Introducing the SBC 80/10 Single Board Computer... the lowest-cost computer system solution for OEM applications with CPU, Memory, Programmable Serial and Parallel I/O... all on a Single Printed Circuit Board!

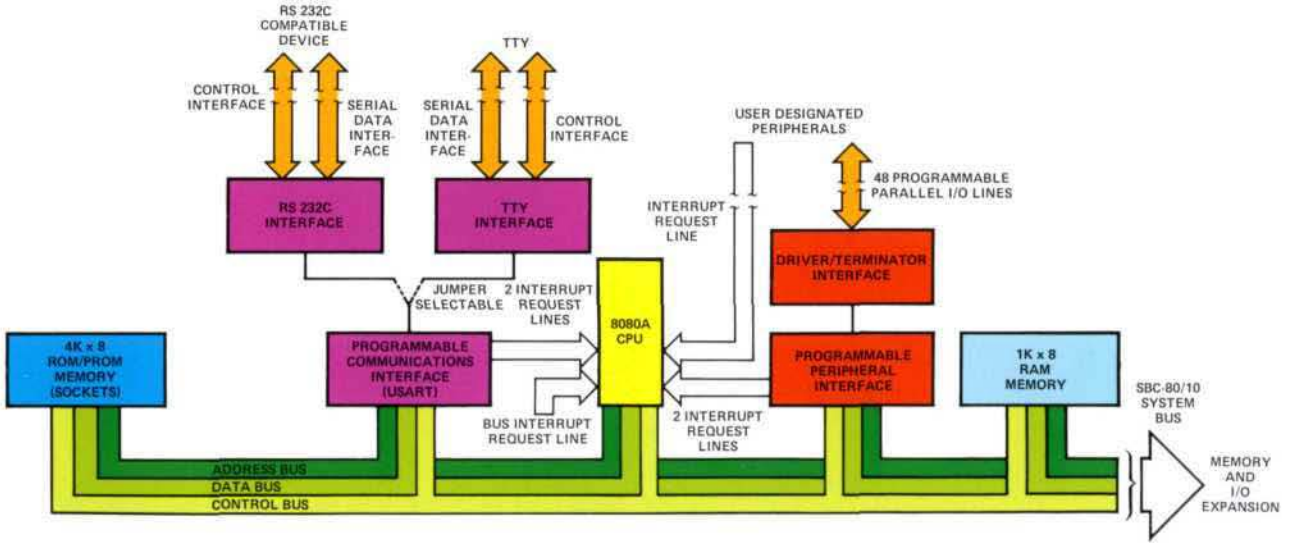
Intel Corporation has maintained its leadership in LSI technology since its inception. **And now, Intel has extended this technology into OEM microcomputer systems with the introduction of the SBC 80/10 Single Board Computer.** The SBC 80/10 fills the void that has existed in the range of computer solutions available for OEM processing and control applications. This complete LSI computer-on-a-board includes all the processing capability, memory and input/output functions required for the vast majority of OEM applications.

There are four basic reasons why the SBC 80/10 is the most cost-effective OEM computer system on the market. First, Intel manufactures *all* the key components on the board, including the microprocessor, RAM memory, PROM or ROM memory, programmable I/O interfaces, programmable communications interface, clock circuitry and bus control circuits. Therefore, all LSI components are incorporated into the system at the lowest possible cost. Second, the use of high-density LSI technology for *all* computer functions, including bus control and I/O, eliminates the need for costly additional boards which are conventionally used to provide serial I/O, parallel I/O and non-volatile memory capability. Third, the economies of scale associated with high volume production are passed on to the OEM.

And finally, the SBC 80/10 is supported with a complete family of hardware and software development tools including the Intellec® MDS Microcomputer Development System and its unique In-Circuit Emulator, ICE-80, MacroAssemblers, compilers, text editors, operating systems and utility programs. A User's Library with over 150 contributed programs, in-depth training courses, and an international staff of field application engineers further facilitate the integration of the SBC 80/10 into OEM products.

intel® delivers.

The Intel SBC 80/10 Single Board Computer



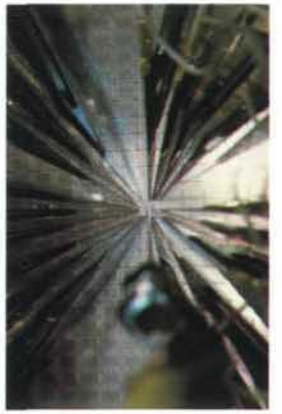
SBC 80/10 Features

- 8080A Central Processing Unit
- 1 k bytes of read/write (RAM) memory
- Sockets for 4k bytes of erasable and reprogrammable read-only memory (EPROM) or masked read-only memory (ROM)
- 48 programmable I/O lines with sockets for interchangeable line drivers and terminators
- Programmable Synchronous/Asynchronous communications interface with selectable RS232C or teletype compatibility
- Single-level multi-source interrupt
- Bus drivers for memory and I/O expansion

The first truly cost-effective complete computer system available for low and medium volume OEM production.







Intel, capitalizing on years of diversified LSI design and high volume manufacturing experience, introduces the first cost-effective solution for low and medium volume OEM processing and control applications ... the SBC 80/10 Single Board Computer.

Prior to the introduction of Intel's Single Board Computer, original equipment manufacturers had three alternatives . . . "packaged" minicomputers, "unpackaged" minicomputer board systems, and the "start-from-scratch" construction of their own dedicated systems using microcomputer components.

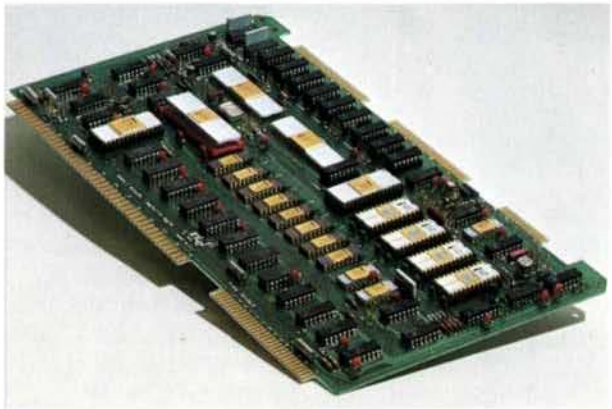
Packaged minicomputers could solve the OEM's processing and control problems, but they were relatively expensive, provided large amounts of processing power that was not utilized, and often exceeded OEM space and power supply design criteria.

Unpackaged minicomputer board systems were developed because the packaged minis were not cost-effective for a large number of OEM applications. Although power and space requirements were reduced, the basic price limitation was still present. The absence of LSI components to implement parallel I/O, serial I/O and bus control functions resulted in the need for relatively expensive multi-board systems for most basic OEM requirements.

The third alternative ... the OEM designing and manufacturing his own system using LSI components ... is extremely cost-effective when OEM products are manufactured in high volume. In this situation the OEM can take advantage of the economies of scale associated with building thousands of systems each year. Development costs may be amortized over a large product base, and components may be purchased at volume discounts directly from the LSI manufacturers. While the "start-from-scratch" alternative is an attractive solution for high volume OEM processing and control requirements, a cost-effective solution is still required for low and medium volume applications.

Finally, a truly cost-effective complete LSI computer system is available for low and medium volume OEM production ... the Intel SBC 80/10. The original equipment manufacturer can now select a self-contained and mass produced computer system that may be treated as a complete subsystem. On a single 6-$^{3}/_{4}$" x 12" printed circuit board, the SBC 80/10 contains *all* critical computer system functions ... the CPU, read/write memory, read-only memory, parallel I/O, a serial communications interface, an interrupt network and bus control functions. The use of an SBC 80/10 eliminates the time and cost needed to design, develop, debug and test the subsystem of any OEM product. *And when Volume increases to justify in-house production or second sourcing, Intel will make the printed circuit board artwork available to the OEM for a minimal license fee and offer attractive volume discounts on all LSI components.*

Finally, a Complete Computer System ... the CPU, Memory, Programmable Parallel and Serial I/O ... all on a Single Printed Circuit Board!



The SBC 80/10 is a complete, fully tested computer system on a single printed circuit board. For the first time, OEM products can take full advantage of the versatility and excellent price/performance characteristics of the *total* spectrum of LSI components . . . microprocessor, memory and programmable I/O ... at the board level. At last, engineers are free to do what they do best — design end user products instead of computer subsystems. The complete SBC 80/10 computer system may be treated as an off-the-shelf component to be integrated into your product.

The new SBC 80/10 Single Board Computer capitalizes on the extraordinary densities of Intel LSI components to provide all essential OEM computer functions on a single 6-¾" x 12" printed circuit board.

The SBC 80/10 Single Board Computer is the only OEM computer system that utilizes LSI technology to provide ALL the essential computer system elements on a single PC board.

There are several critical functions that are required in any OEM computer system. The SBC 80/10 utilizes Intel LSI components to implement all of these functions on a single 6-$^{3}/_{4}$" x 12" printed circuit board. An Intel 8080A microprocessor serves as the SBC 80/10 CPU. Intel erasable and reprogrammable PROMs or masked ROMs provide program storage. Intel static RAMs are used for read/write memory. Intel Programmable Peripheral Interface components are utilized to interface peripheral devices to the SBC 80/10. The Intel Universal Synchronous/Asynchronous Transmitter/Receiver is the programmable communications interface. And system clock and bus control functions are also provided by Intel components.

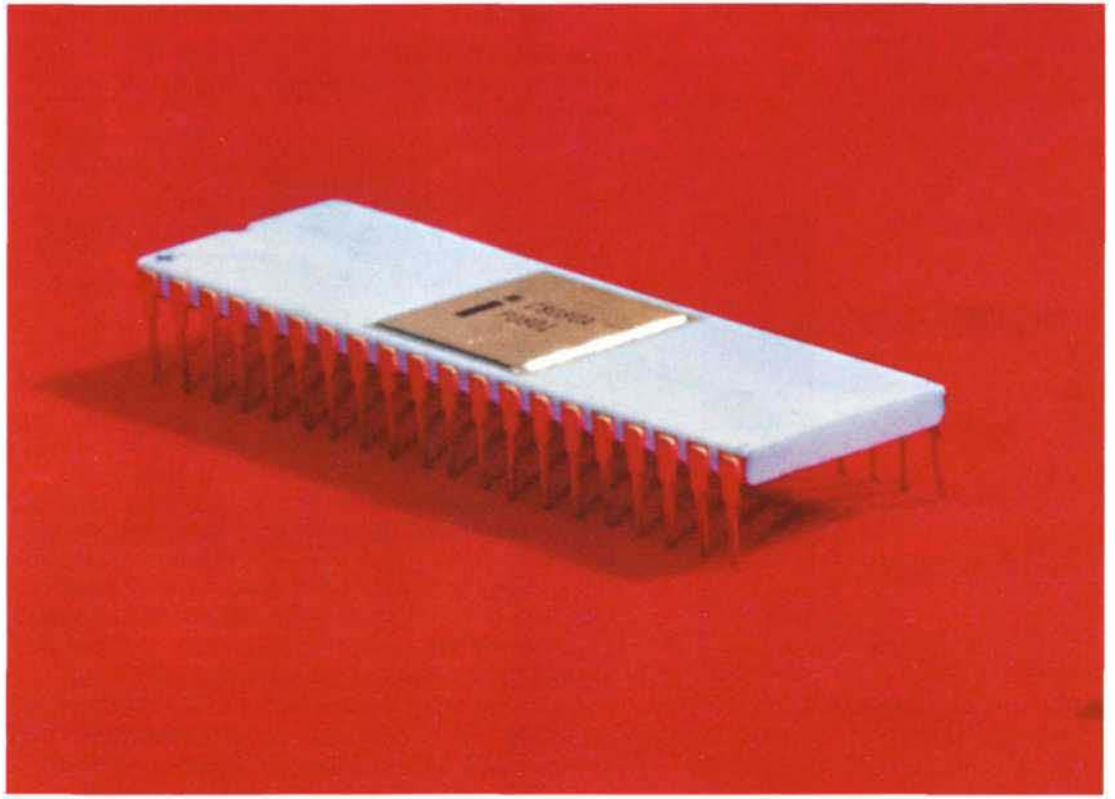
The Central Processing Unit is the heart of any computer system. The Intel 8080A CPU is the nucleus, and a major contributor to the operational flexibility and low cost, of the SBC 80/10.

Processing and control functions of any computer system are handled by the central processing unit (CPU). These functions are performed by the CPU through the interpretation and execution of stored programs. The SBC 80/10 Single Board Computer uses the Intel 8-bit, N-Channel MOS 8080A CPU, which is fabricated on a single LSI chip. The three basic functional units of the 8080A ... or any other CPU ... are registers, an arithmetic/logic unit (ALU) and control circuitry.

The 8080A contains six 8-bit general purpose registers and an accumulator. The six registers may be individually addressed or addressed in pairs, providing both single precision and double precision operators. A 16-bit program counter, which is a special purpose register, allows the 8080A to address up to 65,536 bytes of memory. Another special purpose register is the 16-bit stack pointer, which enables the 8080A CPU to address any portion of read/write (RAM) memory as a last-in/first-out stack to store or retrieve the contents of the program counter, flags, the accumulator and any of the six general purpose registers. The use of the stack pointer in conjunction with read/write memory provides subroutine nesting capability which is bounded only by memory size.

The Arithmetic/Logic Unit (ALU) on the 8080A performs arithmetic, logical and shift/rotate operations. Arithmetic and logical instructions set and reset four testable flags, while a fifth flag provides binary coded decimal arithmetic capability.These flags are used to identify the resulting status (e.g. carry, zero, sign, parity) after an arithmetic, logical, or shift/rotate operation is concluded. Subsequent program instructions can interrogate the flags and jump to a specified section of the program, depending on the condition of the flags.

Control circuitry on the 8080A provides the capability to decode instructions and coordinate their execution with the LSI memory and I/O components which are an integral part of the SBC 80/10. The CPU section contains buffers for the SBC 80/10's 16-bit three-state address bus and 8-bit bi-directional three-state data bus.



The SBC 80/10 provides capacity for up to 4k bytes of non-volatile memory, using either programmable and erasable PROMs or masked ROMs.

Any computer system must have memory capacity for storing the system programs. Non-volatile program storage is usually a necessity, since it eliminates the need to continually reload the program each time the system is "powered-up." The SBC 80/10 Single Board Computer contains sockets for up to 4k bytes of non-volatile read-only-memory (ROM) for program storage. The OEM may select either Intel erasable and electrically reprogrammable 8708 PROMs or masked 8308 ROMs.

Intel 8708 erasable and reprogrammable read-only-memories — called PROMs or EPROMs — provide the capability of altering system program contents during program development. EPROMs may be erased in a matter of minutes by ultraviolet light and reprogrammed. Then, when program development is completed, masked Intel 8308 ROMs may be substituted for high volume production. Non-volatile memory may be added to the SBC 80/10 in 1 k byte increments up to a total of 4k bytes.

The SBC 80/10 provides LSI read/write memory storage.

Most computer systems have a requirement for read/write memory to store system data, variable parameters and subroutines that are subject to dynamic change. The SBC 80/10 provides this storage with 1k bytes of read/write (RAM) memory-using Intel 8111 static LSI random-access-memories.

The key to the versatility of the SBC 80/10 Single Board Computer is its Programmable Parallel and Serial I/O that can be easily customized to meet a variety of OEM applications

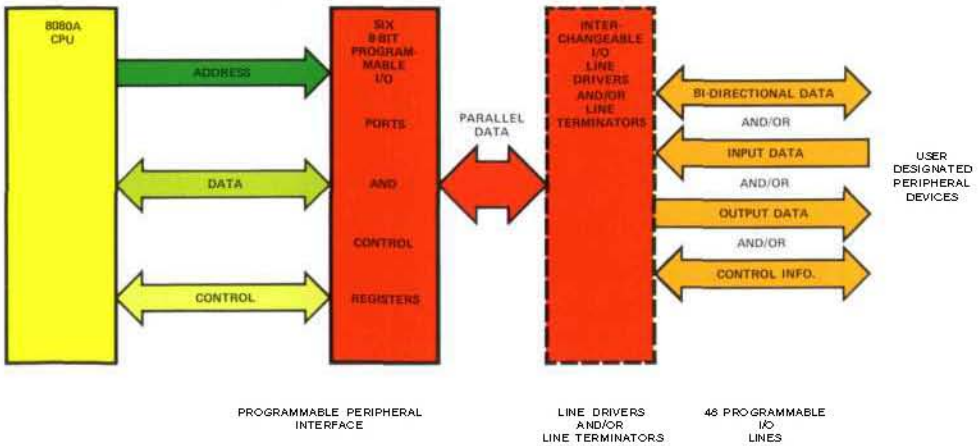
The central processing unit must have access to pertinent systems information and respond by outputting control, status and numerical information to the appropriate system elements. The input/output (I/O) interfaces are often the most critical elements in providing a cost-effective solution for OEM computer requirements. Most OEM computer system manufacturers implement system I/O on separate I/O boards utilizing fixed input/output ports. The SBC 80/10 Single Board Computer, however, contains Intel programmable LSI interface components for parallel and serial I/O.

The SBC80/10 parallel I/O interface is configured by the OEM using the system software.

The SBC 80/10 computer system contains 48 programmable I/O lines, implemented with Intel 8255 Programmable Peripheral Interface components. The system software is used to configure the I/O lines in user specified combinations of uni-directional input or output ports or bi-directional I/O ports. The mode of input/output operations . . . unlatched, latched or latched and strobed . . . can also be programmed with the system software.

This means that the I/O interfaces may be customized to meet specified peripheral requirements. Sockets are provided for interchangeable I/O line drivers and receivers to take full advantage of the large number of possible I/O configurations. The flexibility of the parallel I/O interface is thus further enhanced by the capability of selecting a driver with appropriate sink current, polarity, and interface characteristics for each output port. Input ports may be terminated by choosing one of Intel's standard terminators. Even the interface cable scheme is variable, allowing the OEM to choose between several industry standard flat cable or round cable options.

PROGRAMMABLE PARALLEL I/O



The SBC 80/10 programmable parallel I/O interface provides the capability of using the system program to configure the direction and mode of information flow between user designated peripheral devices and the six 8-bit I/O ports on the SBC 80/10.

The SBC 80/10 serial communications interface can be programmed to operate in synchronous or asynchronous mode.

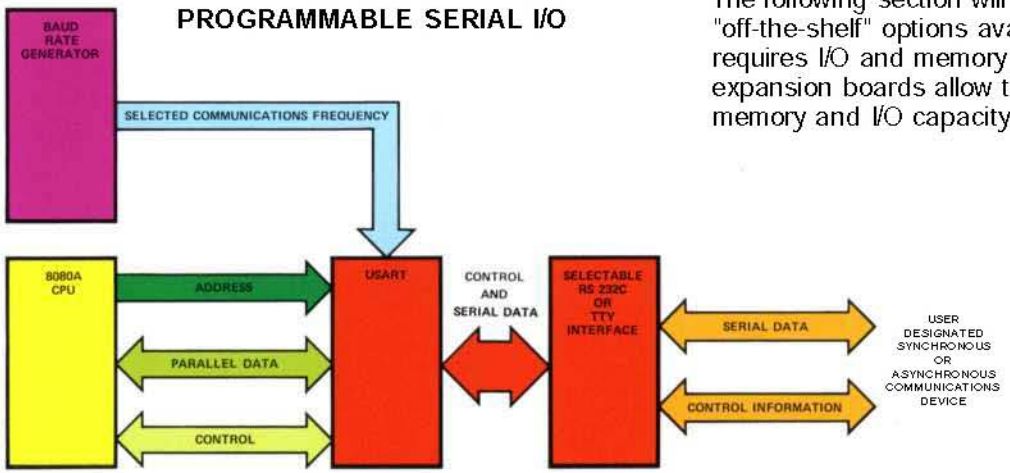
The SBC 80 computers contain a programmable communications interface, implemented with an Intel 8251 Universal Synchronous/Asynchronous Receiver/Transmitter (USART). The USART is programmed with the system's software to provide asynchronous or synchronous serial data transmission techniques (including IBM Bi-Sync). The mode of operation (asynchronous or synchronous), data format, control character format, parity and asynchronous serial transmission rates are all under program control. All commonly used baud rates are provided by a jumper selectable baud rate generator. The inclusion of on-board RS232C and teletype interfaces allow the SBC 80/10 to interface with TTYs, CRTs, RS232C compatible cassettes as well as synchronous or asynchronous modems. The programmable communications interface meets the serial I/O requirements of the majority of OEM systems and also provides an invaluable system debugging aid by the inclusion of both TTY and CRT interfaces.

The SBC 80/10 has a single-level interrupt that may originate from six sources.

In most processing or control applications, there is a need to service specified tasks as soon as a critical set (or sets) of parameters change. Interrupts are requests from a peripheral device or peripheral circuits that indicate the need for immediate processor (CPU) attention. When the processor acknowledges an interrupt request, the program being executed is suspended, all pertinent system information is stored, and the processor jumps to a pre-designated interrupt subroutine where the required servicing task is processed.

The SBC 80/10 has a single-level interrupt system. Interrupts may originate from the programmable parallel I/O, the USART or may be received via the system bus and I/O edge connector. Parallel I/O and serial I/O interrupts may be generated automatically upon transmission or receipt of a byte of information to or from designated peripheral devices. These interrupts may be masked under program control, preventing them from interrupting the processor.

PROGRAMMABLE SERIAL I/O



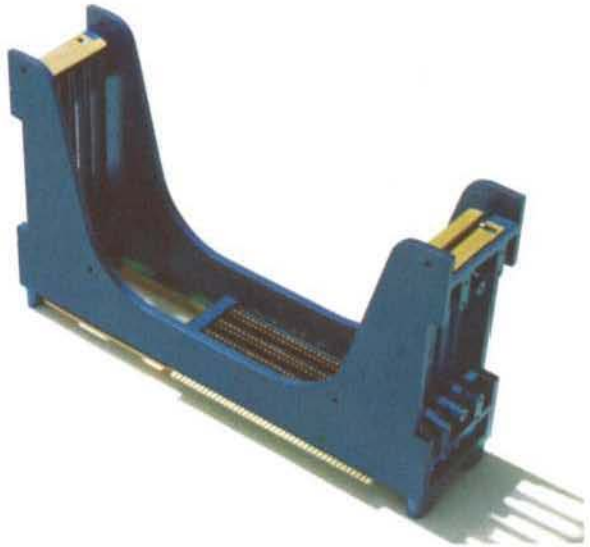
The SBC 80/10 programmable communications interface provides the capability of using the system program to select synchronous or asynchronous serial communication techniques. The communications frequency and hardware interface (i.e. RS 232C or TTY) are also selectable.

The SBC 80/10 system bus provides the capability to expand memory and I/O capacity to meet custom OEM requirements.

The majority of OEM applications will require only one printed circuit board to contain the entire computer subsystem ... the SBC 80/10. For those applications requiring additional memory and I/O capacity, the SBC 80/10 system bus provides the vehicle to extend capacities by simply choosing the appropriate optional peripheral expansion board. The SBC 80/10 contains all the necessary control, address, and data line drivers to expand memory and I/O capacity. Memory may be expanded incrementally to 64k bytes and I/O may be incrementally expanded to 504 input lines and 504 output lines.

The following section will explain the myriad "off-the-shelf" options available to the OEM that requires I/O and memory expansion. The expansion boards allow the OEM to customize his memory and I/O capacity to his own requirements.

For applications requiring additional memory and I/O capacity, Intel has a complete line of memory and I/O expansion boards, modular backplanes and cardcage assemblies.



While most OEM applications are solved with a single SBC 80/10 board, Intel has developed a variety of peripheral expansion boards designed to meet the needs of those manufacturers having increased memory or input/output requirements. Five boards are available ... a Combination Board combining read/write memory, ROM/PROM memory and I/O, a 16k Read/Write Memory Board, a 16k ROM/PROM Board, a 6k ROM/PROM Board, and a General Purpose I/O Board. All boards are provided on a 6-$^{3}/_{4}$" x 12" form factor — the same size as the SBC 80/10 — and can be effectively interconnected and housed with the 80/10 in a standard Modular Backplane/Card Cage.

You can expand your I/O capacity and gain additional read/write and PROM memory with the new SBC 80 Combination Board.

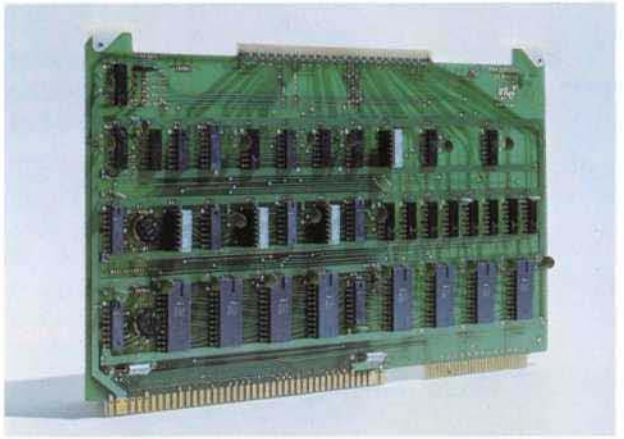
A specific help to those manufacturers requiring an expansion of the memory and I/O functions already contained on the SBC 80/10 is a unique new Combination Board. The specially-designed board includes 48 programmable I/O lines and a RS232C compatible programmable communications interface. The board also contains 4k bytes of read/write RAM memory. Sockets are provided for up to 4k bytes of Intel 8708 erasable PROM (Programmable Read Only Memory) or 8308 masked ROM, which may be added in 1k byte increments. Eight interrupt request lines and a pending-interrupt request register, which may be read by the (CPU), reside on the Combination Board. Memory, I/O, and Interrupt Register addresses are jumper selectable.

A 16k byte Read/Write Memory Board can be used to expand the RAM memory capacity of your SBC 80/10.

Another of the peripheral expansion boards available with the SBC 80/10 is a 16k Read/Write Memory module. This board permits the expansion of memory by 16k bytes of dynamic RAM and contains all necessary refresh circuitry. Addresses on this expansion board are jumper selectable. Intel® 2107 4,096-bit dynamic read/write MOS memories are used in the 16k byte memory array.

A General Purpose I/O Expansion Board includes 32 parallel input lines and 32 parallel output lines.

The General Purpose I/O Expansion Board can be used in conjunction with the SBC 80/10 in situations where I/O expansion is a system necessity. The I/O module includes 32 parallel input lines and 32 parallel output lines. Input ports may be latched or unlatched, and output ports are latched and may be strobed. The I/O board includes TTL drivers and terminators, and the port addresses are jumper selectable. Three-state buffered data paths provide communications to and from external devices.

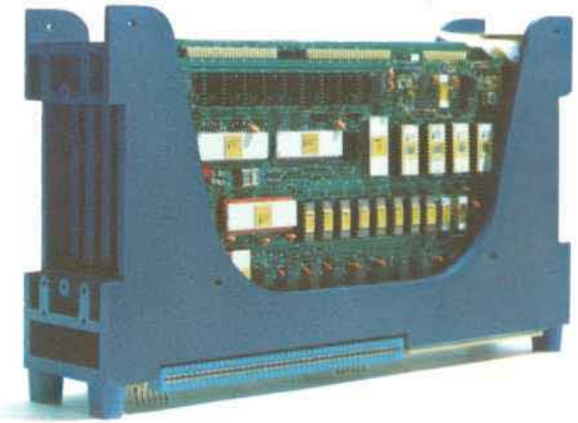


Non-volatile memory expansion can be accomplished using either the 6k or 16k PROM/ROM Memory Expansion Boards.

Two PROM/ROM Boards are available for system expansion of your SBC 80/10 PROM or ROM memory. The first permits the addition of up to 16k bytes of Intel 8708 erasable and reprogrammable Read Only Memory, or 16k bytes of masked Read Only Memory (8308 ROMs) in 1k-byte increments. The second provides expansion capacity for up to 6k bytes of Intel 8702A erasable and reprogrammable PROMs or 6k bytes of masked 8302 ROMs in 256-byte increments. Both boards have jumper selectable memory addresses.

A new Backplane/Card Cage has been custom-designed for the SBC 80/10 and its complementary peripheral expansion boards.

The new SBC 80 Modular Backplane/Card Cage assembly allows you to interface your Single Board Computer with up to three peripheral expansion boards. The entire assembly may be housed in a standard 3.5 inch RETMA rack. Each Backplane module has four printed circuit board sockets and can be extended by interconnecting with other Backplane modules to provide direct, easy expansion of the SBC bus. The card cages are designed for modular expansion and may be bolted together.The Backplane/Card Cage assembly mounts in any of three planes.



intel supports the SBC 80/10 with the Intellec MDS Microcomputer Development System

With the powerful Intellec MDS Microcomputer Development System and its ICE-80 In-Circuit Emulator, you can develop and debug your system software directly on the SBC 80/10 ... plus, you can isolate and correct system "bugs" on the production line and in the field

The Intellec MDS Microcomputer Development System and its unique In-Circuit Emulator (known as ICE-80) minimizes the time required to develop system software and hardware, and integrate the SBC 80/10 into OEM products. And after the development cycle is completed, the same Intellec MDS and ICE-80 can be used to isolate system "bugs" on the production line and in the field.

The basic Intellec MDS comes with an 8080A CPU, 16k bytes of RAM memory, 2k bytes of ROM — containing a system monitor/debugger — 256 bytes of erasable PROM, and hardware interfaces for a teletype, CRT, paper tape reader, paper tape punch, line printer and Universal PROM Programmer. Memory may be expanded to 64k bytes and I/O may be expanded to 44 input and 44 output ports with optional boards. The Intellec MDS also includes a resident macro-assembler, text editor and system monitor/debugger. Programs can be loaded, assembled, executed, debugged and edited using the Intellec MDS development system, in conjunction with its resident software. The system monitor contains software drivers for all peripherals (the TTY, CRT, paper tape reader, paper tape punch, line printer and UPP mentioned above), program load and punch capabilities, the capability to examine and alter system memory and CPU register contents,

the capability to execute any specified program segment, and the ability to stop program execution at user specified breakpoints.

ICE-80 extends powerful MDS development and diagnostic capabilities DIRECTLY into your SBC 80/10 based products.

The addition of the optional In-Circuit Emulator (ICE-80) to the Intellec MDS allows you to develop, debug and execute OEM system programs *directly* on the SBC 80/10 based prototype. The ICE-80 module resides in the Intellec MDS and emulates the 8080A CPU in the Single Board Computer. The ICE-80 module interfaces to the SBC 80/10 via a cable that is terminated with a 40-pin package that is pin-for-pin compatible with the 8080A. When the 8080A is removed from its socket on the SBC 80/10 and is replaced by the ICE-80 cable terminator plug, complete interaction with SBC 80/10 based prototype hardware and software becomes a reality using the Intellec MDS system resources and symbolic debugging aids.

Program execution may be suspended at pre-set breakpoints, where previously executed instructions with corresponding bus and status information may be displayed, and register and memory contents may be examined and altered.

The use of ICE-80 diagnostics can significantly reduce OEM program development and debug time. Breakpoints may be set on user specified memory read or write instructions, I/O read or write instructions, or user-defined extension parameters (e.g. any logic signal in OEM system). Programs may be executed in real time, until a breakpoint is encountered. At this time, program flow may be traced by listing previously executed instructions with corresponding bus contents and the system's status. Or, program flow may be traced by stepping one instruction at a time and displaying any or all register, memory and bus contents after each cycle. Finally, memory and register contents may be examined and altered at any point in the system program.

Interactive ICE-80 software with a symbolic debugging capability makes system debugging easier than ever before.

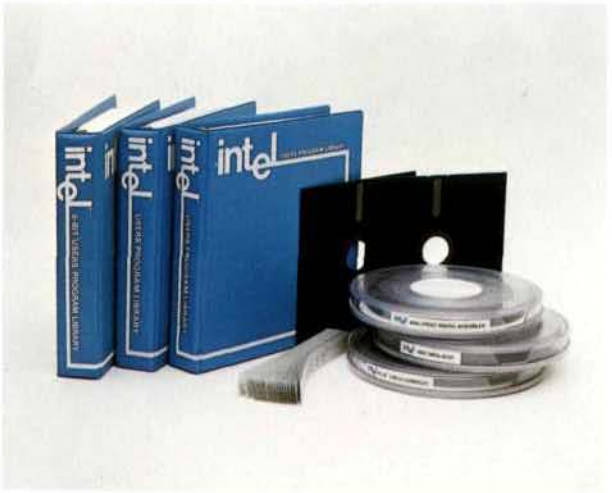
ICE-80 debugging is performed by executing English language-type commands from the Intellec MDS system console. Debugging is made even easier by the ability of the MDS to refer to critical program labels and parameters by their symbolic names instead of their absolute memory locations.

```
#GO FROM START UNTIL RESLT WRITTEN
EMULATION BEGUN
EMULATION TERMINATED AT 0018H
#DISPLAY MEMORY RESLT
0020H=00H
#DISPLAY MEMORY BYTE1 TO RESLT
001FH=01H 00H
#RANGE ADR TO STORE
#STEP BY 1 FROM START THEN DUMP CONTINUE FOREVER
EMULATION BEGUN
B=01H C=00H D=00H E=00H H=00H L=00H F=46H A=00H P=0018H I-0017H S=0000H

B=01H C=00H D=00H E=00H L=00H F=46H A=00H @-0018H I=0018H S=0000H

B=01H C-00H D=00H E=00H H=00H L=00H F=46H A=00H P-0018BH I=0017H S=0000H
B=01H C=00H D=00H E=00S

PROCESSING ABORTED
#CHANGE MEMORY ADR=00H
#GO UNTIL STORE EXECUTED THEN DUMP
EMULATION BEGUN
B=01H C=00H D=00H E=00H H=00H F=02H A=01H P=0018H I=0018H S=0000H

EMULATION TERMINATED AT 0018H
DISPLAY MEMORY RESLT_
```

An optional Intellec MDS Diskette Operating System minimizes the time required to load, assemble, edit, execute and debug system programs.

An optional Diskette Operating System for the Intellec MDS includes a diskette controller, single or dual diskette drives and ISIS (for Intel Systems Implementation Supervisor) software. These features provide significant advantages in developing OEM system programs. With the optional DOS, you can load, assemble, edit, execute and debug programs faster than using conventional paper tape, card or cassette peripherals. Variable length files may be assigned dynamically and catalogued with appropriate system attributes. Comprehensive file management capabilities add to the utility of the Disk Operating System.

The total support provided by Intel for the SBC 80/10 Single Board Computer is the key in helping you minimize product development cost and time.



The SBC 80/10 is backed by a complete spectrum of software support, ranging from macro-assemblers and text editors to the Intel high-level programming language, PL/M®.

Intel provides a wide variety of system software for OEM system program development. This software support is available in three basic categories:

1) Resident on the Intellec MDS Microcomputer Development System (on paper tape or diskette).
2) On magnetic tapes that will execute on any computer with a 32-bit or larger word size and an ANSI standard FORTRAN IV compiler.
3) On major timesharing computer networks in the United States and the world.

A macro-assembler with conditional assembly capability is available to generate OEM systems software.

A 8080 Macro-Assembler translates symbolic assembly language into machine codes. Program addresses may be referenced symbolically. Full macro capability eliminates the need to rewrite similar sections of code repeatedly and simplifies program documentation. Conditional assembly permits the assembler to include or delete sections of code which may vary from system to system — such as code required to handle optional external devices.

A text editor with line and character manipulation capabilities significantly simplifies program alteration.

The System Text Editor is a comprehensive tool for the entry and modification of assembly language programs. The text editor's command set allows manipulation of either entire lines of text or individual characters within a line.

The powerful high-level Intel programming language, PL/M, tailored for SBC 80/10 processing and control applications, can significantly reduce program development time and costs.

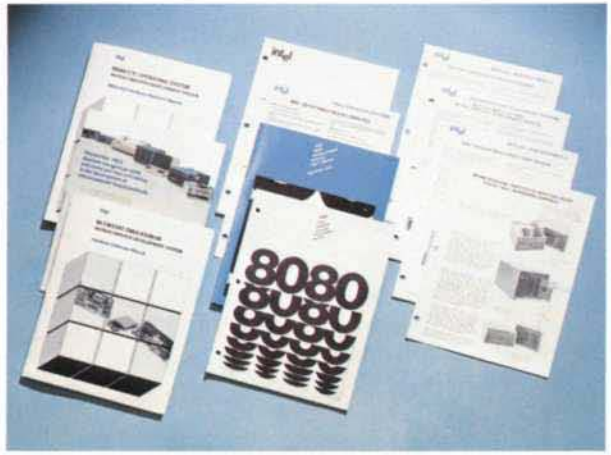
PL/M is the Intel high-level programming language specifically designed for Intel 8-bit microcomputers. It provides the capability to program in a natural, algorithmic language and eliminates the need to manage register usage or allocate memory. PL/M programs can be written in a much shorter time than equivalent assembly language programs, reducing OEM software development time and costs. Program reliability is enhanced by the capability of writing structured programs, and the elimination of register allocation errors. Program maintenance and modification is made easier due to the self-documented nature of the language. PL/M offers the arithmetic, logical, and shifting operations essential for processing and control applications.

Intel's comprehensive 8080 User's Library gives you access to over 150 applications programs written for the world's most widely used microprocessor.

The 8080 User's Library provides an excellent source for SBC-80 applications programs. The library features a wide variety of peripheral drivers, mathematics packages, real-time executives, and test programs.

Intel support includes a wide range of manuals and documentation to aid in the use and development of an SBC 80/10.

Hardware reference manuals, software manuals, user's manuals, applications notes, data sheets, software reference specifications and schematic drawings are all available to SBC 80/10 customers. If the documentation still leaves unanswered questions, an international network of Intel field applications engineers are ready to step in to help you solve your problems.

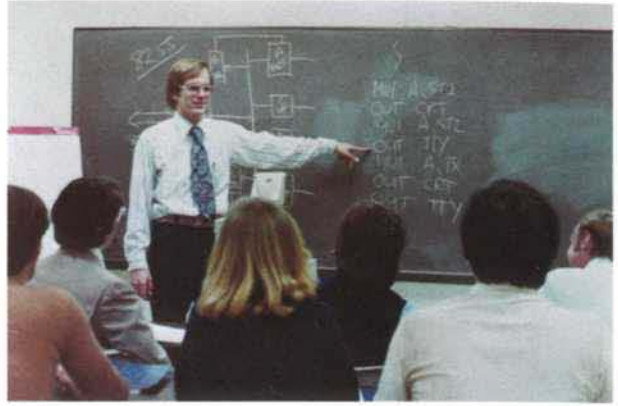


Intel supports you with extensive hardware and software field applications assistance.

An international staff of field applications engineers are able to provide all the assistance you need — if requested — on the SBC 80/10 Single Board Computer. Intel field applications engineers are available to provide you with software and hardware assistance in integrating the SBC 80/10 into your products.

Intel SBC 80/10 and PL/M training programs are available in a series of workshops at East and West Coast training sites ... or in your plant.

Intel SBC 80/10 and PL/M workshops are offered on a continuing basis at East and West Coast training facilites. In addition, on-site training courses may be scheduled in your plant. All courses are taught by professional instructors with extensive microcomputer experience. SBC-80 courses include assembly language programming, interfacing information, applications examples and "hands-on" instruction in the use of the Intellec MDS Microcomputer Development System and the ICE-80 In-Circuit Emulator. PL/M courses provide comprehensive instruction in writing programs using the Intel high-level programming language.



SBC 80/10 computers, peripheral expansion boards and accessories are stocked in major cities in the USA, Europe, Australia and Japan by Intel international distributors.

Distributors for Intel products stock the entire SBC 80/10 product line. This means that spare parts are available "off-the-shelf". And the Intel distributors, not the OEM, are incurring the inventory holding costs.

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The SBC 80/10 Single Board Computer
is the lowest-cost computer system solution for OEM applications.

Its off-the-shelf convenience, flexibility and ease of use
are as important to you as the SBC 80/10's low price.

- The SBC 80/10 computers are the only **complete** computers on a single printed circuit board. They provide, on one board, all the processing capacity, memory, parallel and serial I/O required for the overwhelming majority of OEM applications.

- As an LSI manufacturer, Intel Corporation is able to provide the SBC 80/10 as a compact — $6\frac{3}{4}$" x 12" — yet amazingly powerful and completely functional computer at a very low cost. Because of expertise in LSI technology, Intel has been able to achieve densities on a single board that are unattainable elsewhere.

- Since Intel produces the bulk of the components on the SBC 80/10 — CPU, all memory devices and all I/O devices — you gain the low price which can only be offered by an original source supplier that manufactures OEM systems in high volume.

- When your volume increases to justify in-house production or second sourcing, **you can obtain the printed circuit board artwork from Intel and buy the components at attractive volume discounts.**

- **Programmable parallel and serial I/O allow you to customize the SBC 80/10 interface to any OEM system application.**

- A complete spectrum of Intel software, including debuggers, editors, assemblers and Intel's high-level language, PL/M, is available to speed your development cycle.

- The complete, fully-tested SBC 80/10 computers reduce OEM production costs and help deliver OEM products to the marketplace faster. With a complete computer on a single PC board, you can minimize internal design, PC layout, test, and documentation overhead as well as the manufacturing costs associated with board production.

- The Intellec MDS Microcomputer Development System provides a means of developing and debugging OEM system software and rapid, simplified integration of prototype hardware and software. The ICE-80 In-Circuit Emulator option to the MDS gives you development, design, debugging and testing capabilities you will not find in any other development system.

- Most important, Intel offers you a full range of total support to enable you to quickly and economically produce your OEM systems. You can take advantage of Intel documentation, training and an international field applications engineering staff when you choose an SBC 80/10.

- Spare boards are stocked in all major cities in the United States, Europe, Australia and Japan by all Intel distributors.

- The Intel SBC 80/10 Single Board Computer is **here now, available now,** ready to use now. These complete, off-the-shelf LSI computers on single boards can save you time, money and enable you to produce and market your products faster — for less money — than ever before. Contact your Intel Representative immediately or return one of the attached inquiry cards for prompt additional information and assistance.

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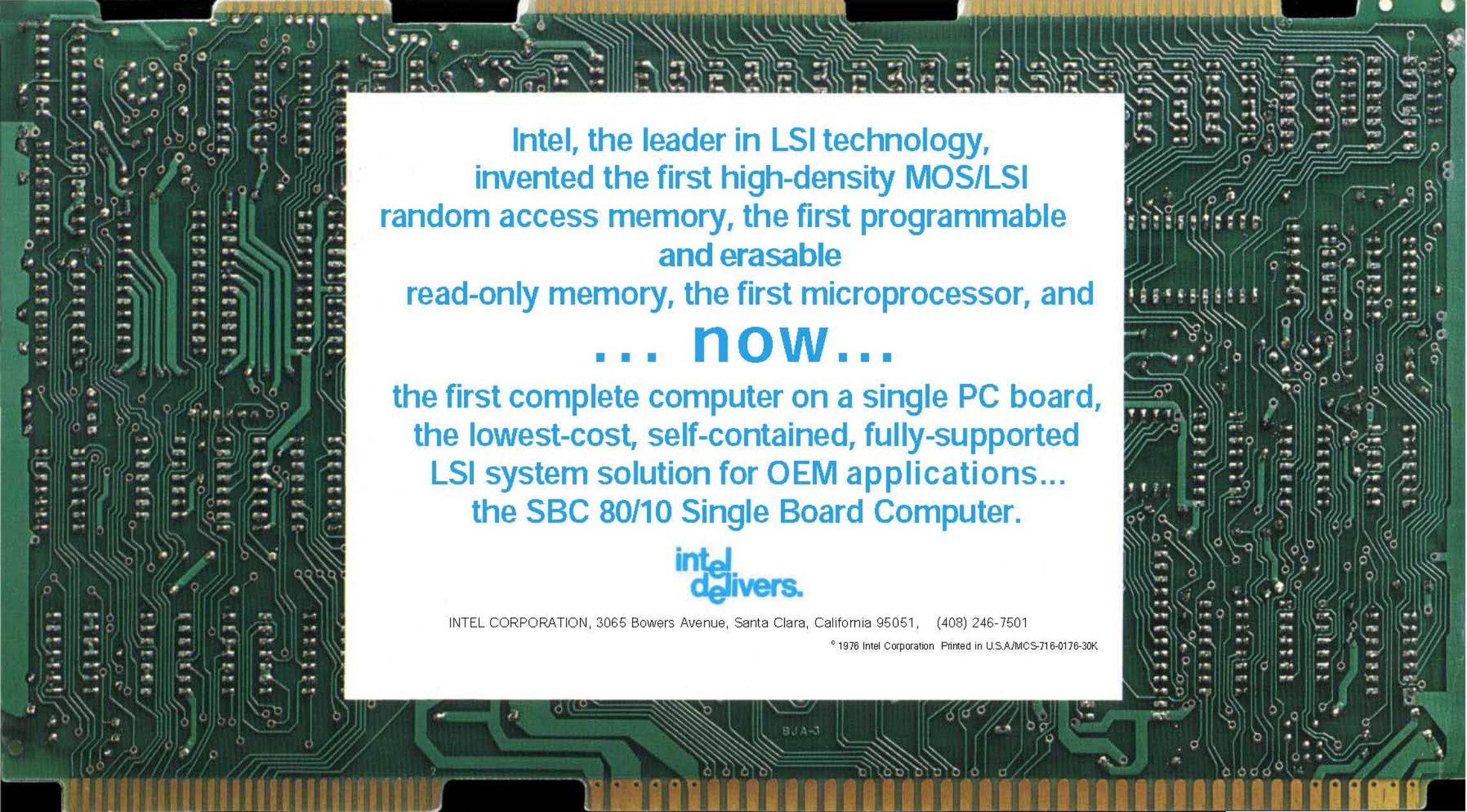
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