Zilog Z80 Microcomputer Board Series provides a modular approach to a complete computing and processing system. This series consists of a Microcomputer Board, Memory/Disk Controller Board, RAM Memory Board, Input/Output Board, PROM Memory Board, PROM/EPROM Programmer Boards, Serial I/O Board and Video Display Board. It also includes Card Chassis, Extender, Wirewrap Boards, and software as additional items.

The series is designed with Zilog's Z80-CPU processor and its 158 instruction set. It provides a very powerful computer system in a compact size with memory expansion to 64K bytes. Each board is bus compatible and directly interfaces to all other boards offered as part of the series.
The Z80-MCB Microcomputer Board is designed to operate as a complete single board computer including its own self-contained memory plus serial and parallel I/O ports. It features the use of Z80-CPU, Z80-CTC and Z80-PIO devices that have become standard of the microcomputer industry.

The MCB features the largest instruction set available and is designed to operate on a single 5-volt supply.

Features
- Z80-CPU single chip n-channel processor with 158 instructions (including all of the 8080A's and 8085's 78 instructions for total software compatibility). (See Z80-CPU Product Specification for additional details)
- 4K bytes of high speed, low power dynamic RAM.
- Strapping option available to allow the use of 16K X 1 dynamic RAM's in place of 4K X 1 RAM's presently installed.
- Capacity for 4K bytes of EPROM, PROM or masked ROM for user's program storage. Zilog monitor system firmware is available in 1K and 3K byte versions.
- Programmable full duplex serial I/O port with RS-232 or current loop interface. 14 separate BAUD rates from 50 BAUD to 38.4K BAUD.
- Bus drivers are provided for memory and I/O expansion to other boards included in this series.
- Universal parallel I/O can be programmed to define any direction and data-transfer characteristics for two 8-bit ports. Data transfer can be accomplished under full interrupt control.
- 19.6608 MHz crystal oscillator divided to 2.457 MHz for Z80-CPU operation and dividable by Z80-CTC for programmable BAUD rate generation.
- Monitor system firmware has terminal handler, set and display memory and register commands, breakpoints and floppy disk controller.

Specifications
Memory Capacity: 4K Bytes Dynamic RAM plus up to 4K bytes PROM, ROM or EPROM. Expandable by use of Z80-RMB 16K RAM boards to 64K bytes of memory or with 16K RAM's.

I/O Channels: Serial I/O port with RS-232 or 20 MA current loop interface.

Two (2) software configurable bidirectional 8-bit parallel I/O ports.

Expansion: The MCB is bus compatible with all other boards in the series. Expansion of more I/O or memory is simply completed through the backplane being used.
### Z80-MDC
#### Memory/Disk Controller Board

The Z80-MDC Memory/Disk Controller Board provides 12K bytes of dynamic RAM memory for program or data storage plus a floppy disk controller that is capable of handling up to eight floppy disk drives.

**Features**
- MDC can control up to 8 floppy disk drives.
- 12K bytes of high speed dynamic RAM. Strapping option allows setting start address of each 4K byte page.
- Floppy disk controller allows all formatting and control to be done by the CPU.
- Optional PROM based software to control up to two Shugart 800 floppy disk drives. Provides all control functions and does all transfer from 32 hard sectors per track (77 tracks per disk).
- 16-bit CRC cyclic redundancy check.
- On board voltage converter supplies voltages required from the single +5 volt input for the dynamic memory array.
- Strapping options allow utilization of 16K RAM's in place of present 4K X 1 RAM's being used in the board.

**Specifications**
- **Memory Capacity:** 12K bytes using 4K bit dynamic RAM's.
- **I/O Channels:** Two (2) bidirectional 8-bit parallel I/O ports. Capable of handling up to eight disk drives using daisy chain interconnect.

### Z80-RMB
#### Memory Board

The RMB provides the Zilog Microcomputer family with additional 16K bytes RAM per board plus ROM or PROM capability. Jumper options allow the 16K bytes of RAM to reside in any segment of the 64K address space. The RMB also provides 8 sockets for additional PROM or ROM.

**Features**
- 16K bytes dynamic RAM per board.
- 8 sockets for up to eight ROM or PROM circuits per board.
- Strapping option allows the memory to reside in any segment of the 64K memory space.
- On board DC to DC voltage converter supplies voltages from single +5 volt supply for Dynamic RAM's.
- Strapping option allows use of 16K X 1 memory components in place of the installed 4K X 1 devices.

**Specifications**
- **Memory Capacity:** 16K bytes per card. Additional sockets for up to eight ROM, PROM or EPROM circuits per board.
Z80-PMB/PROM Memory Board

The PMB PROM Memory Board provides additional memory capability to the Zilog Microcomputer System. The board contains sockets for up to 32K bytes of ROM, PROM or EPROM. Jumper options allow each 16K bytes of memory to reside in any segment of the 64K address space. Universal parallel I/O can be programmed to define any direction and data transfer characteristics for two 8-bit ports.

Features
- 16 sockets for 32K bytes of ROM, PROM or EPROM.
- Single +5 power supply.
- Jumpers allow bank address selection.
- Universal parallel I/O can be programmed to define two 8-bit ports for a total card capability of 16 programmable I/O lines.
- Terminator/Driver sockets.
- Four programmable Counter/Timer channels.

Specifications
Memory Capacity: 32K bytes of ROM, PROM or EPROM
I/O Channels: Two 8-bit parallel I/O channels can be programmed for byte or bit transfer in either direction.
Counter/Timer Channels: Four Programmable Channels.

Z80-PPB/PROM Combination PROM/EPROM Programmer Board

The CPB/PROM Combination Board is a combination of the PPB/EPROM and the PPB/PROM Programmer Boards. It allows the Zilog Microcomputer user to program EPROMS of the 2704 or 2708 type and PROMS of the Harris 7620, 7621, 7640 or 7641 type. The board comes with zero insertion force sockets that are mounted on the top of the card. The card is inserted into the system and extends beyond the front end of the card cage to allow easy access to the sockets.

Features
- Programs 2704 or 2708 type EPROMS and Harris 7620, 7621, 7640 or 7641 type PROMS.
- Zero insertion force sockets extend beyond the end of the card cage for easy access.
- Single +5 volt power supply - on board DC to DC converter creates +5 and -12 volts required to program EPROMS.
- Communication with CPU is done through the Z80 PIO in parallel I/O under full interrupt control.
- Software operates in the ZDOS Debug environment and provides the user with the capability to PROGRAM, VERIFY, LIST and DUPLICATE.

Specifications
Programming Capacity: 24 Pin EPROMS of the 2704 and 2708 type and 16 and 24 pin PROMS of the Harris 7620, 7621, 7640, and 7641 type.
Software Operations: PROGRAM, VERIFY, LIST, DUPLICATE.
Z80-AIO
Analog Input/Output Board
The Z80-AIO Analog Input/Output Board provides 32 single-ended analog inputs and 2 analog outputs to the Zilog Microcomputer user. The board includes an analog input multiplexer, high gain instrumentation amplifier, sample and hold amplifier, 12 bit A/D converter, and on board DC-DC converter. The analog output includes two 12-bit D/A converters with double buffering.

Features
- 32 single ended or 16 differential input channels.
- Maximum throughput of 35 μsec./channel.
- 12 bit resolution.
- 2 analog channels out.
- Single +5 volt power supply.

Z80-AIO/N
Analog Input/Output Board
Features
- 32 single ended or 16 differential input channels.
- Maximum throughput of 35 μsec./channel.
- 12 bit resolution.
- 2 analog channels out.
- Power supplies required: +5, ±15 volts.

Z80-AIB
Analog Input Board
The Z80-AIB Analog Input Board provides 32 single ended analog inputs to the Zilog Microcomputer user. The board includes an analog input multiplexer, high gain instrumentation amplifier, sample and hold amplifier, 12 bit A/D converter, and on board DC-DC converter.

Features
- 32 single ended or 16 differential input channels.
- Maximum throughput of 35 μsec./channel.
- 12 bit resolution.
- Single +5 volt power supply.

Z80-AIB/N
Analog Input Board
Features
- 32 single ended or 16 differential input channels.
- Maximum throughput of 35 μsec./channel.
- 12 bit resolution.
- Power supplies required: +5, ±15 volts.

Specifications
Number of Channels: 32 single ended or 16 differential input and 2 output.
ADC Gain Ranges: 0-5 volt, 0-10 volt, ±2.5 volt, ±5 volt, ±10 volt.
Amplifier Gain Ranges: 1 to 1,000.
Throughput: Maximum 35 μsec/channel.
Settling Time: 10 μsec.
Z80-VDB
Video Display Board

The VDB Video Display Board interfaces the Z80-MCB to a standard video monitor. Memory on the MCB is used as the video refresh buffer (2K bytes). This board contains 256 bytes of RAM for use as a line buffer so that less than 10% of the CPU's time is used for DMA transfer in character mode (75% in dot mode).

Features
- Interfaces directly to TTL horizontal, vertical and video drives of a standard TV monitor.
- Display size is 24 lines with 80 characters per line.
- ASCII character set includes 64 upper case characters and optional 128 upper and lower case characters.
- On board line buffer of 256 bytes for DMA transfers.
- Optional one wire EIA composite video interface is available.
- Software controlled features include image and character invert, automatic scroll, mode control.
- Character and Dot mode.
- Parallel keyboard interface.

Specifications
Memory Capacity: 256 bytes of low power dynamic RAM provide line buffering to the MCB. Two (2) K bytes of MCB memory are used to store the screen image.

Z80-IOB
Input/Output Board

The IOB Input/Output Board provides the Zilog Microcomputer family with programmable control of up to 64 I/O lines. The board contains four PIO Parallel Interface Controllers and unused space with openings for insertion of sixteen 16 pin wire wrap devices, or a mixture of devices on 0.3" and 0.6" centers.

Features
- 64 programmable I/O lines.
- Single 5 volt supply.
- All ports software programmable, byte output, byte input, byte bidirectional, bit input, bit output.
- Interrupt driven “handshake” for fast response.
- Daisy chain priority interrupt logic included to provide automatic interrupt vectoring without external logic.

Specifications
I/O Channels: Eight (8) bidirectional 8-bit parallel I/O ports. I/O is programmable allowing byte or bit transfers for a board total of 64 I/O lines.
Z80-SIB
Serial I/O Board

The Z80-SIB Serial I/O Board provides 8 serial (4 full duplex), interface channels. Each channel is programmable and capable of handling most types of serial data transmission protocols described by communication industry specifications. All board timing is handled by a programmable Z80-CTC Counter Timer Circuit.

Features
- Eight independent (4 full duplex) serial ports.
- Asynchronous, synchronous, or Bi-Sync operation.
- Asynchronous data with 5, 6, 7 or 8 data bits; 1, 1½ or 2 stop bits and even, odd or no parity generation/checking.
- BAUD rate generation from 3 separate channels of a CTC and the MCB clock. (Two of the four SIO devices share the same BAUD rate clock.)
- Double buffered transmitter and receiver.
- Two on board Z80-CTC programmable timers.

Specifications
I/O Channels: Four (4) serial channels capable of synchronous or asynchronous data transmission including Bi-Sync protocol.
BAUD Rate: DC to 56K Baud (Sync Mode).
DC to 9.6K Baud (Async Mode).

Z80-SCC Standard Card Cage

The Z80 Standard Card Cage holds up to 9 P.C. cards and can be mounted in a number of different enclosures. This card cage features the use of a printed circuit wire wrap backplane and has slots available for special wirewrapped or customer I/O boards. The Card Cage has 9 P.C. card connectors, 8 flat cable connectors, and a power terminal strip.

Z80 Series Wirewrap Boards

The Z80-Series includes special wire wrap boards for use in the interfacing of special features with the Z80-MCB Microcomputer Board. These boards are the same size as the rest of the boards in this series and utilize the same 122-pin connector.

Z80-Series Extender Board

The Z80 Series Extender Board allows any of the Z80 Series board types to be extended out of the card cage.

Z80-SEC Standard Edge Connector

The Standard Edge Connector is a 122-pin connector and is used for all of the Z80 Series Boards. This standard connector is available from Augat or Garry Manufacturing Companies.
Specifications for Microcomputer Board Series

The following specifications are common to all 280-Microcomputer Board Series boards:

Specifications:
- **Power Supply:** +5 VDC ± 5%
- **Connector:** 122 pin edge (100 mil spacing)
- **Size:**
  - Length, 7.7”
  - Depth, 7.5”
  - Width, 0.5” spacings
- **Environmental:** 0 - 50C temperature range. Up to 90% humidity without condensation.

Documentation

Product specifications are available for each of the Microcomputer Boards listed in the brochure. The documents provide specific details on each of the boards in the series. These can be provided by Zilog's sales offices as listed below.

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Printed in U.S.A.

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