MICRO SYSTEMS DATA BOOK

FEATURES

☐ Z80 Microprocessor

☐ 2K byte RAM capacity with 1K included

☐ Sockets for 8K bytes 2716 EPROM

☐ Crystal clock - 2.5 MHz

☐ Three TTL-buffered 8-bit OUTPUT ports

☐ Two TTL-buffered 8-bit INPUT ports

☐ Two interrupt inputs

☐ Single +5 volt power supply

MD-SBC1 BOARD PHOTO

DESCRIPTION

The MD-SBC1 is a complete Z80-based microcomputer on a 4½ inch by 6½ inch circuit module. All I/O is fully TTL-buffered and is brought to a 56-pin edge connector.

The smaller card size and the single power supply makes the MD-SBC1 easier to package and easier to use than most other modules. While the module size is small, no compromises have been made in computing power due to increasing MOS-LSI densities and the use of the Z80 microcomputer. The 40 buffered TTL I/O lines and the 8K bytes of EPROM provide the capability to solve many control problems encountered by the OEM microcomputer user. The expandable MD Series (MDX) has the same form factor allowing easy expansion to a multi-board system with increased capability.

Figure 1 is a block diagram of the MD-SBC1. The basic module comes with 1K bytes of RAM expandable to 2K bytes by the addition of two 2114-type RAMs. Four 2716
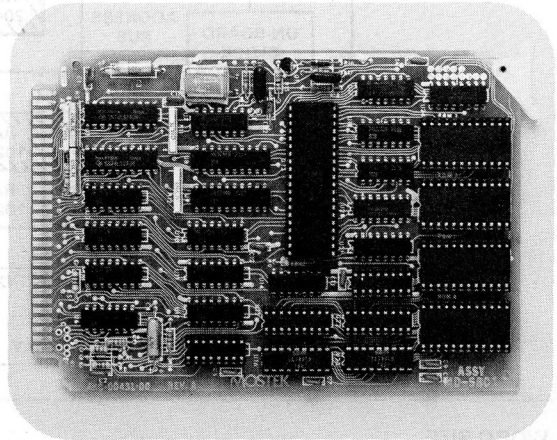
sockets are provided for up to 8K byte of EPROM, and are decoded in 2K blocks starting at address zero. The output ports are 74LS244 latches which are brought to the card cage connector. The input ports are 74LS240 Octal Buffers with 4.7K Ohm pull-up resistors on the inputs. These input lines are also brought to the edge connector. The Z80-CPU is driven by a crystal clock at 2.5MHz (400nsec T-State).

Both the $\overline{NMI}$ and $\overline{INT}$ interrupt inputs to the Z80-CPU are terminated with 4.7K Ohm pull ups and brought to the card edge connector. An external clock can be used by changing strapping options on the board. Power-on-reset circuitry is included on the CPU's $\overline{RESET}$ input. Provision is made to expand the I/O capability through the use of on-board connectors.

MD-SBC1 BLOCK DIAGRAM
Figure 1

MD-SBC1 Block Diagram
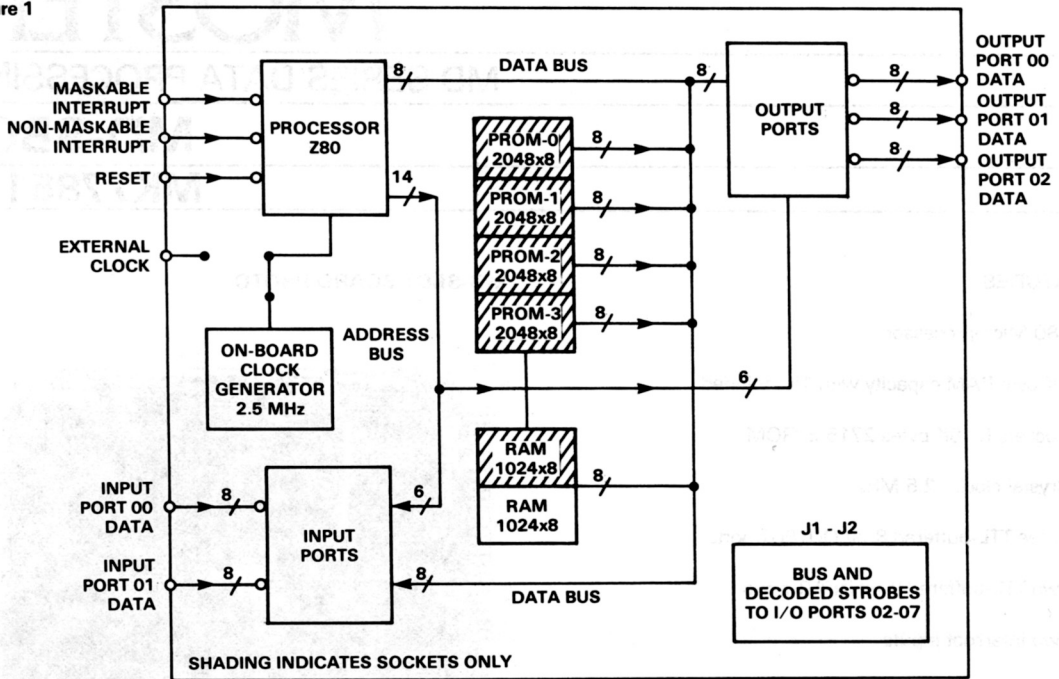
WORD SIZE

Instruction: 8, 16, 24 or 32 bits
Data: 8 bits

CYCLE TIME

Clock period (T state):   400 ns at 2.5 MHz
Instruction Cycle: Min. 4 T states
    Max. 23 T states

MEMORY CAPACITY

8K bytes of 2716 memory (none included)
2K bytes of 2114 memory (1K bytes included)

MEMORY ADDRESSING

EPROM Number	HEX Address
0	0000-07FF
1	0800-0FFF
2	1000-17FF
3	1800-1FFF

RAM Number	HEX Address
Standard	2000-23FF
Optional	2400-27FF

MEMORY SPEED REQUIRED

Memory	Access Time Required	Cycle Time Required
2716*	450nsec	450nsec
2114	450nsec	450nsec

*Single 5 volt type required

I/O ADDRESSING AND CAPACITY

Port Type	HEX Address	Data Capacity
Input	00 and 01	16 lines
Output	00, 01, 02	24 lines

I/O INTERFACES

Inputs: One 74LS load plus a 4.7K-Ohm pull up resistor
Outputs: I_{OH} = –3mA at V_{OH} = 2.4 volts
    I_{OL} = 24mA at V_{OL} = 0.5 volts

INTERRUPTS

Two (active low:) NMI and INT. See Z80 CPU (MK3880) Technical Manual for a full description of Z80 interrupts.

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SYSTEM CLOCK

	MIN	MAX
MD-SBC1	250kHz	2.5MHz

OPERATING TEMPERATURE RANGE

0°C to 60°C

POWER SUPPLY REQUIREMENTS

+5 volts ± 5% at 1.2A max (fully loaded)
(100mA per RAM, 100mA per EPROM)

CARD DIMENSIONS

4.5 in. (11.43 cm) high by 6.50 in. (16.51 cm) long
0.48 in. (1.22 cm) maximum profile thickness
0.062 in. (0.16 cm) printed circuit board thickness

CONNECTORS

Function	Configuration	Mating Connector
STD-Z80 BUS	56-pin	PRINTED CIRCUIT Viking 3VH-28/1CE5
	0.125 in. centers	WIRE WRAP Viking 3VH-28/1CND5
		SOLDER LUG Viking 3VH-28/1CN5

ORDERING INFORMATION

DESIGNATOR	DESCRIPTION	PART NO.
MD-SBC1	Complete Z80 Single Board Computer with Operations Manual less EPROMs and mating connector.	MK77851-0
	MD-SBC1 Operations Manual only.	MK79609