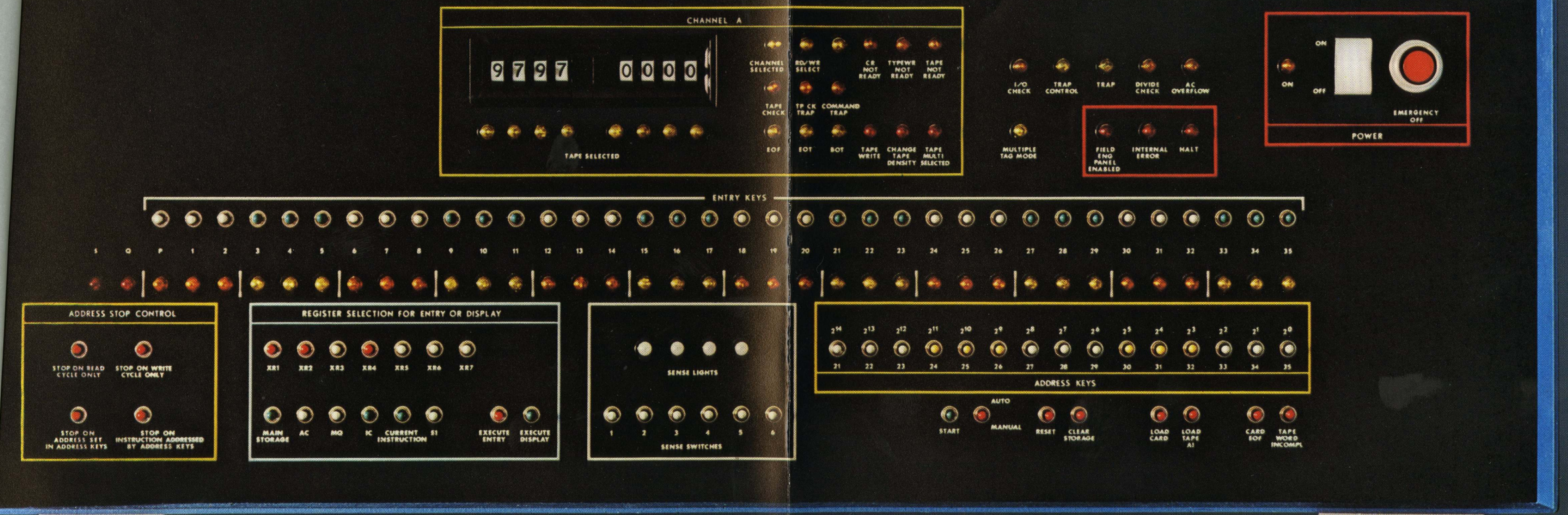
CHANNEL A
9797
0000
TAPE SELECTED
CHANNEL SELECTED
TAPE CHECK
EOF
RD/WR SELECT
CR NOT READY
TYPEWR NOT READY
TAPE NOT READY
TP CK TRAP
COMMAND TRAP
EOT
BOT
TAPE WRITE
CHANGE TAPE DENSITY
TAPE MULTI SELECTED
I/O CHECK
TRAP CONTROL
TRAP
DIVIDE CHECK
AC OVERFLOW
MULTIPLE TAG MODE
FIELD ENG PANEL ENABLED
INTERNAL ERROR
HALT
ON
OFF
EMERGENCY OFF
POWER
ENTRY KEYS
S Q P 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
ADDRESS STOP CONTROL
STOP ON READ CYCLE ONLY
STOP ON WRITE CYCLE ONLY
STOP ON ADDRESS SET IN ADDRESS KEYS
STOP ON INSTRUCTION ADDRESSED BY ADDRESS KEYS
REGISTER SELECTION FOR ENTRY OR DISPLAY
XR1 XR2 XR3 XR4 XR5 XR6 XR7
MAIN STORAGE
AC
MQ
IC
CURRENT INSTRUCTION
SI
EXECUTE ENTRY
EXECUTE DISPLAY
SENSE LIGHTS
1 2 3 4 5 6
SENSE SWITCHES
2^{14} 2^{13} 2^{12} 2^{11} 2^{10} 2^{9} 2^{8} 2^{7} 2^{6} 2^{5} 2^{4} 2^{3} 2^{2} 2^{1} 2^{0}
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
ADDRESS KEYS
AUTO
MANUAL
START
RESET
CLEAR STORAGE
LOAD CARD
LOAD TAPE A1
CARD EOF
TAPE WORD INCOMPL

IC·6000

A unique new computer designed to utilize existing software while offering the speed, reliability and economy possible only with third-generation hardware.

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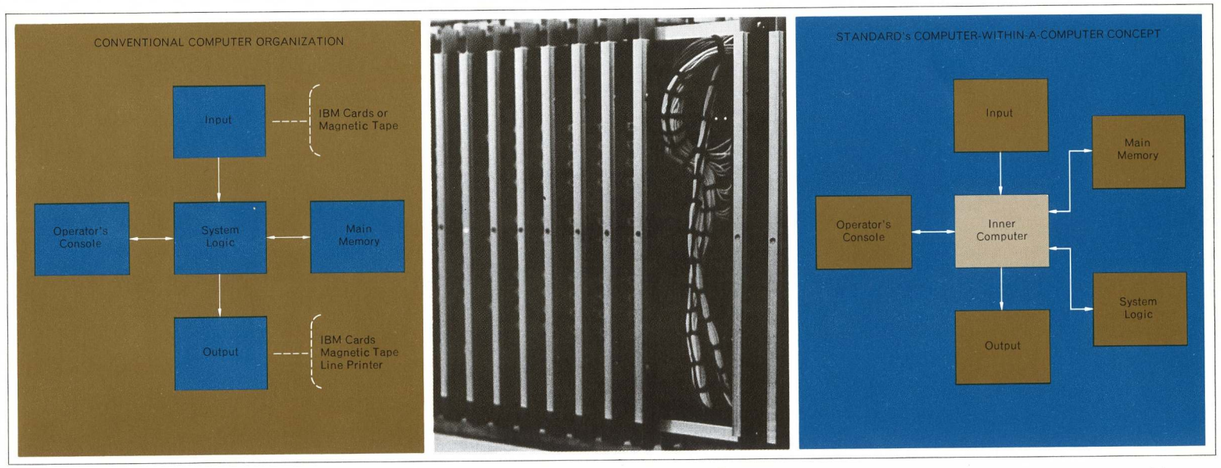
The IC-6000 embodies an entirely new computer design concept: machine language independence and multi-lingual capability. This user-oriented concept permits the use of existing program libraries with the IC-6000 without modifications or reprogramming. The user can conserve his investment in programming while he enjoys the benefits of advanced third-generation components: speed, economy, reliability, and a significant reduction in size.

Implicit in this concept were several design objectives. Among these were duo-dimensional modularity to afford the system the greatest possible degree of flexibility; sufficient memory size to handle programs written for large-scale systems; the ability to interpret the most extensive instruction repertoire; and complete compatibility at every level of programming. The key to the successful implementation of these objectives in the IC-6000 is a unique construction that consists, in essence, of a computer within a computer. The inner computer, with its own memory and registers, acts as an interpreter; the outer computer, for all practical purposes, acts just as though it were the computer it is intended to model. This interpretive technique is based upon a hardware-software combination called MINIFLOW (for an explanation of how MINIFLOW works, see caption). MINIFLOW has several important advantages over conventional emulation and translation techniques. It does not take up space in main memory, since the inner computer has its own separate memory. It is much faster than other techniques because the MINIFLOW memory functions four times faster than the main memory, and the two memories operate in an overlap mode. Finally, because MINIFLOW is a hardware-software combination it affords a greater flexibility than pure hardware techniques and greater speed than software translators or emulators.

The MINIFLOW system results in complete compatibility of the IC-6000 with the computers it is programmed to model. Generalized input and output interfacing enables the IC-6000 to accept compatible data media such as cards and tapes created for the system it models, as though they were its own. Also, generalized console interfacing provides duplicate operating conditions.

The IC-6000 required two years of development work from the basic concept to the operating computer. Many innovations had to be introduced, perfected, and proved. Now the IC-6000 is demonstrable and in production.

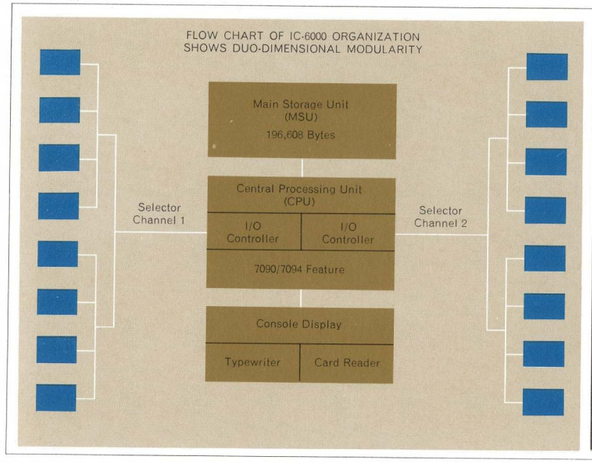


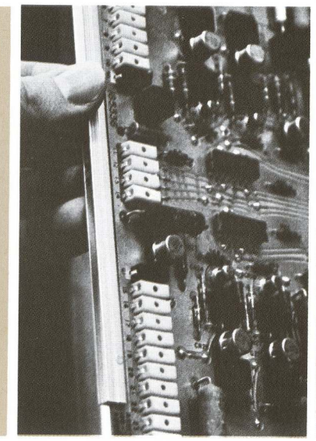
Conventional computer organization and MINIFLOW "computer within a computer" organization are shown in the two flow charts. Instead of a set of wired-in instructions, the IC-6000 has a set of mini-instructions stored in a separate control memory (center). When the IC-6000 is programmed to interpret the language of a given machine, the mini-instructions are grouped so that they are capable of executing every instruction in that machine's repertoire. An input instruction is partially decoded by two "interpreter" circuit boards. This preliminary decoding causes a transfer to the section of the inner memory where the appropriate mini-instructions are stored, and the instruction is then directly executed. The inner control memory is not accessible to the object program, so that its content is protected from accidental destruction.

The IC-6000 is a true third-generation computer. It features integrated circuit logic and duo-dimensional modular construction. Thousands of CTL (Complementary Transistor Logic) silicon monolithic integrated circuits are used to implement the logic circuitry of the IC-6000. This extensive use of IC's results in a considerable reduction in size. The computer is so small in relation to machines of comparable capacity, that it is often mistaken for a module. Integrated circuits also provide high speed and reliability at a reduced cost. The reason lies partly in the components themselves and partly in the reduced number of inter-connections required, and shorter wire lengths.

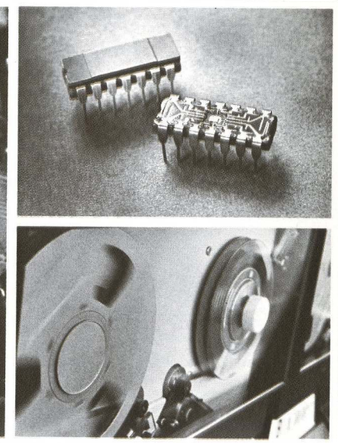
The organization of the IC-6000 embodies a duo-dimensional modular approach: each of the basic system modules is itself modular and divisible into sub-units. For example, the Central Processing Unit consists of a Register-Memory sub-unit, a Control-Memory sub-unit, an Arithmetic-Engine sub-unit, etc. The various sub-units can be selected to achieve an optimum cost/performance ratio. Three such optimum system combinations are available: the Model 19, the Model 29 and the Model 39. All three models have the same memory capacity and can execute the same programs with identical results.

CTL integrated circuit, one of thousands used in the IC-6000 (shown actual size), has a switching time of 5 nanoseconds.





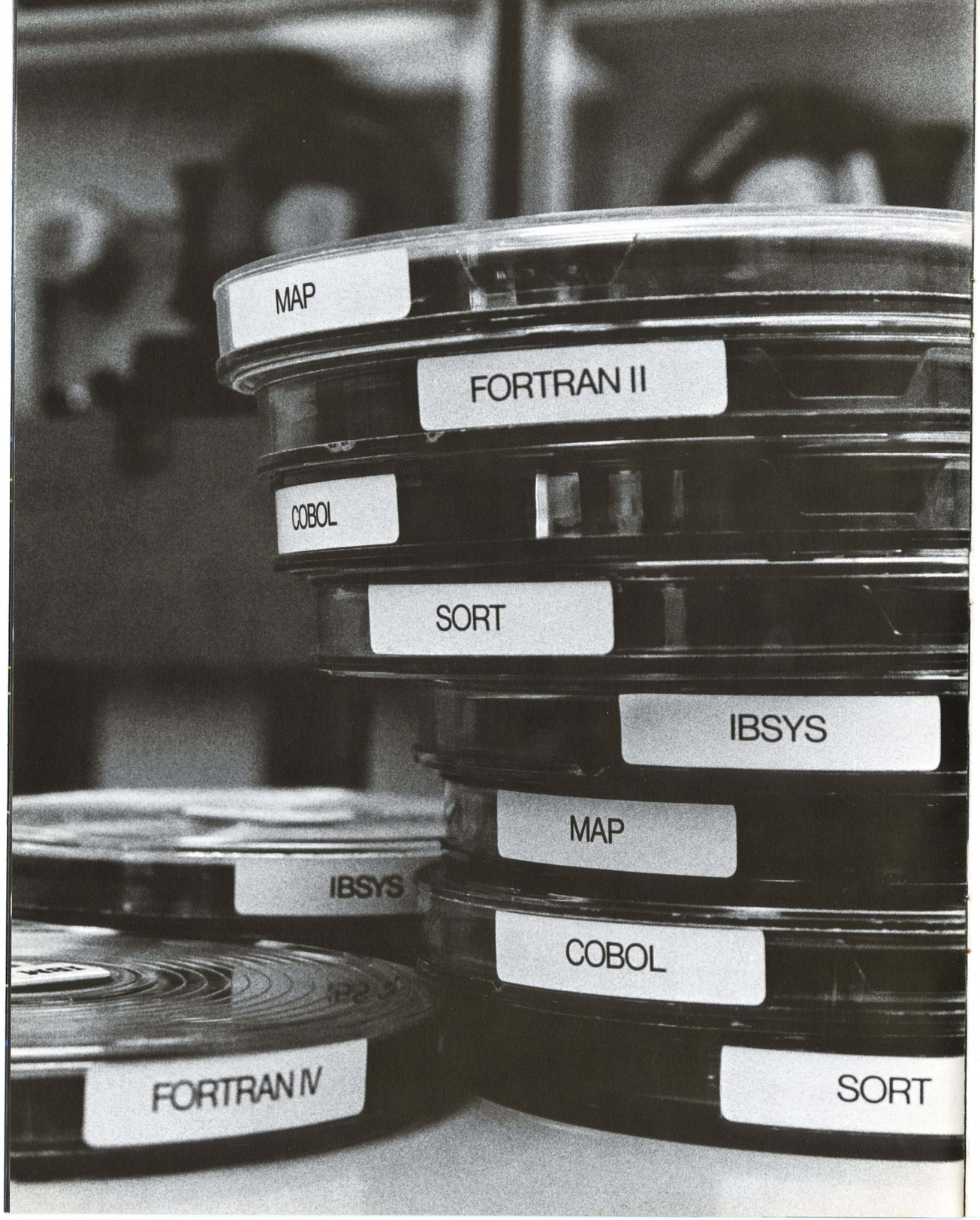
Dual-layer printed wire boards reduce the number of inter-connections and the distance signals must travel. This makes the machine more reliable, easy to maintain and to repair. It also reduces the size of the computer and its floor space, power, and air conditioning requirements.



Magnetic tape units offered as input/output equipment for the IC-6000 operate at 30,000 to 90,000 cps at 800 BPI density. Console card reader and typewriter are also included in the system.

The only difference is speed. Thus the user can select the IC-6000 model which has the processing performance he requires, with the assurance that the differences in performance levels will not affect the machine language capability of the machine. He buys, and pays for, only the performance he needs. The IC-6000 can easily assume the identity of large-scale systems such as the series 7094 or the Series 7044. It has more than 200,000 bytes of core memory and accommodates the complete memory requirements of a 32,768 6-byte word system. It is capable of executing the most comprehensive instruction repertoire found in commonly used systems. These capabilities, common to all IC-6000 models, provide lower cost and superior cost/performance.

Integrated Circuit chip magnified 19,321 times.

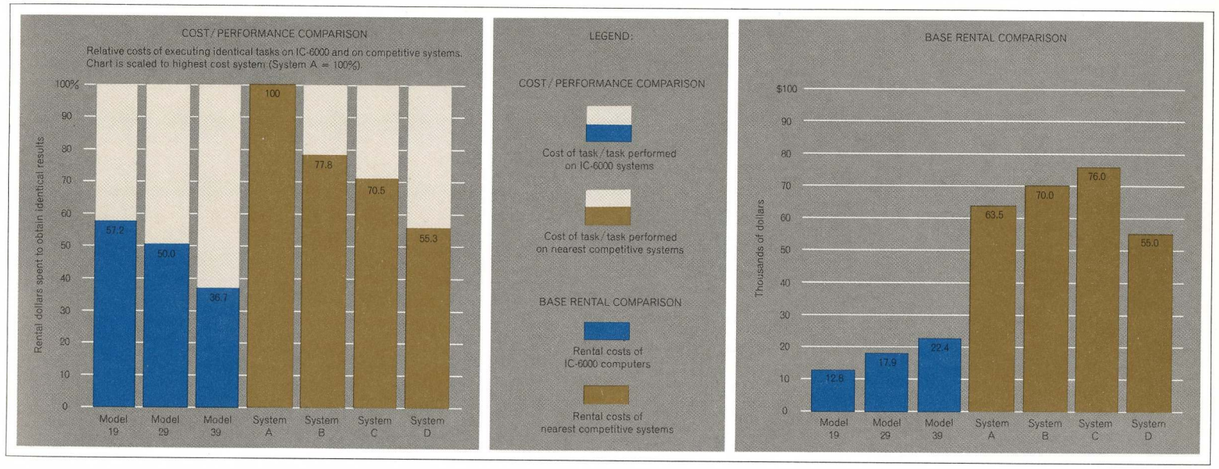


The most significant advantage offered by the IC-6000 is its ability to assume the identity of another system at a much lower cost. The IC-6000 can directly execute programs written for large-scale systems with no conversion or reprogramming. It can run programs directly from cards or tapes used by the machine it emulates. It can use IBSYS, FORTRAN, COBOL, or machine language with no modifications whatsoever. And it can do these things at a very low throughput cost.

What this means to the user is that he can conserve his investment in existing programs. He does not have to scrap his program library when he decides to convert to third-generation equipment. He does not have to reprogram, at considerable cost (see table, below). He does not have to emulate his old system on the new, at reduced efficiency and degraded performance. The IC-6000 offers a better, less expensive, alternative.

In installations where top priority programs are bottlenecked as they await batch processing, it is possible to substitute multiple IC-6000 computers. Computer time can then be assigned with greater flexibility to accommodate priority requirements.

But these are not the only benefits.



Additional advantages of the IC-6000 are integrated circuit reliability and small size. It occupies a fraction of the floor space required by computers with comparable capabilities, uses less power, and needs less air conditioning.

The advantages of the IC-6000 emanate from its basic design concepts. The reason is simple: from the very beginning it was designed to use existing software efficiently.

COSTS OF CONVERSION	
Manpower Machine time	Reprogramming
Manpower Machine time	Checkout of new programs
Retraining personnel	
New personnel	
Delayed new applications	
Delays caused by: Debugging new programs Shakedown of new operating techniques Slipped schedules	

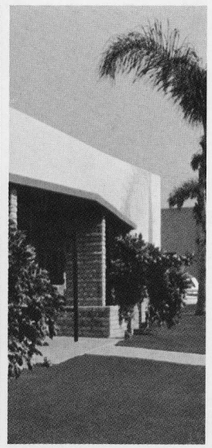
Standard Computer Corporation came into being in Phoenix, Arizona in March of 1965. It spent the initial period of its existence in developing and perfecting the IC-6000. Its engineering, marketing, and management talent consists of computer veterans from such companies as IBM, UNIVAC, General Electric, Texas Instruments, and others.

Late in 1966 Standard Computer Corporation moved its headquarters to a new plant in Santa Ana, California. Here it currently maintains total capabilities for design, fabrication, assembly, testing, and systems programming. Complete training facilities for field service engineers are also located here. Principal sales offices and demonstration facilities are located in Los Angeles and in New York.

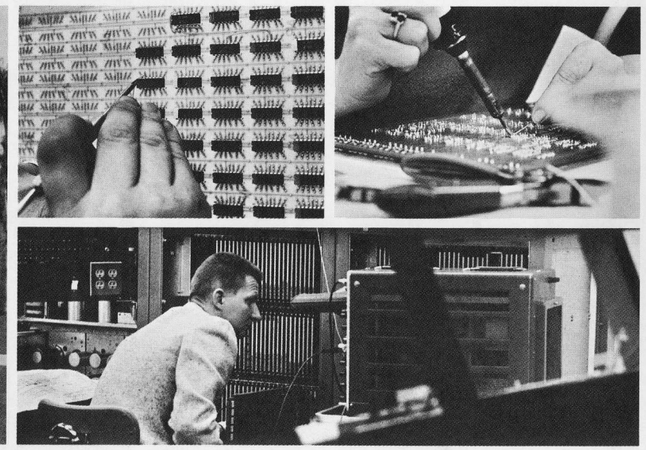
In less than two years Standard Computer Corporation has created a unique new product and a complete support organization for its manufacture, sales and service. To find out more about the IC-6000 and the company behind it, call any of the offices listed on the back.

Integrated circuits are inserted into printed circuit boards as one of the first manufacturing steps of the IC-6000 computer. Meticulous care is exercised as the delicate assembly process continues.

Laszlo L. Rakoczi, V.P. and Manager of Systems Programming (seated) discusses some of the operational aspects of the IC-6000 with David E. Keefer, V.P. and Manager of Engineering (top left) and Roger T. Hughes, President. Mr. Rakoczi and Mr. Keefer are co-inventors of the IC-6000.



Santa Ana plant of Standard Computer Corporation where the IC-6000 is designed, manufactured, tested, and sold.



Functional tests are performed at every level of fabrication and assembly and the entire system is operated in a simulated customer environment before shipment.

Standard

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