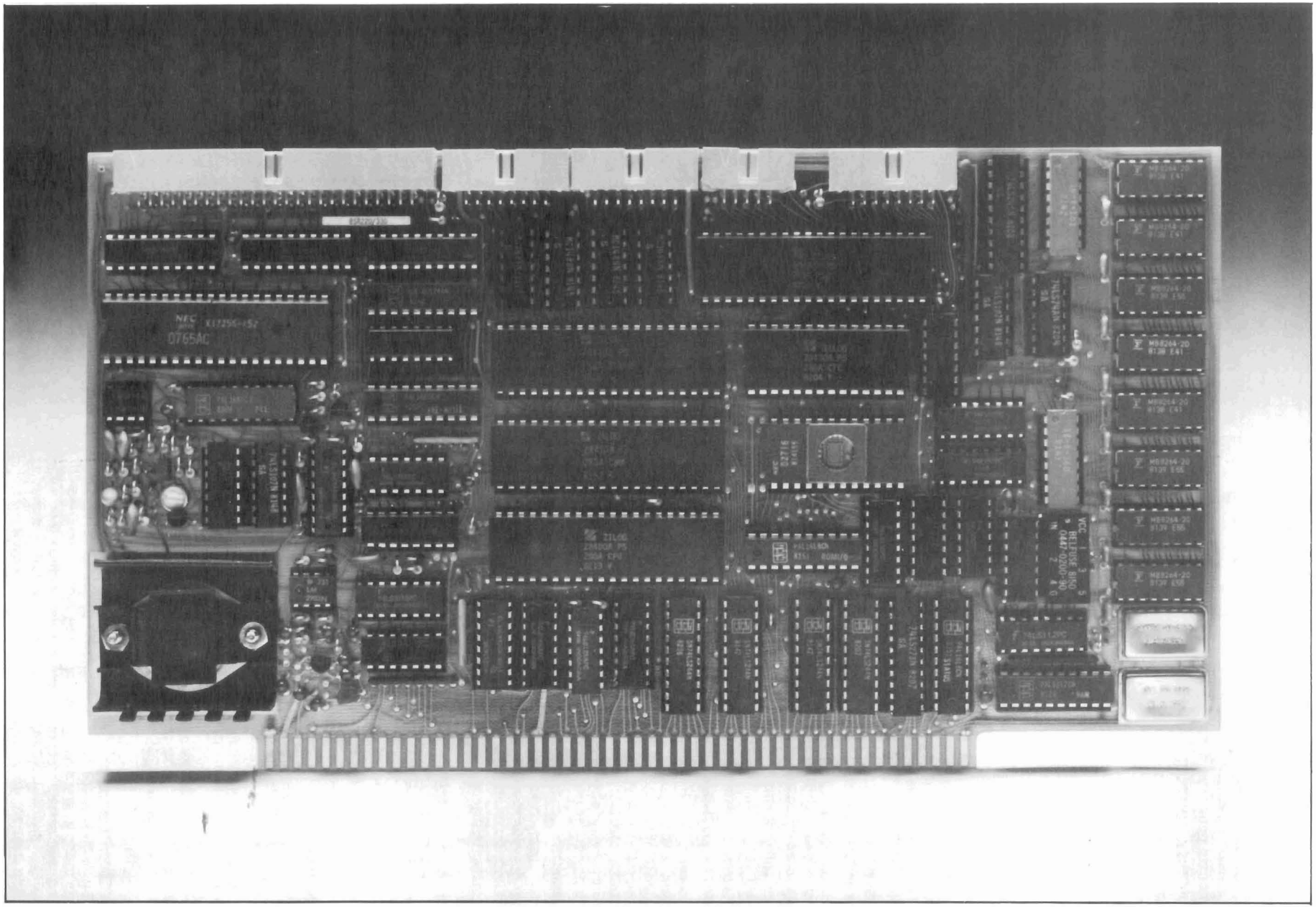
TELETEK



SYSTEMASTER®

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The **SYSTEMASTER** is a complete S-100 system on one board. It incorporates a CPU, DMA, floppy disk controller, and all the I/O and memory normally required in a system.

CENTRAL PROCESSOR

The 4MHz Z80A microprocessor is utilized as the CPU. The Z80A provides the capability to support many sophisticated applications. The interrupt structure of the Z80A is utilized by the on-board peripheral IC's.

FLOPPY DISK CONTROL

the NEC uPD765AC chip allows single- and double-density data storage on both 5¼" and 8" floppy drives providing the following capabilities:

- Single- and double-density data transfer are under software control.
- Control of up to four 5¼" or four 8" drives. Five inch and 8" drives can be controlled simultaneously under software control.
- IBM diskette formatting provides for ease of information exchange with IBM-compatible controllers using similar operating software.
- Compatible with double- and single-sided, double- and single-density and quad-density drives (Shugart, Qume, Tandon, Siemens, Micropolis, Per-Sci, Remex, and any other ANSI-compatible flexible disk drive.)
- Automatically reads sequential sectors on a diskette.
- Automatically reads both sides of a two-sided diskette.
- Maximum formatted data storage available is 286k bytes on double-sided 5¼" diskettes (708k bytes for Micropolis) and 1024k bytes on double-sided 8" diskettes.
- Under software control, record (sector) sizes of 128 (single-density only), 256, 512, or 1024 bytes can be selected.
- Disk errors are detected via CRC.
- Search for particular information on a diskette.

Phase-locked oscillator (PLO) — An on-board phase-locked oscillator, which requires no adjustment, is used to stabilize separated information and clock for precise data recovery. PALs (Programmable Array Logic chips) are used to condense and increase the capability of the floppy disk controller. Selectable, independently-variable write precompensation for the mini- and maxi-floppy drives is provided.

RAM MEMORY

Eight 64k-bit dynamic RAM IC's are on board, providing 64k bytes of data storage. These dynamic RAM IC's use the refresh control intrinsic to the Z-80 family CPU.

A PAL in the RAM access circuit allows the RAM to be partitioned into two banks, one of which is always active and the other de-selectable. For an MP/M system the PAL will be programmed to retain 16k bytes of memory from C000H to FFFFH. The lower portion of the memory from 0000H to BFFFH can be turned on or off by an appropriate output instruction to a control port. The capability to partition the on-board RAM is in blocks of 4k bytes.

The on-board RAM cannot be accessed by other devices in the S-100 bus, only by the CPU and DMA on the SYSTEMASTER.

ROM MEMORY

Only one socket is provided for ROM/PROM/EPROM. Using a 28-pin socket, a 2716, 2732, or 2764 device can be accommodated. Jumpers in the memory circuit provide the necessary 2k, 4k, or 8k bytes of memory space. A deselect capability allows the disabling of the on-board ROM and subsequent use of other memory in the same memory space. When the ROM is active, RAM in the same memory space can be written but not read. Thus on reset or power-on, the monitor in ROM can copy itself onto RAM, disable the ROM, and execute from RAM.

DMA CONTROLLER

A Z80A DMA controller is an essential component of the SYSTEMASTER. This controller allows transparent data transfers to the floppy disk and other devices without requiring extended wait states or continuous CPU intervention. For a multiple-user system the CPU can process information at the same time data are transferring to the disk drive, thus greatly enhancing system performance.

SERIAL PORTS

Two RS232C-compatible serial ports are provided. Both ports can be operated at speeds from 45 to 19,200 baud. Speed and operation of the serial ports are independent of one another and under software control. Operation can be synchronous or asynchronous. Either serial port can be operated under interrupt control. Both serial ports include the following control signals:

- Data Carrier Detect
- Ready to Send
- Clear to Send
- Data Terminal Ready

PARALLEL PORTS

There are two parallel ports on board. Both have 8 data lines and 4 handshake lines and are under software control and may be reconfigured by the user. All data lines can be configured for input, output, or bi-directional data transfers. Operation of parallel ports is under software control.

HARD DISK CONTROL

A SASI interface provides the capability of controlling intelligent hard disks via the parallel ports. Contact Teletek for further details.

REAL-TIME CLOCK

An on-board counter-timer chip provides software-settable clocks for both serial ports and a real-time clock. The real-time clock is used to provide date and timekeeping functions. It normally functions under interrupt control requiring a minimum of overhead. This real-time clock can be used by software for any time-related functions such as a stopwatch or software timing loops.

RESET-JUMP

A reset-jump circuit makes the CPU jump to the initialization EPROM on board whenever the system reset button is activated. This is useful for systems which do not have a front panel. For systems with a front panel reset-jump will override the functions of the front panel. A power-on-clear function is included which automatically generates a reset when power is first applied.

After a reset operation the EPROM/ROM on board will be enabled. After initialization of the on-board IC's, including the memory management bipolar RAM, the ROM is disabled and all RAM is active. The EPROM may be a 2716, a 2732, or a 2764.

INTERRUPTS

SYSTEMASTER utilizes the vectored interrupts of the Z80A CPU. Devices in the system which interrupt must provide an 8-bit vector during the interrupt-acknowledge cycle of the Z80A.

SOFTWARE

Single-user, multi-user, and multiprocessing software operating systems are available through Teletek from a variety of sources, including Digital Research, Turbodos, and Infosoft.

The CP/M BIOS has automatic density and automatic single- or double-sided selection. System utilities such as FORMAT, BAKUP, SYSGEN, and CONSYS are provided in addition to the standard CP/M utilities. The BIOS supports both 5¼" and 8" floppy disk drives simultaneously.

Multiprocessing software operating systems include extra capabilities such as electronic mail and flexible printer allocation.

Software drivers are available to support popular hard disk drives.

BAUD-RATE OSCILLATOR

A 2.4576 MHz oscillator on board allows the Z80A CTC to generate standard baud rates from 45 to 76,800.

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