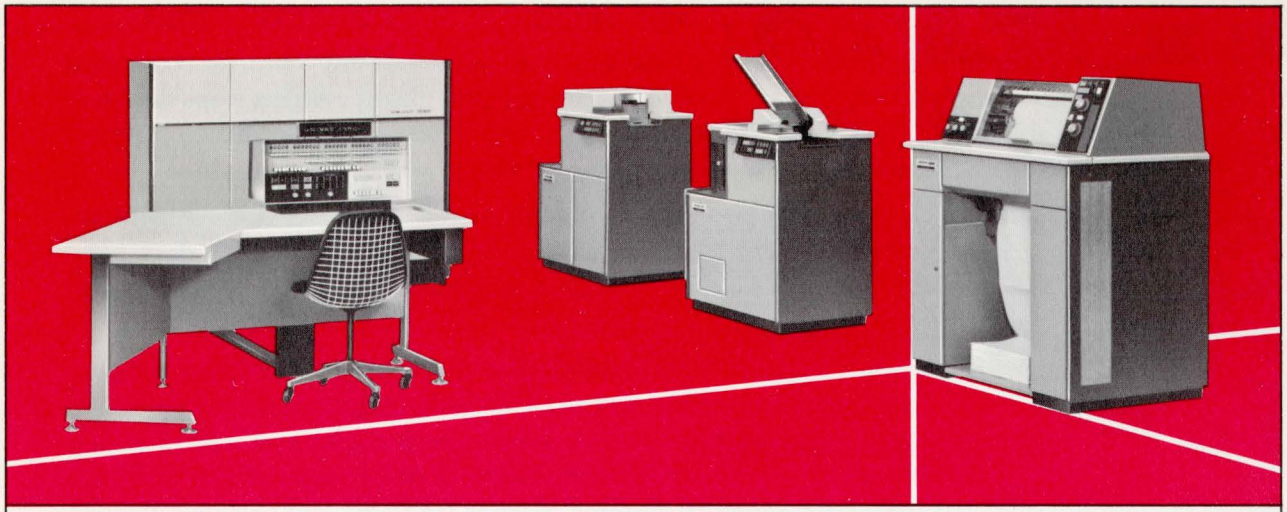
This broad range of program compatible computing power provides, in a sense, a catalog of abilities from which the specific system requirements can be selected. As future data processing needs occur, the installed UNIVAC 1050 System can be expanded in internal or peripheral power to solve the new requirements without rewriting old programs; only the new requirements need be provided for.

For any organization with branch locations, UNIVAC 1050-R Systems apply the advanced and proved new concept of real-time processing at a modest investment. Real-time processing provides bi-directional data processing through communications. The degree of operational control made possible by UNIVAC 1050-R Systems is virtually limitless—even in the most widely dispersed organizations.

The trend in data communications is growing amazingly fast. In the near future, few national or even regional organizations will be without it. For this reason it is important to consider a UNIVAC 1050 System even if you only process punched cards, because all UNIVAC 1050 Systems can be field-expanded to a real-time communications system.

Complete software will be available for each UNIVAC 1050 System in the series. Each package has been specifically prepared to deliver the full advantages of the advanced design features in every configuration. Each software package retains its value since it can be updated as you expand your system.

The following pages explain in detail the specific equipment and software facts on this new powerful series of systems. Each of the specific systems is discussed, followed by a detailed description of each component, and a table of software provided.



UNIVAC 1050-C CARD SYSTEMS This series of advanced card systems was designed to speed and automate more fully, the processing of the standard medium of the present and the foreseeable future—the punched-card unit record.

UNIVAC 1050-C Systems can replace many overexpanded 80- or 90-column punched card machine installations at no increase in costs. UNIVAC 1050-C Systems can also outperform other stored program computers because of higher peripheral equipment speeds plus simultaneous reading, punching and printing with calculating and other processing. These features plus the powerful computer command abilities of UNIVAC 1050-C Systems reduce many multi-run applications to single card passes.

The transition from punched-card machines and outmoded stored-program computers to UNIVAC 1050-C Systems is easy since the user's punched-card records are usable. Univac provides software program card decks which simplify standard data processing jobs.

Some typical UNIVAC 1050-C series systems are listed below. Additional specifications on all equipment and software for this series are provided in the back sections of the brochure.

Examples of UNIVAC 1050 Card Systems

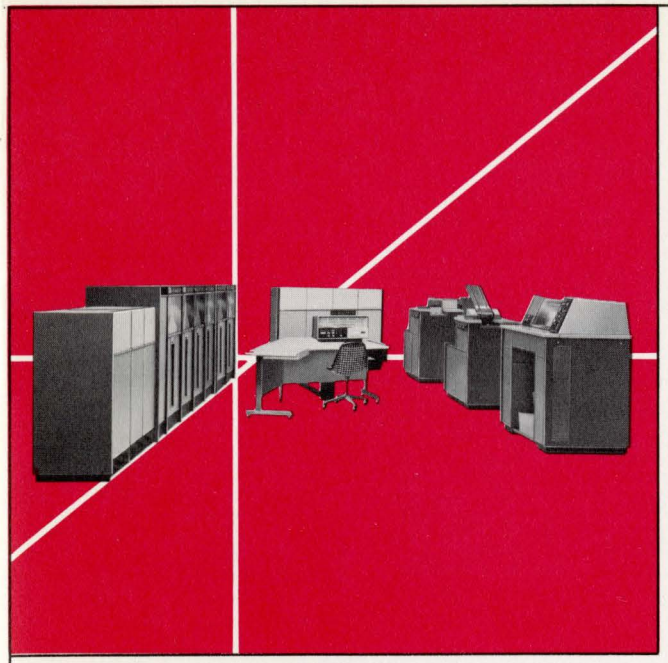
*4096 Character UNIVAC 1050 Processor III
Integrated Console
600 Card Per Minute Reader
200 Card Per Minute Punch
600/750 Line Per Minute Printer

*8192 Character UNIVAC 1050 Processor IV
Freestanding Console
800/900 Card Per Minute Reader
300 Card Per Minute Punch
700/922 Line Per Minute Printer
Print Buffer

*12,288 Character UNIVAC 1050 Processor III
Integrated Console
800/900 Card Per Minute Reader
200 Card Per Minute Punch
600/750 Line Per Minute Printer
Print Buffer

65,536 Character UNIVAC 1050 Processor IV
Freestanding Console
600 Card Per Minute Reader
200 Card Per Minute Punch
700/922 Line Per Minute Printer
Print Buffer

**Minimum: Processor III expandable to 32,768 characters, Processor IV to 65,536 characters*



UNIVAC 1050-T TAPE SYSTEMS This series of tape oriented computers is designed to bring you highly advanced magnetic tape processing at reasonable cost. Overlap of processing is available, providing maximum throughput abilities. All UNIVAC 1050-C programs will operate on a UNIVAC 1050-T System.

If you process data in batch sequence, you can handle your applications in less time with UNIVAC 1050-T Systems than with any other system in its price range. The speeds and program capabilities of the UNIVAC 1050-T System greatly magnify the benefits derived from tape processing. Simultaneous tape-reading and writing with processing and printing is available with the T series to maximize throughput. Outstanding computer command abilities expedite the processing of fast-fed tape information even further.

There is a variety of different tape units provided with this series to enable you to select the exact system to meet your data processing requirements. Some typical examples of UNIVAC 1050-T Systems are shown below. Additional specifications on all equipment and software for this series are provided in the back sections of this brochure.

Examples of UNIVAC 1050 Tape Systems

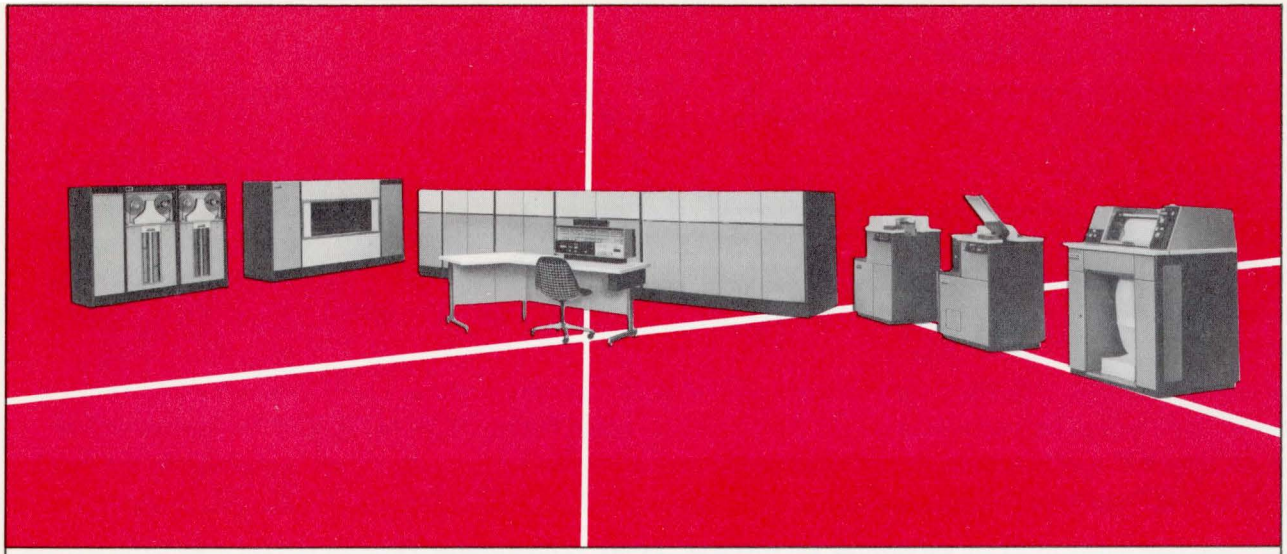
•8192 Character UNIVAC 1050 Processor III
Freestanding Console
Selected UNIVAC 1050 Card Peripherals
600/750 Line Per Minute Printer
Print Buffer
UNISERVO VI C Tape Synchronizer/Power
1 to 16 UNISERVO VI C Tape Units
200; 556; or 800 ppi tape densities
Compatible with tapes of another manufacturer

•8192 Character UNIVAC 1050 Processor IV
Freestanding Console
Selected UNIVAC 1050 Card Peripherals
700/922 Line Per Minute Printer
Print Buffer
UNISERVO IV C Tape Synchronizer/Power
1 to 6 UNISERVO IV C Tape Units
200; 556; or 800 ppi tape densities
Transfer rates to 90 KC, compatible
with tapes of another manufacturer

32,768 Character UNIVAC 1050 Processor III
Integrated Console
Selected UNIVAC 1050 Card Peripherals
700/922 Line Per Minute Printer
Print Buffer
UNISERVO III A Tape Synchronizer/Power
1 to 6 UNISERVO III A Tape Units
1000 nine-bit frames per inch
Tape transfer rates to 133 KC

57,344 Character UNIVAC 1050 Processor IV
Freestanding Console
Selected UNIVAC 1050 Card Peripherals
600/750 Line Per Minute Printer
Print Buffer
UNISERVO VI C Tape Synchronizer/Power
1 to 16 UNISERVO VI C Tape Units
200; 556; and 800 ppi tape densities
Compatible with tapes of another manufacturer

•*Minimum for T series systems. Processor III expandable to 32,768 characters, Processor IV to 65,536 characters.*



UNIVAC 1050-M MASS STORAGE SYSTEMS This series of mass memory oriented computers provides rapid random access to millions of characters of information. These systems also handle sequential batch processing operations with cards and tapes. UNIVAC 1050-C or UNIVAC 1050-T Systems are field-expandable to UNIVAC 1050-M Systems.

Random access provides many new but proved advantages to business firms, financial institutions, and government. Manufacturers and wholesalers, as an example, can update inventories as soon as an item is reported picked from or put into stock. This permits tight stock control which promotes better customer service. Insurance and financial firms can obtain information on specific accounts without searching through batches of account records. Government agencies can control inventories and find or update procurement data or any other data without processing unneeded batches of information.

There is a variety of file capacity available with this series to enable you to select the exact system to meet your data processing requirements. Components of typical UNIVAC 1050-M Series Mass Storage Systems are listed below. Additional specifications on all equipment and software for this series are provided in the back sections of this brochure.

Examples of UNIVAC 1050 Mass Storage Systems

*12,288 Character UNIVAC 1050 Processor III
Integrated Console
Selected UNIVAC 1050 Card Peripherals
600/750 Line Per Minute Printer
Print Buffer
Mass Storage Synchronizer/Power
1 FASTRAND Drum Unit with over 66,000,000 alphanumeric characters storage capability

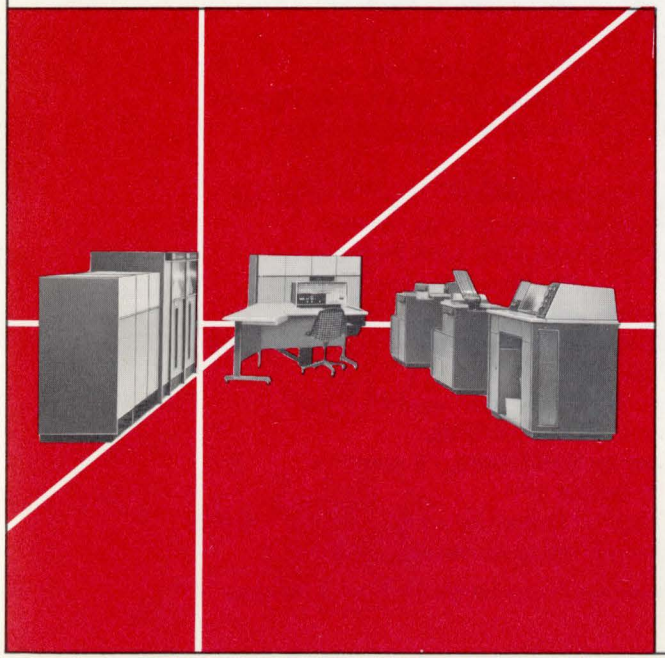
*16,384 Character UNIVAC 1050 Processor IV
Integrated Console
Selected UNIVAC 1050 Card Peripherals
700/922 Line Per Minute Printer
Print Buffer
UNISERVO IV C Tape Synchronizer/Power
1 to 6 UNISERVO IV C Tape Units
Mass Storage Synchronizer/Power
8 FASTRAND Drum Units with over 528,000,000 alphanumeric characters storage capability
Power B Unit

**Minimum for UNIVAC 1050 M Series Systems. Processor III expandable to 32,768 characters, Processor IV expandable to 65,536 characters.*

UNIVAC 1050-S SATELLITE SYSTEMS This series of satellite systems is designed to keep UNIVAC large-scale computers clear for large-scale programs. UNIVAC 1050-S Systems perform this function by handling utility operations such as card to tape, tape to print and tape to punch.

Overlap abilities of UNIVAC 1050-S Systems increase throughput. For example, the time taken in performing two concurrent satellite operations with the UNIVAC 1050-S is 40% less than the time needed to perform the jobs sequentially. To convert 25,000 cards to tape and print 25,000 lines by conventional methods takes 66 minutes. Concurrent processing with the UNIVAC 1050 System completes the job in 40 minutes, or in 40% less time.

UNIVAC 1050-S Systems also relieve large-scale computers of small volume jobs. This frees the larger system's memory and provides more time for the main chain operations. Some typical examples of UNIVAC 1050-S Systems are shown below. Additional specifications on all equipment and software for this series are provided in the back sections of this brochure.



Examples of UNIVAC 1050 Satellite Systems

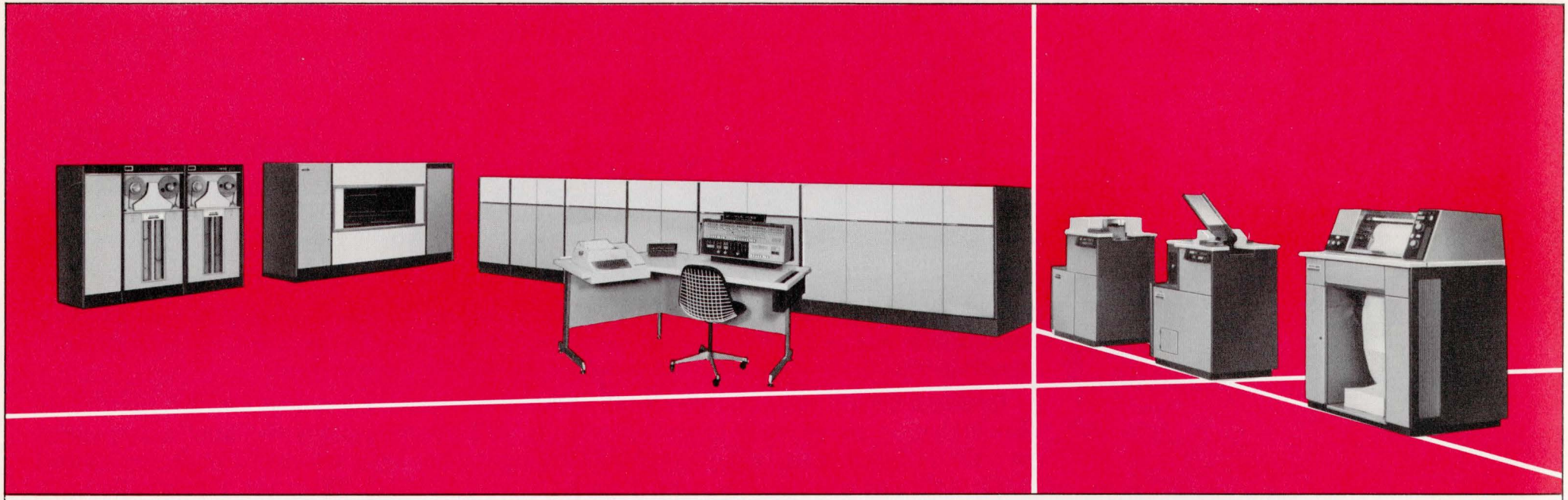
*8192 Character UNIVAC 1050 Processor III
Integrated Console
Selected UNIVAC 1050 Card Peripherals
700/922 Line Per Minute Printer
Print Buffer
UNISERVO III A Tape Synchronizer/Power
1 or 2 UNISERVO III A Tape Units
Tape transfer rates to 133 KC

*8192 Character UNIVAC 1050 Processor III
Integrated Console
Selected UNIVAC 1050 Card Peripherals
600/750 Line Per Minute Printer
Print Buffer
UNISERVO VI C Tape Synchronizer/Power
1 or 2 UNISERVO VI C Tape Units
Tape densities to 800 ppi.
Compatible with tapes of another manufacturer

*12,288 Character UNIVAC 1050 Processor III
Integrated Console
Selected UNIVAC 1050 Card Peripherals
2 700/922 Line Per Minute Printers
Print Buffer
Second Printer Synchronizer/Buffer
Power B Supply
UNISERVO III A Tape Synchronizer/Power
1 or 2 UNISERVO III A Tape Units

16,384 Character UNIVAC 1050 Processor IV
Freestanding Console
Selected UNIVAC 1050 Card Peripherals
2 700/922 Line Per Minute Printers
Print Buffer
Second Printer Synchronizer/Buffer
Power B Supply
UNISERVO IV C Tape Synchronizer/Power
1 or 2 UNISERVO IV C Tape Units
Tape densities of 200; 556; and 800 ppi.
Tape transfer rates to 90 KC
Compatible with tapes of another manufacturer

**Minimum for UNIVAC 1050-S Series.*
Processor III expandable to 32,768 characters.
Processor IV expandable to 65,536 characters.



UNIVAC 1050-R REAL-TIME SYSTEMS UNIVAC 1050-R Systems were designed to bring the benefits of real-time data processing through communications to the small and medium sized organization. UNIVAC 1050 Systems are products of the real-time engineering concepts pioneered by UNIVAC.

Now the small to medium sized organization can take advantage of the vast network of communications lines in the United States...a network that is unequalled anywhere on earth. The possibilities for operational control with a UNIVAC 1050-R System are seemingly endless.

This new capability to unite nation-wide locations on an immediate time basis through a UNIVAC computer and communications network is now in effect at manufacturing firms, banks, insurance companies, government and other organizations with remote locations.

UNIVAC 1050-C, UNIVAC 1050-T, and UNIVAC 1050-M Systems can be expanded in the field into UNIVAC 1050-R Real-Time Systems.

All existing UNIVAC 1050-C, UNIVAC 1050-T, and UNIVAC 1050-M Series programs are upwards compatible when these systems are expanded to a UNIVAC 1050-R System. There is a variety of message handling abilities available with this series to enable you to select the exact system to meet your data processing requirements. Additional specifications on all equipment and software are provided in the back sections of the brochure.

Examples of UNIVAC 1050-R Systems

•12,288 Character UNIVAC 1050 Processor III
Freestanding Console and Typewriter
Selected UNIVAC 1050 Card Peripherals
600/750 Line Per Minute Printer
Print Buffer
8 Position Standard Communications Subsystem
Real-Time Clock
Power B Supply
Mass Storage Synchronizer/Power
1 FASTRAND Drum Unit with over 66,000,000 alphanumeric character storage capability

16,384 Character UNIVAC 1050 Processor III
Freestanding Console and Typewriter
Selected UNIVAC 1050 Card Peripherals
700/922 Line Per Minute Printer
Print Buffer
16 Position Standard Communications Subsystem
Real-Time Clock
UNISERVO VI C Tape Synchronizer/Power
2 UNISERVO VI C Tape Units
Mass Storage Synchronizer/Power
Power B Supply
2 FASTRAND Drum Units with over 132,000,000 alphanumeric character storage capability

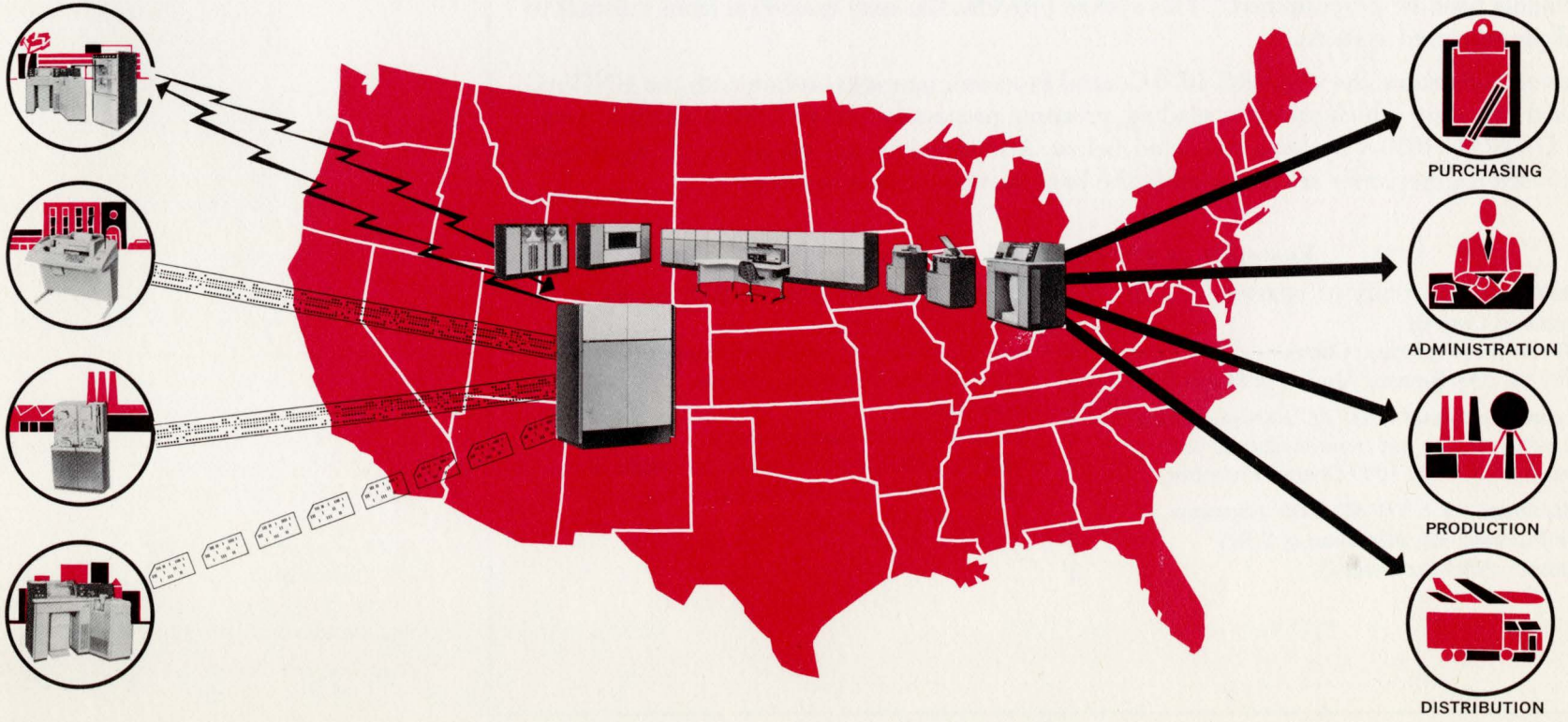
•*Minimum for Processor III on 1050-R Systems*

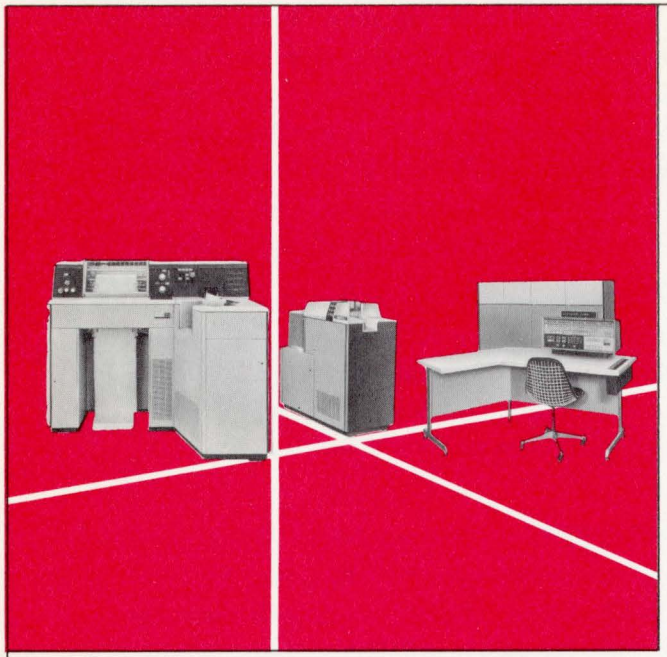
UNIVAC 1050 REAL-TIME SYSTEM DATA COMMUNICATIONS

THE REAL-TIME CONCEPT UNIVAC 1050 Real-Time processing is accomplished on a "time current" basis. Communications units that are on-line with the computer accept input from and transmit processed data to remote locations... in milliseconds, if required. A UNIVAC 1050-R System handles the flow of data from widespread manufacturing inventories and production lines; the shifting pattern of transportation schedules; the scattered operations of the utility field. The UNIVAC 1050 Real-Time System accepts the data, processes it and delivers the results in real time. Data can be fed directly to the UNIVAC 1050-R from a network of distant sources such as warehouses, branch offices and factories.

ADVANTAGES ▪ Makes possible centralized data processing operations ▪ adjusts production schedules quickly to meet changing market conditions ▪ coordinates factory production to inventories ▪ avoids out-of-stock situations ▪ gets up-to-the-minute sales figures and market information ▪ gathers operating data quickly for decisions ▪ speeds order processing ▪ meets competition more effectively ▪ improves business efficiency by collecting current facts and figures that affect the operations of your administrative, purchasing, production and distribution divisions.

UNIVAC MEETS YOUR NEEDS FOR FLEXIBLE DATA COMMUNICATIONS Utilizes existing facilities to full capacity—Wide Area Telephone Service, the Direct Distance Dialing network, Private Lines, etc. Accepts data signals from punched card equipment or numerical keyboards at sending station. Offers automatic computer answering and dialing with terminating controls for unattended data transmission. Transmits and receives at speeds compatible with your business machines. Affords rapid, direct, low-cost data transmission between separate business locations. Provides direct two-way communications between many types of business machines. Offers an economical means to expand data communications.





UNIVAC 1050-4 1004 ON-LINE SYSTEMS This series of systems is designed to enable UNIVAC 1004 users to expand their data processing abilities with a minimum of effort. All existing UNIVAC 1004 programs will operate as initially programmed; only the new data processing requirements need be programmed.* This system provides the easy transition from external to internal programmed systems.

In this configuration, the UNIVAC 1050 Central Processor operates on-line with the UNIVAC 1004 Card Processor which provides reading, printing, processing and punching abilities. Some typical UNIVAC 1050-4 Systems are listed below. Additional specifications on all equipment and software for this series are provided in the back sections of this brochure.

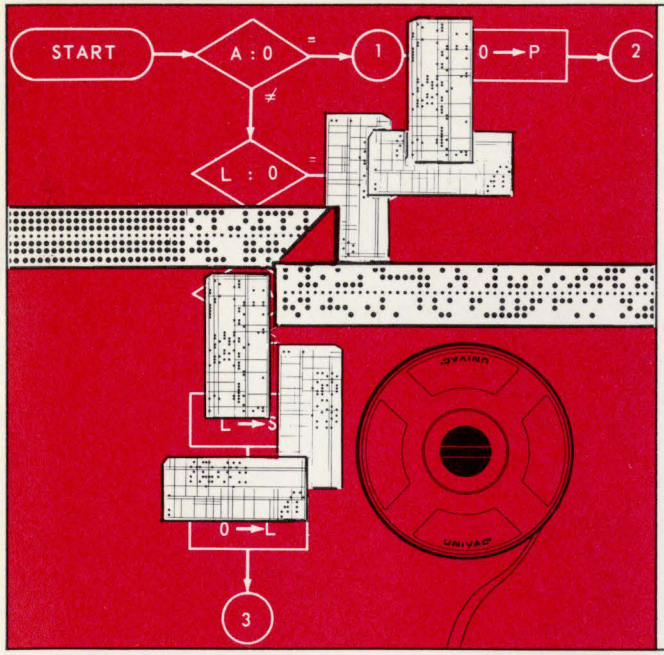
Examples of UNIVAC 1050-4 Systems

**4096 Character UNIVAC 1050 Processor III
Integrated Console
UNIVAC 1004 Adapter/Control
UNIVAC 1004 System (Model I or Model II)

A standard format UNIVAC 1004 plugboard is used to receive and transmit data to and from the UNIVAC 1050 Central Processor

***Minimum for UNIVAC 1050-4 Systems, with Processor III. Minimum of 8,192 characters with Processor IV.*

12,288 Character UNIVAC 1050 Processor III
Freestanding Console
Selected UNIVAC 1050 Card Peripherals
600/750 Line Per Minute Printer
Print Buffer
UNIVAC 1004 Adapter/Control
UNIVAC 1004 System (Model I or Model II)
UNISERVO VI C Tape Synchronizer/Power
3 UNISERVO VI C Tape Units

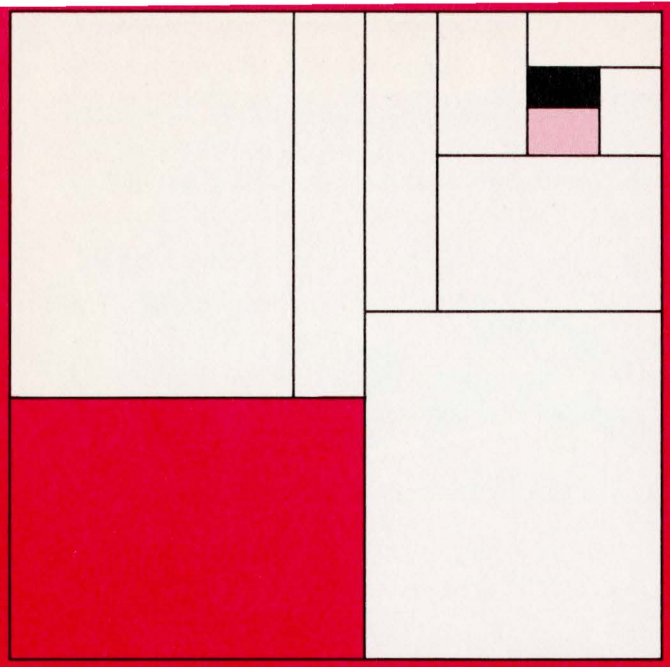


UNIVAC 1050 SYSTEMS DELIVERED WITH SOFTWARE UNIVAC 1050 programs are highly developed and integrated with the specifications and capabilities of each of these powerful UNIVAC 1050 Systems. Your specially prepared UNIVAC 1050 software will enable you to get the maximum power inherent in your UNIVAC 1050 configuration.

Each program is thoroughly tested and checked out on the specific equipment for which it was designed. As a result, each UNIVAC 1050 System will be provided with the software to help you get your system operational.

UNIVAC 1050 software programs are available in a variety of assemblers, control routines, operating systems, report generators, sorts, and satellite routines. Compilers are also available for configurations that require these programs.

Reference to the Software Configurator Chart in the back of this brochure will indicate the software provided by specific equipment configuration.



UNIVAC 1050 SYSTEMS— EQUIPMENT DESCRIPTION

CENTRAL PROCESSOR Model III

The heart of the UNIVAC 1050 Systems is the Central Processor. This unit has been designed to service the requirements of the various systems, from the small card series to the large sophisticated mass storage, tape or real-time system. The minimum specifications of the Central Processor with the available options are given below.

- 4096 Character Core Memory—Basic
- 4.5 Microsecond Cycle Time
- 3 Input/Output Channels
- Individual Distinct Channel Interrupts
- 7 Index Registers
- 2 Arithmetic Registers
- Powerful Instruction Logic
  - variable field lengths 1 to 16 characters
  - mass memory move 1 to 1024 characters
  - single character/constant commands
  - hi-lo-equal compare
  - binary/decimal add and subtract
  - add and subtract to or from memory or register
  - unique code translation command
  - powerful edit commands
  - full suppression commands
    - zero and comma suppress
    - zero and comma suppress with asterisk fill
    - zero and comma suppress with floating $ sign
- Complete Parity Checking
- Integrated Console

Optional Features

- 4096 Character Plug-In Incremental Memory to 32K of Memory
- Advanced Logic 1 Decimal—Multiply and Divide
- 5 Additional Input/Output Channels
- Freestanding Console

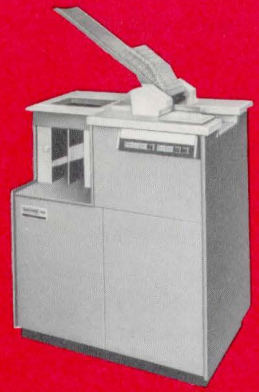
CENTRAL PROCESSOR Model IV

For organizations that have unusually fast throughput requirements, and for Model III Processor users who may desire to expand, the Model IV Central Processor is available. Program compatibility with Model III programs is provided. The Model IV Processor offers the following:

- 8192 Character Core Memory—Basic
- 2 Microseconds
  Per Two Characters
  Cycle Time
  Effective cycle time per character of better than 1.5 microseconds, depending on field length
- Powerful Instruction Logic as in Model III Processor

Optional Features

- 8192 Character Plug-in Memory Increments to 65,536 Characters
- Advanced Logic 1 Decimal—Multiply and Divide
- 8 Input/Output Channels
- Freestanding Console



READERS

800/900 CPM Reader

Specifications

800/900 cards per minute reading speed
80 or 90 column version
Reliable photodiode reading
2500 card input hopper
1 output stacker
1 reject stacker
Automatic error card segregation
Maximum card processing available
Binary card reading ability

600 CPM Reader

Specifications

600 cards per minute reading speed
80 or 90 column version
Reliable photodiode reading
2500 card input hopper
1 output stacker
1 reject stacker
Automatic error card segregation
Maximum card processing available
Binary card reading ability
Stub card reading—optional

PUNCHES

300 CPM Punch

Specifications

300 cards per minute punching speed
80 or 90 column version
Post read station
Simple jam clear device
Binary card punching
1000 card input hopper
2 output stackers
Maximum card processing available

200 CPM Punch

Specifications

200 cards per minute punching speed
80 or 90 column version
Post read station
Simple jam clear device
Binary card punching
1000 card input hopper
2 output stackers
Maximum card processing available

PRINTERS

700/922 LPM Printer

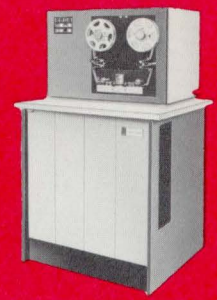
Specifications

Up to 922 lines per minute
alphanumeric printing.
128 or 64 character print line accepts
paper 4″ to 22″ in width.
63 printable characters
6 or 8 lines to the inch
Many simple paper adjustments
Print buffer
Maximum processing available

600/750 LPM Printer

Specifications

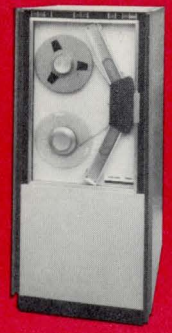
Up to 750 lines per minute
alphanumeric printing.
128 or 64 character print line accepts
paper 4″ to 22″ in width.
63 printable characters
6 or 8 lines to the inch
Many simple paper adjustments
Optional print buffer
Maximum processing available



PAPER TAPE

Specifications

400 or 1000 characters per second
reading.
5, 6, 7, or 8 channel tape
Strip or spooled tape
110 characters per second punching
5, 6, 7, or 8 channel tape



MAGNETIC TAPE

UNISERVO VI C

Specifications

42.7 inch per second tape movement
200–556–800 PPI
Compatible with tapes of another manufacturer.
Post read after write
High speed rewind
Fast reel changing

UNISERVO IV C

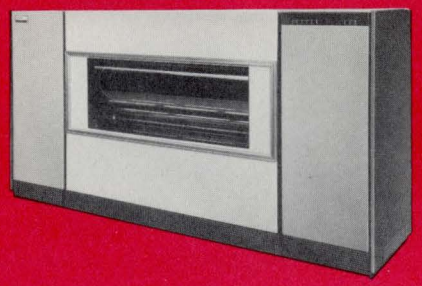
Specifications

112.5 inch per second tape movement
200–556–800 PPI
22.5KC, 62.5KC, 90KC transfer rate
Compatible with tapes of another manufacturer.
Post read after write
High speed rewind
Fast reel changing

UNISERVO III A

Specifications

100 inch per second tape movement
1000 frames to the inch
Transfer rates to 133KC
Post read after write
High speed rewind
Backward read ability
Fast reel changing

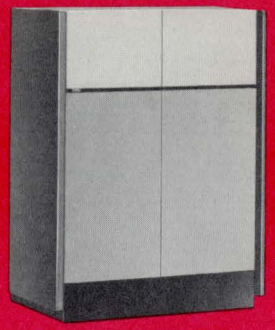


MASS MEMORY

FASTRAND

Specifications

1 to 8 drum units
66 to 528 million alphanumeric characters storage ability.
92 milliseconds average access time
Effective drum length 61.2 in.
Drum diameter 24 in.
Tracks per drum 3072
Tracks per inch 53
Tracks per head 96
Number of data heads 64
Drum speed 870 RPM
Bit density 1000 PPI
Bit frequency 1.1 MC



STANDARD COMMUNICATIONS SUBSYSTEM

Specifications

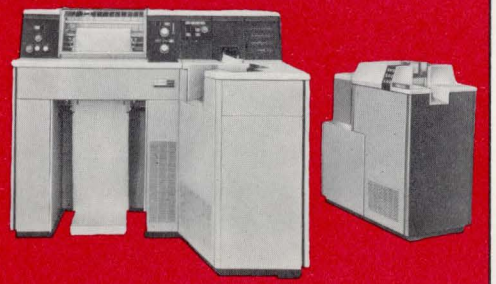
The Communications Multiplexer (CM) functions as the link between the Central Processor and the Communications Line Terminals (CLT) and is modular with 4, 8, 16 and 32 CLT positions. In each of these modules an equal number of input and output CLT positions is provided. For example, a 32 position CM can accommodate up to 16 input and up to 16 output CLTs. The CM has the capability of generating a unique address for each data transfer which is directly associated with the CLT involved in the transfer. This is called the Externally Specified Index (ESI), which is used by the UNIVAC 1050 to locate a specific buffer area associated with a particular CLT.

Communications Line Terminal (CLT)

The CLT modules are simplex in design; that is, either input only or output only. If a duplex circuit is to be terminated, then an input CLT and an output CLT must be provided. The CLTs are divided into three major classifications with respect to their transfer rate capabilities. These classifications are:

a) Low Speed—up to 300 B.P.S.
b) Medium Speed—300 B.P.S. to 1600 B.P.S.
c) High Speed—1600 B.P.S. to 4800 B.P.S.

In addition to these major classifications which transmit and receive data bit-serially to and from a communication facility, there are two minor classifications which are a parallel CLT, compatible with the AT&T 400 series Data Sets and the dialing CLT, compatible with the AT&T 801 Automatic Calling Unit.



UNIVAC 1004

Specifications

Model I cycle time 8.0 microseconds
Model II cycle time 6.5 microseconds
Model III with magnetic tapes
All models have 961 positions of magnetic core storage.
Solid-state circuitry for operating reliability.
Variable operand length; add-to-memory logic.
400-615 cards per minute reading speed, depending on model.
400-600 lines per minute printing speed, depending on model.
132 alphanumeric print positions
63 characters in every print position
Time-shared operations
Simple plugboard programming
Powerful editing repertoire
Photodiode card reading
Optional summary punching at up to 200 cards per minute.
Demand card feeding
Programmed multiply and divide

UNIVAC 1050 SYSTEMS SOFTWARE

GENERAL DESCRIPTION

1a. Assemblers
The PAL Assembly System is available in a variety of forms; 4K card version—PAL Jr., 8K card version PAL card, tape version—PAL tape, and drum version, PAL drum. All of these versions are compatible with one another, reducing the requirement for major reconversion jobs as a system is expanded. All versions of PAL are extremely easy to use; with complete documentation provided as a result of each assembly.

1b. Assembler Utilities
A source code librarian is provided to enable a user to easily maintain a source code file of UNIVAC 1050 programs. This routine can be printed or punched through use of the source code librarian.

A patch assembler allows corrections to be made to a routine using the source code language of the PAL assembly system. Corrections can take the form of insertions, deletions and changes. A patch rather than complete reassembly is made with complete documentation of the corrections made. This allows more efficient use of computer time.

2. Control Routines
During an assembly PAL provides the user with a number of canned routines which greatly reduce the users' programming and debugging time. In addition to the individual peripheral control routines, diagnostic macros, memory dumps, and procedure ability are incorporated into PAL.

The user is only concerned with writing the program steps to solve his application requirement.

3. Operating System
The operating system consists of several sections; a loader, coordinator, tape control, drum control, and communications control. The loader allocates memory to programs to be loaded. The coordinator controls the issuance of all input/output instructions. The tape control section handles the execution of tape orders. The drum control handles the execution of drum orders. The communications control synchronizes the requirements of the messages entering the UNIVAC 1050 via the communications subsystem.

4. Report Generators
Several versions of REGENT, the UNIVAC 1050 System's report generator are provided; a tape version, a card version, and a drum version. This routine is easy to learn to use, problem oriented, and it solves the installation requirements of being able to prepare needed management reports quickly.

5. Sorts
There are two types of sort routines provided with UNIVAC 1050 Systems, a drum sort and a tape sort. The drum sort utilizes the mass memory to simulate a tape system in sorting data.

The tape sort is modular and its size and speed of performance are dictated by users' parameters to the sort. The size of the item and key within the item are provided by the user. As few as three servos can be used to accomplish a tape sort.

6. Satellite Utilities
A series of special satellite utility routines is provided with the UNIVAC 1050 satellite series.

These routines provide the exact interface required with a UNIVAC III, UNIVAC 1107, or UNIVAC 490 System; no reprogramming of card-to-tape, tape-to-card, or tape-to-print routines is required when standard UNIVAC routines are being used.

7. Compilers
A COBOL compiler and FORTRAN will be provided with UNIVAC 1050 Systems.

8. Software Provided by Configuration
The exact software provided by system configuration of UNIVAC 1050 Systems is indicated on the following page.

UNIVAC 1050 SYSTEMS—SOFTWARE CONFIGURATOR

	ITEM	UNIVAC 1050-C					UNIVAC 1050-T						UNIVAC 1050-M[2] ALL OF C & T SOFTWARE PLUS	UNIVAC 1050-R[2] ALL OF C, T, M SOFTWARE PLUS	UNIVAC 1050-S							UNIVAC 1050-4	
		4K[3]	4K[3]	8K	8K	8K	8K	8K	8K	8K	8K	16K	12K REQUIRED	12K REQUIRED	8K	8K	8K	8K	8K	8K	8K	4K[3]	8K
EQUIPMENT	UNIVAC 1050 PROCESSOR																						
	600 OR 800/900 CPM READER	1	1	1	1	1	1	1	1	1	1	1	REQUIRED	REQUIRED	1	1	1	1	1	1	1		1
	200 OR 300 CPM PUNCH	1	1	1	1	1	1	1	1	0	1	1			0	1	0	1	0	1	1		1
	600/750 OR 700/922 LPM PRINTER	1	1	1	1	1	1	1	1	1	1	1	REQUIRED	REQUIRED	1	1	1	1	2	2	1		1
	PRINT BUFFER (NOTE 4)		1		1	1	1	1	1	1	1	1	REQUIRED	REQUIRED	1	1	1	1	2	2	1		1
	PAPER TAPE READ/PUNCH UNIT					1					1										1		1
	1004 ON LINE																					1	1
	TAPE UNITS						1	2	3+	3+	3+	4+			1	1	2	2	2	2	2		3+
	MASS MEMORY												1 TO 8										
	COMMUNICATIONS													REQUIRED									
	SOFTWARE PROVIDED																						
ASSEMBLERS	PAL JR*	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓				✓		✓		✓	✓		✓
	PAL CARD*			✓	✓	✓	✓	✓	✓		✓	✓				✓		✓		✓	✓		✓
	PAL TAPE							✓	✓	✓	✓	✓						✓		✓	✓		✓
	PAL DRUM												✓										
	PAL 1004*																					✓	✓
	PATCH ASSEMBLER			✓	✓	✓	✓	✓	✓		✓	✓				✓		✓		✓	✓		✓
CONTROL ROUTINES	READER	✓	✓	✓**	✓**	✓**	✓	✓**	✓**	✓**	✓**	✓**				✓		✓**		✓**	✓**		✓**
	PUNCH	✓	✓	✓**	✓**	✓**	✓	✓**	✓**		✓**	✓**				✓		✓**		✓**	✓**		✓**
	PRINTER	✓	✓	✓**	✓**	✓**	✓	✓**	✓**	✓**	✓**	✓**				✓		✓**		✓**	✓**		✓**
	PAPER TAPE					✓					✓**								*		✓**		✓**
	1004 PERIPHERALS																					✓	✓**
	MAGNETIC TAPE FILES							✓**	✓**	✓**	✓**	✓**						✓**		✓**	✓**		✓**
	DRUM—MASS MEMORY												✓										
	MEMORY DUMP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
OPERATING SYSTEM	COORDINATOR						✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓
	LOADER	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
	TAPE CONTROL						✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓
	DRUM CONTROL												✓										
	COMMUNICATIONS CONTROL													✓									
	LIBRARIAN							✓	✓	✓	✓	✓					✓	✓	✓		✓		✓
REPORT GENERATORS	REGENT—CARD			✓	✓	✓	✓	✓	✓		✓	✓				✓		✓		✓	✓		✓
	REGENT—TAPE							✓	✓	✓	✓	✓						✓		✓	✓		✓
	REGENT—DRUM												✓										
SORTS	DRUM—SORT												✓										
	TAPE—SORT								✓	✓[1]	✓	✓											✓
	TAPE—MERGE								✓	✓	✓	✓											✓
SATELLITE UTILITIES	CARD → TAPE														✓	✓	✓	✓	✓	✓	✓		
	TAPE → CARD															✓		✓		✓	✓		
	TAPE → PRINT														✓	✓	✓	✓	✓	✓	✓		
COMPILERS	COBOL											✓											
	FORTRAN											✓											

*SPECIALIZER I/O CONTROL **OFF LIBRARY TAPE [1]4—6 TAPES REQUIRED [2]DEPENDING ON CONFIGURATION OF C, T OR M SYSTEMS [3]8K REQUIRED WITH MODEL IV

[4]OPTIONAL FOR 600/750 LPM PRINTER ONLY WITH 600 CPM READER ON 1050-C SYSTEMS

THE CHANGE TO UNIVAC 1050 IS EASY

The advantages of UNIVAC 1050 Systems become more pronounced upon closer investigation. The power that these systems offer justifies UNIVAC 1050 over manual and machine methods . . . and over other computers in this class because of the direct comparison of like units, specifications, costs and capabilities. A more careful perusal reveals that even against computers with comparable ratings, UNIVAC 1050 Systems achieve faster throughput through the coordinated operation of the Processor and peripheral units.

Equipment reliability assures you of high-speed processing with day-in day-out dependability. Built for heavy-duty workloads, UNIVAC 1050 Systems are designed with highly reliable solid-state circuitry including transistors and photodiodes. Ample safety margins protect parts . . . circuits are well above stress levels of the highest possible loads. Nevertheless each unit in the UNIVAC 1050 System undergoes thorough check-out procedures before delivery at the plants and at the new installation before it becomes operational.

UNIVAC 1050 Systems—fast, powerful, and ultra-reliable, can improve operations that depend on data processing in your organization. A Univac representative can show you how a UNIVAC 1050 System can process your current applications better. A further study may also reveal new areas that can be explored for your organization's progress. Contact your local Univac office.

UNIVAC

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