

MCZ-1/20, 25 HARDWARE USER'S MANUAL

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REVISION E

AMERICAN AIRLINES AIRPORTS INC., 100% - 100%

REPORTS TO SIGHT

1957 1958 1959 1960 1961 1962 1963 1964

1965 1966 1967 1968 1969 1970 1971 1972

1973 1974 1975 1976 1977 1978 1979 1980

CONTINUATION

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MCZ-1/20, 25 HARDWARE USER'S MANUAL

SECTION 1. GENERAL INFORMATION

1.1 SYSTEM DESCRIPTION

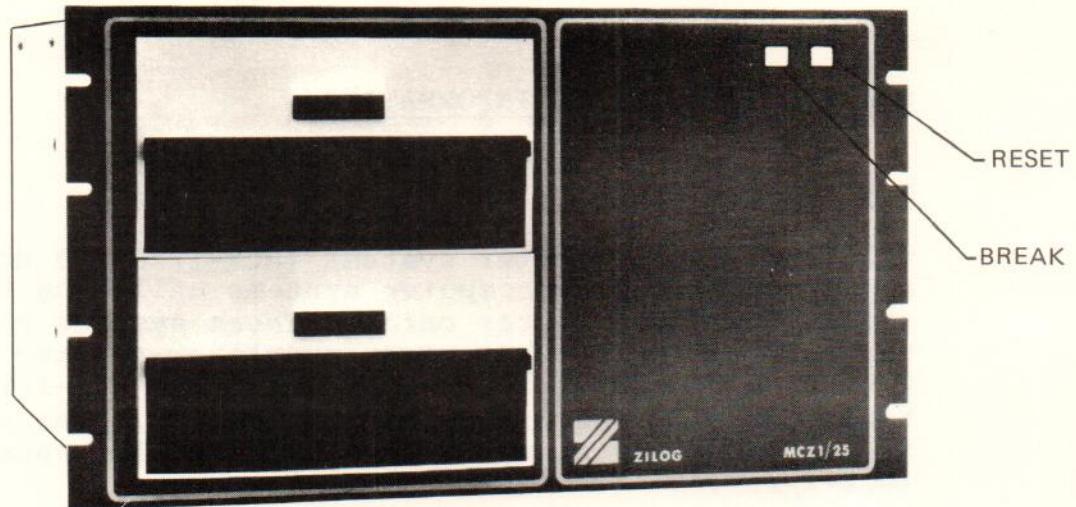
The ZILOG microcomputer systems (MCZ-1/20 and MCZ-1/25) are disk-based microcomputer systems utilizing the Z80 family of microcomputer cards. These systems contain two floppy disk drives, power supplies, and two cards of the Z80 microcomputer board series. The MCZ-1/20 is a table top unit measuring 19" x 16" x 10". The same unit is available for mounting in a standard 19" rack (MCZ-1/25).

The system is composed of a nine-card slot chassis, with two Z80 microcomputer series boards, power supply, dual disk drives, cooling fan, interface connectors, and control switches. The Z80 microcomputer board (MCB) performs primary system control. Detailed documentation on this card can be found in the "Z80-MCB Hardware User's Manual". Disk interface is controlled by the Z80 memory disk controller (MDC). Detailed documentation on this card can be found in the "Z80-MDC Hardware User's Manual". These two cards constitute the basic system, which provides 32K bytes of RAM memory, 3K bytes of executive PROM firmware, and control of the disk drive and terminal.

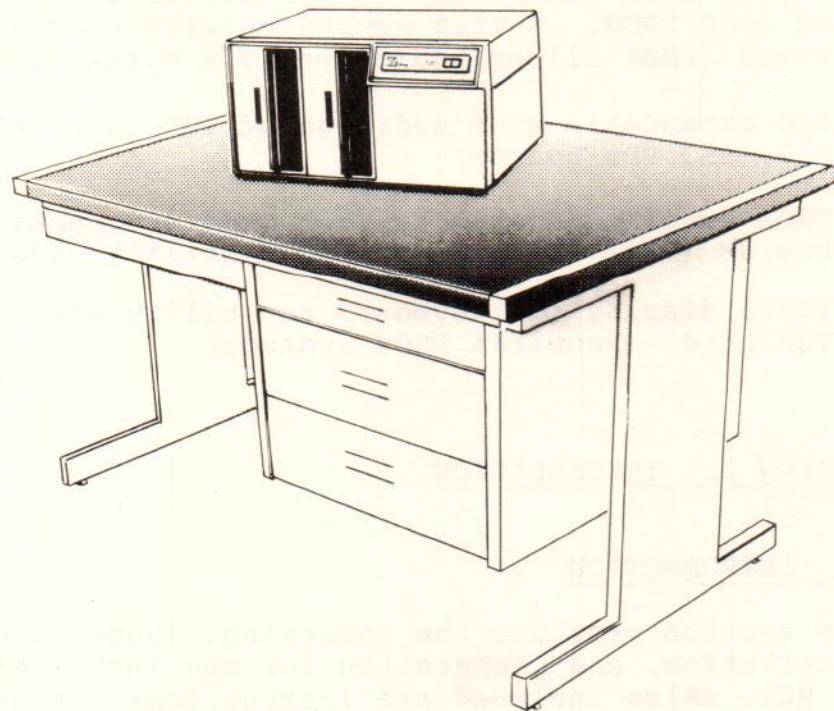
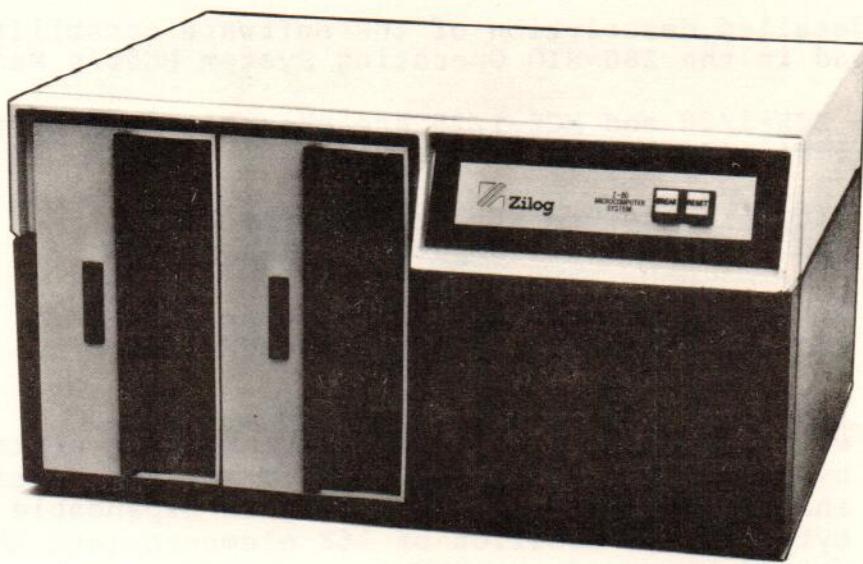
Interface to a standard RS-232 or current loop terminal allows writing, debugging, and execution of software programs. Supporting software consists of a full disk operating system (OS-RIO), which includes:

- o Relocatable or Absolute Object Code Macroassembler
- o Linker
- o Text Editor
- o File Utility
- o PROM Resident Debugger

MCZ-1/25 RACK MOUNT UNIT



MCZ-1/20 TABLE TOP MODEL



A detailed description of the software capability can be found in the Z80-RIO Operating System User's Manual.

The MCZ-1/20 and MCZ-1/25 are characterized by the following features:

- o Single enclosure wth dual floppy unit, and two Z80 microcomputer series boards;
- o Table top unit is designated MCZ-1/20; Rack mount unit is designated MCZ-1/25;
- o RAM memory of 32K bytes is configured with 16K dynamic RAM elements. The MCB contains 16K bytes of RAM, while one bank of the MDC contains another 16K bytes. The memory is expandable to 64K bytes by the addition of 16K elements into the two unused banks of the MDC;
- o Unused PROM socket on the MCB allows 1K bytes of user PROM. System expansion with PROM memory board (PMB) allows additional 32K bytes of PROM;
- o I/O expandable with addition of IOB, AIO, AIB, SIB, and VDB boards;
- o PROM burning capability with PROM programming boards (PPB, PPB/16) and ZPROG utility; and
- o Video display and keyboard capability with VDB card. (Requires PROM upgrade)

SECTION 2. INSTALLATION

2.1 INTRODUCTION

This section provides the unpacking, inspection, installation, and preparation for use instructions for the MCZ. Also included are instructions for connecting the selected data terminal to the MCZ and the function of the MCZ switches and indicators.

2.2 UNPACKING INSTRUCTIONS

The MCZ system is packaged in a large fibreboard carton. The unit is protected by a foam cushion holding it completely suspended within the carton. Packed with the carton will be the documentation package, power cables, and system diskettes. Cut the tape on the top of the package, and carefully remove the contents and packing material. Check all surfaces of the chassis for scratches, nicks, dents, or punctures which may have occurred during transit.

Check the equipment against the packing slip and system component list for any loss that might have occurred during shipment. Open the top cover of the chassis for internal inspection by removing the two screws at the rear of each cover, and prying the covers out with thumbs near the screw holes while simultaneously lifting up and out. All internal components should then be visually inspected for obvious damage or dislocation. In particular, the PC cards should be checked for proper seating. Prior to shipment, a foam insert is packaged within the system to prevent accidental PC dislocation during shipment. This foam can be removed and thrown away. To avoid an electrical shock hazard, do not operate the system with the top cover removed.

If the system has been damaged in shipment or is incomplete, immediately notify the shipper and/or Zilog.

2.3 PREPARATION FOR USE

After unpacking the MCZ, verify that all PC cards are properly seated in the correct card slots. The numbers on the card cage should match the number on each card.

Internal to the power supply are two small switches imprinted with either 115 or 230 to indicate the AC line voltage for which the unit is configured. Disregard the imprint on the switches. Set the switches according to the silkscreen settings to agree with the user site voltage. Figure 1 details the power switch setting.

Verify that the main power switch is in the OFF position and connect the AC single-phase line cord.

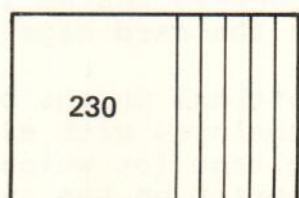
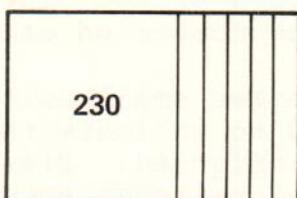
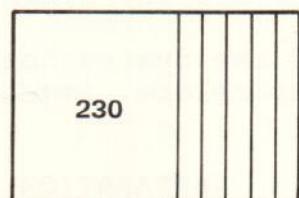
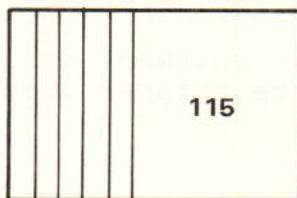
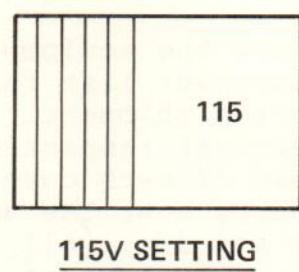
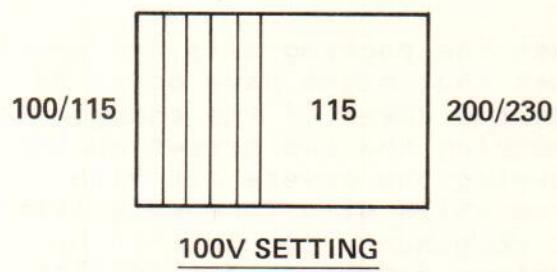
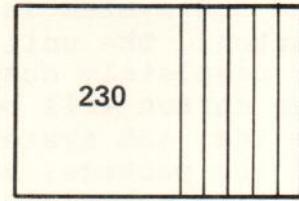
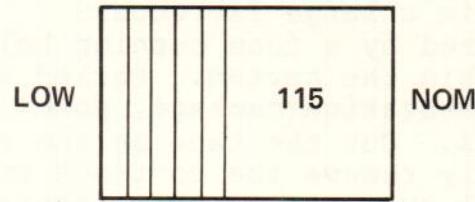


Figure 1 AC POWER SWITCH SETTINGS

2.4 DATA TERMINAL CONNECTION

The user has the option of interfacing the MCZ with an ASR33 teletypewriter (TTY) or an RS-232 terminal device. For TTY use, modification to the MCB card will be required as detailed in the MCB Hardware User's Manual, page 37.

The terminal's interconnect cable is connected to J106 on the rear of the chassis. CAUTION: The interface is designed to be RS-232 compatible. However, some terminal manufacturers provide RS-232 interfaces that are not fully compatible with the standard; i.e., the terminal might use pins such as Clear to Send or DATA Set Ready for functions other than the normal RS-232 requirements. If this occurs, the cable should be modified as shown in Figure 1A.

MCB	PIN	PIN	TERMINAL
XMITTED DATA	15	2	XMITTED DATA
DATA TERM RDY	76	20	DTR
REQ TO SEND	14	4	RTS
CLR TO SEND	11	5	CTS
DATA SET RDY	74	6	DSR
RECV DATA	7	3	RECV DATA
LINE SIG DET	80	8	LSD

FIGURE 1A. MCB TO TERMINAL (RS232)

NOTE: The MCB is configured to look like a Modem with 'Clear to Send' always active, and 'Request to Send' always ignored.

Refer to the MCB manual for information on wiring a modem to the MCZ.

2.5 BAUD RATE SETTING

The baud rate of the terminal must match the baud rate setting of the switches on the MCB card. These switches are read by the CPU to set the communication frequency to any of 14 common rates. (See MCB Hardware User's Manual.)

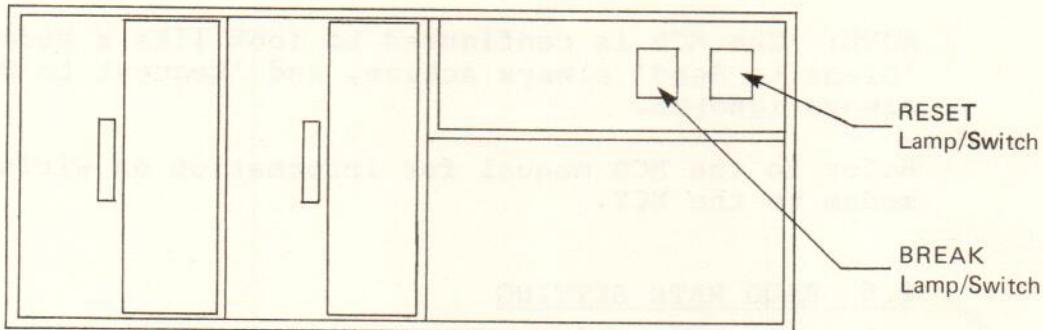
After connecting the terminal to the 25-pin connector, J106, on the rear of the chassis, determine the baud rate of the terminal. The switches on the MCB board should be set to match this baud rate and are read by the CPU to set the communication frequency to any of 14 common rates. (The switches can also be used for other functions at the user's discretion.)

NOTE: THE MCZ, AS SHIPPED FROM THE FACTORY, IS SET AT 9600 BAUD.

2.6 SWITCHES AND INDICATORS

The front panel of the system has a power on reset lamp/switch and an NMI restart lamp/switch. When the power is supplied to the unit, both lamps will be on. The system can be reset at any time by simply depressing the reset switch. NOTE: This will destroy any programs that have been loaded into the RAM memory. After a reset, a carriage return must be entered from the terminal in order for the system to bootstrap the operating system in from the disk drive. Refer to the Software User's Manual for details.

The system will execute a non-maskable interrupt by depressing the break switch. This will send the system back to the debug environment. The location of the two switches is shown below.



The main power switch is located at the rear of the chassis.

2.7 START UP PROCEDURE

Turn on the power to both the terminal and the system. Depress the reset button on the front of the system. Make sure that the terminal is in the on-line mode and that the speeds have been properly correlated as previously described.

NOTE: Reset always initializes the system and destroys data RAM memory.

Now remove the system software diskette from the envelope. Open the door of the right-hand (or top for MCZ-1/25) disk drive (system drive) by pressing the button and insert the diskette into the drive with the label facing the right side (or away from the bottom for MCZ-1/25) until a click is heard. Then carefully shut the door.

CAUTION: To prevent loss of information, every diskette must be removed from the disk chassis prior to powering down the system. Additionally, diskettes should only be reinserted after the units have been powered up.

The system now awaits a handshake character from the terminal. This character should be a carriage return which will cause the MCZ executive program to be loaded from the diskette. At this point, the user should refer to the Z80-RIO Operating System User's Manual for details of operations.

SECTION 3. BASIC PRINCIPLES OF OPERATION

3.1 MCZ CONFIGURATION

The major functional units of the MCZ system are shown in Figure 2 and are composed of the following:

- o Central Processing Unit (Z80-CPU)
- o Clock Generator
- o System Memory
- o Address, Data, and Control Buffers
- o Serial and Parallel I/O
- o I/O Peripheral Decode
- o Disk Control Logic

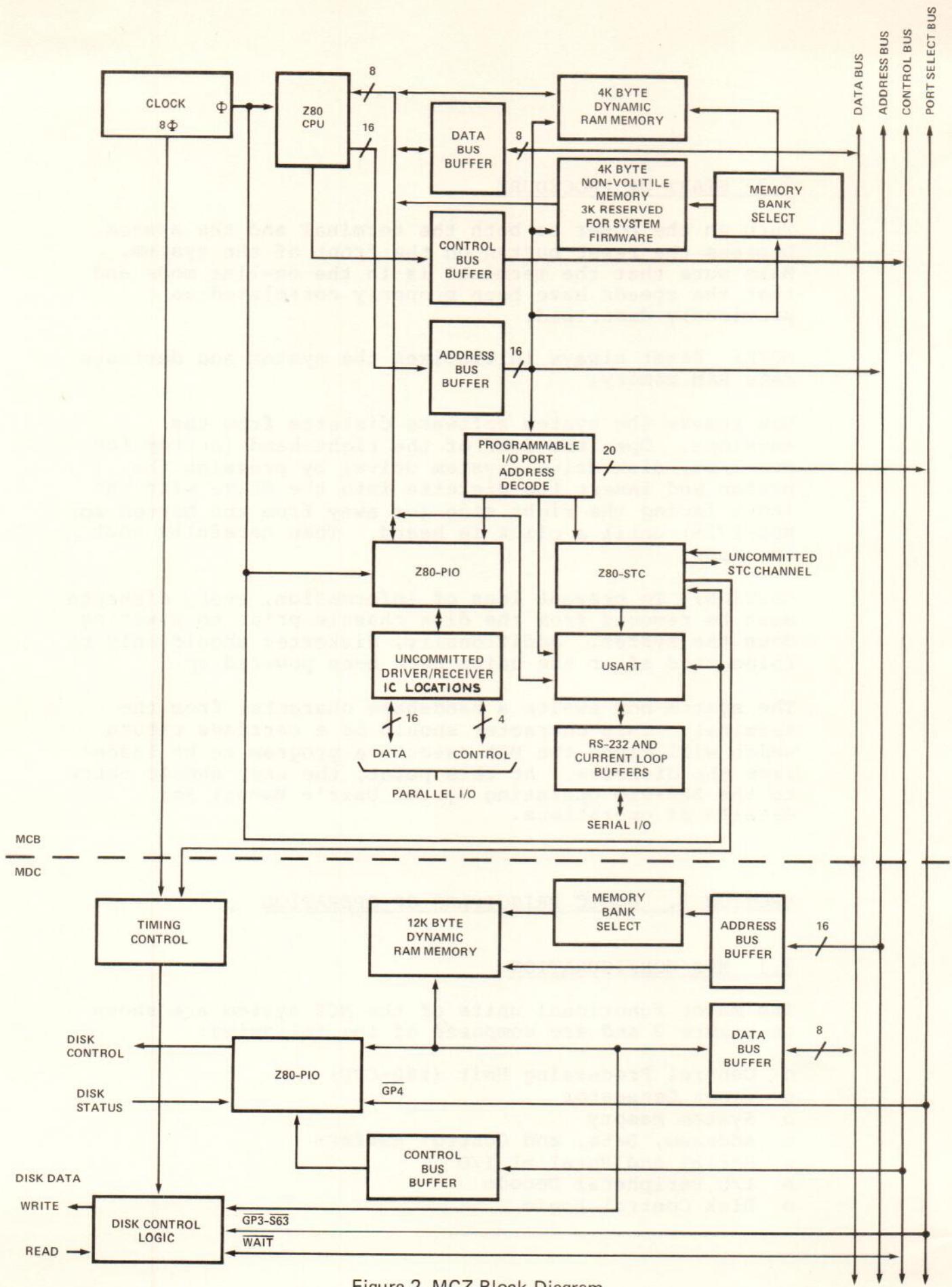


Figure 2 MCZ Block Diagram

The Z80 devices that are part of the MCZ system include the CPU, PIO, and STC. The STC is a version of the CTC designed specifically for the MCZ system. One of the four STC channels (functionally equivalent to the CTC) is available to the user (see MCB Hardware User's Manual). The STC is used in conjunction with the USART (8251) to provide both synchronous and asynchronous serial communication channels; one channel is used for basic disk timing. The user has the option (with jumper connections) of configuring the interface as RS-232 or current-loop compatible. Also provided is a reader control signal for remote control of modified manual TTY terminals.

The clock generator provides the CPU with a clock which is also distributed to the system for external use including disk synchronization.

The MCB card provides 20 I/O port address decode signals that can be used to select peripheral devices within add-on cards. These signals are routed on the MCZ back plane (I/O group 0-4 and subgroup 0-3) and minimize the need for additional I/O decode logic (see MCB Hardware User's Manual).

The Z80-PIO provides two software-programmable 8-bit ports for standard hardware interface between peripheral devices and the MCZ. Upon request, the PIO can be configured for line printer interface (Centronics 306C, for example). (See MCB Hardware User's Manual.)

The Z80-PIO is also used with disk control logic to format and adjust the data rate between a standard Shugart 801R floppy disk (with write protect option) and the CPU.

The 3K monitor firmware resides in PROMs and is inserted into the MCB sockets providing the basic debugging commands, input/output control, and bootstrapping portions of a floppy disk based operating system.

System memory consists of 16K bytes of dynamic RAM on the MCB and 16K bytes of dynamic RAM on the MDC card. This memory can be expanded by the addition of 16K RAM devices to the MDC. A system memory map is shown in Figure 3.

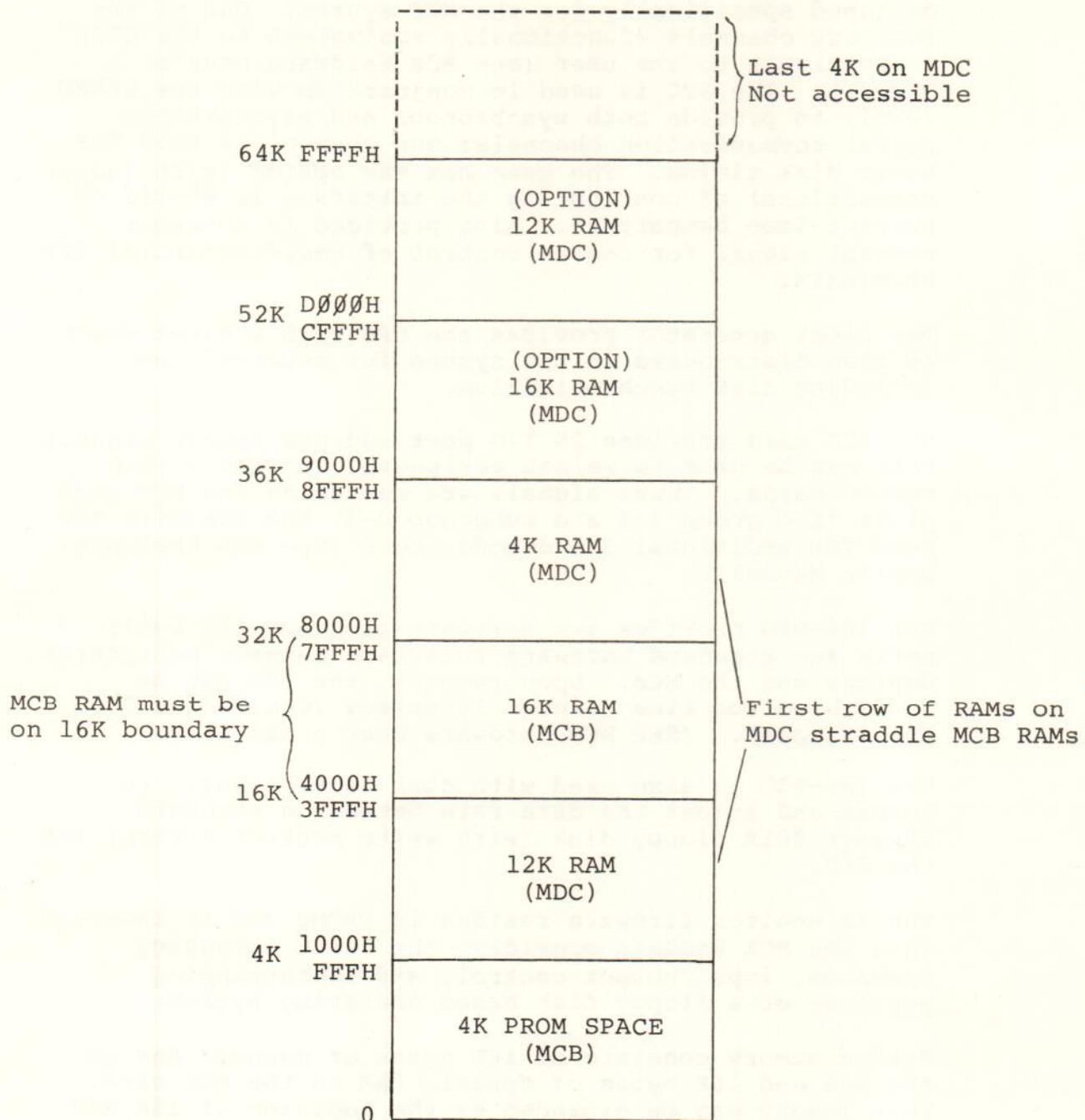


FIGURE 3: MCZ-1/20, MCZ-1/25 MEMORY MAP

3.2 MCZ BUS STRUCTURE

The MCZ bus can be classified as a tri-state unterminated bus. All input lines on any card in the MCZ series are buffered to present no more than 1 TTL load to this bus. The interconnect wiring list identifies the bus signal and the routing of each on the wirewrap motherboard. For adding lines, the card cage can be easily removed by unscrewing the four 6-32 x 3/8" phillips head screws at the bottom of the chassis.

The external bus should be designed to minimize crosstalk, reflections, etc. so as to preserve signal integrity. Normally, a line length of 18 inches or less will not require line termination. The user should also consider the addition of a buffer card to regenerate the external bus if lengths of 18 inches are to be exceeded.

3.3 SYSTEM EXPANSION

The standard MCZ system can be expanded to include additional cards in the Z80 microcomputer board series. Included in this line are a 16K RAM/8K PROM memory card (RMB), a 32K byte PROM card (PMB), a 1K x 8 EPROM/bipolar PROM programmer (PPB), a 2K x 8 PROM/bipolar PROM programmer (PPB/16), a video display board (VDB), a parallel I/O board (IOB), a serial I/O board (SIB), an analog I/O board (AIO), and an analog input board (AIB). See the section on integration for location of these cards in the card cage.

Figures 4 through 7 identify the interface signals between the various cards in the MCZ system.

The MCZ system can also be expanded to include additional chassis or floppy drives. Unused internal connectors (J14-J19) can be used to route signals from the MCZ base plate to available rear panel connector slots.

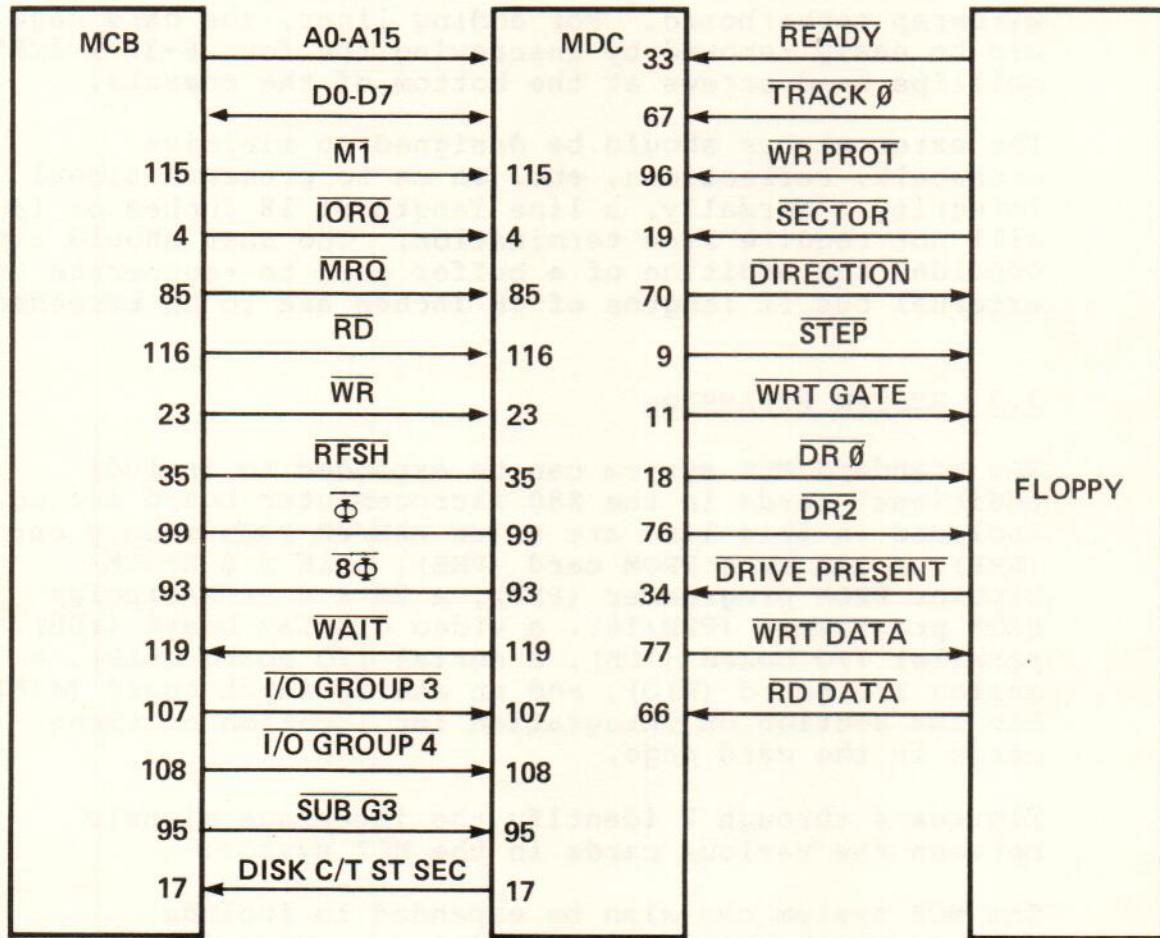


Figure 4 MCB/MDC/ Floppy Interface

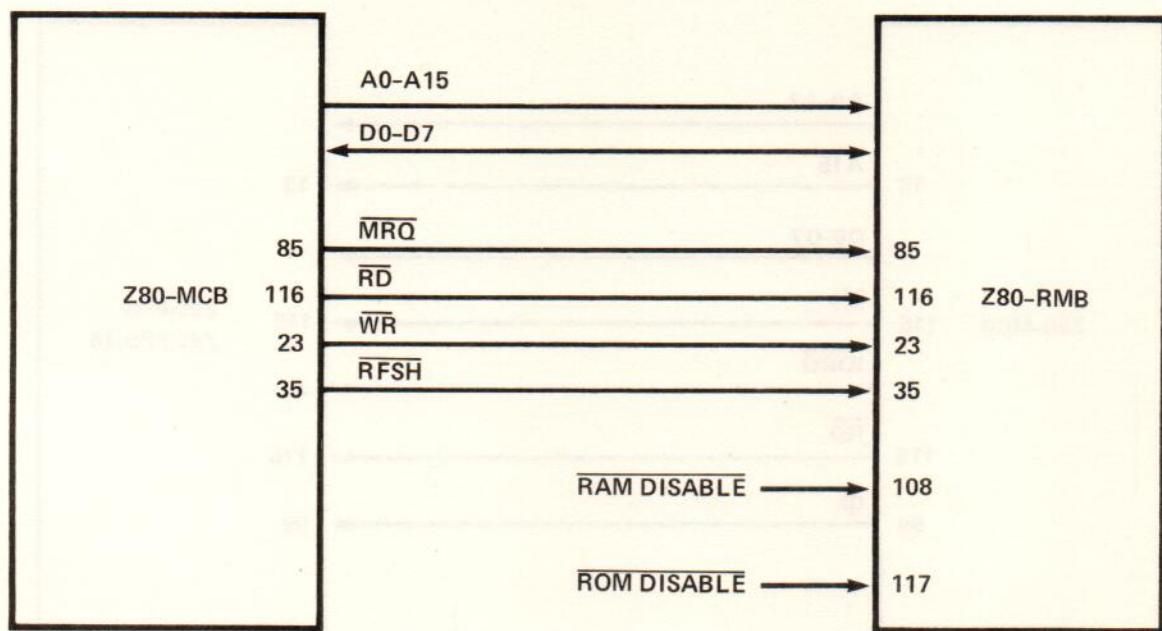


Figure 5 MCB/RMB Interface

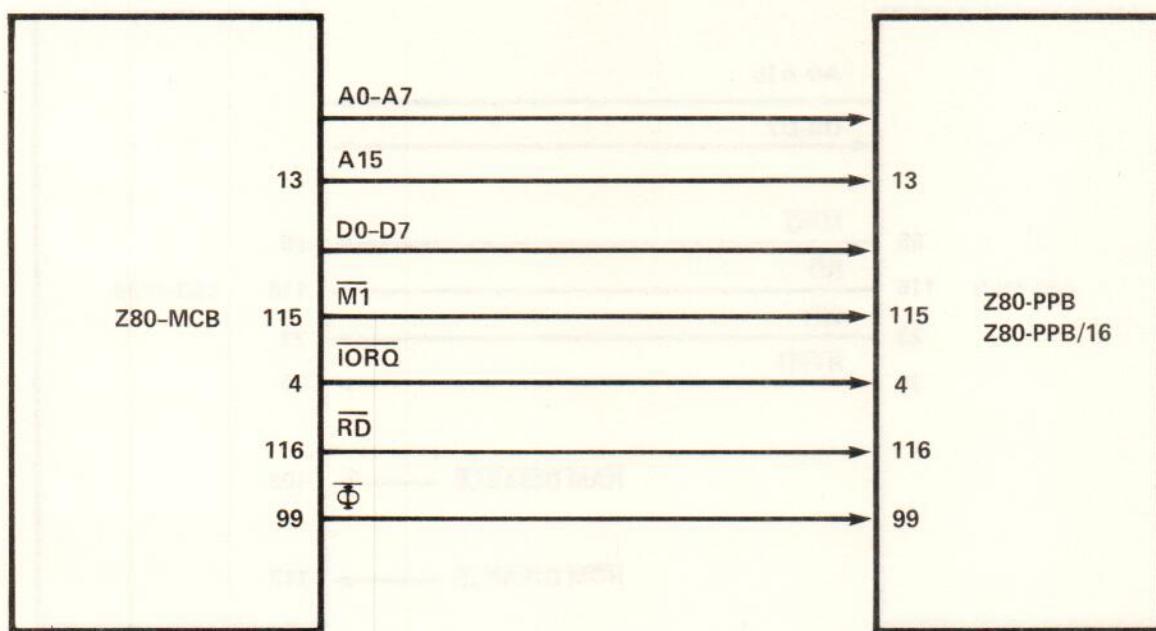


Figure 6 MCB/PPB/PPB/16 Interface

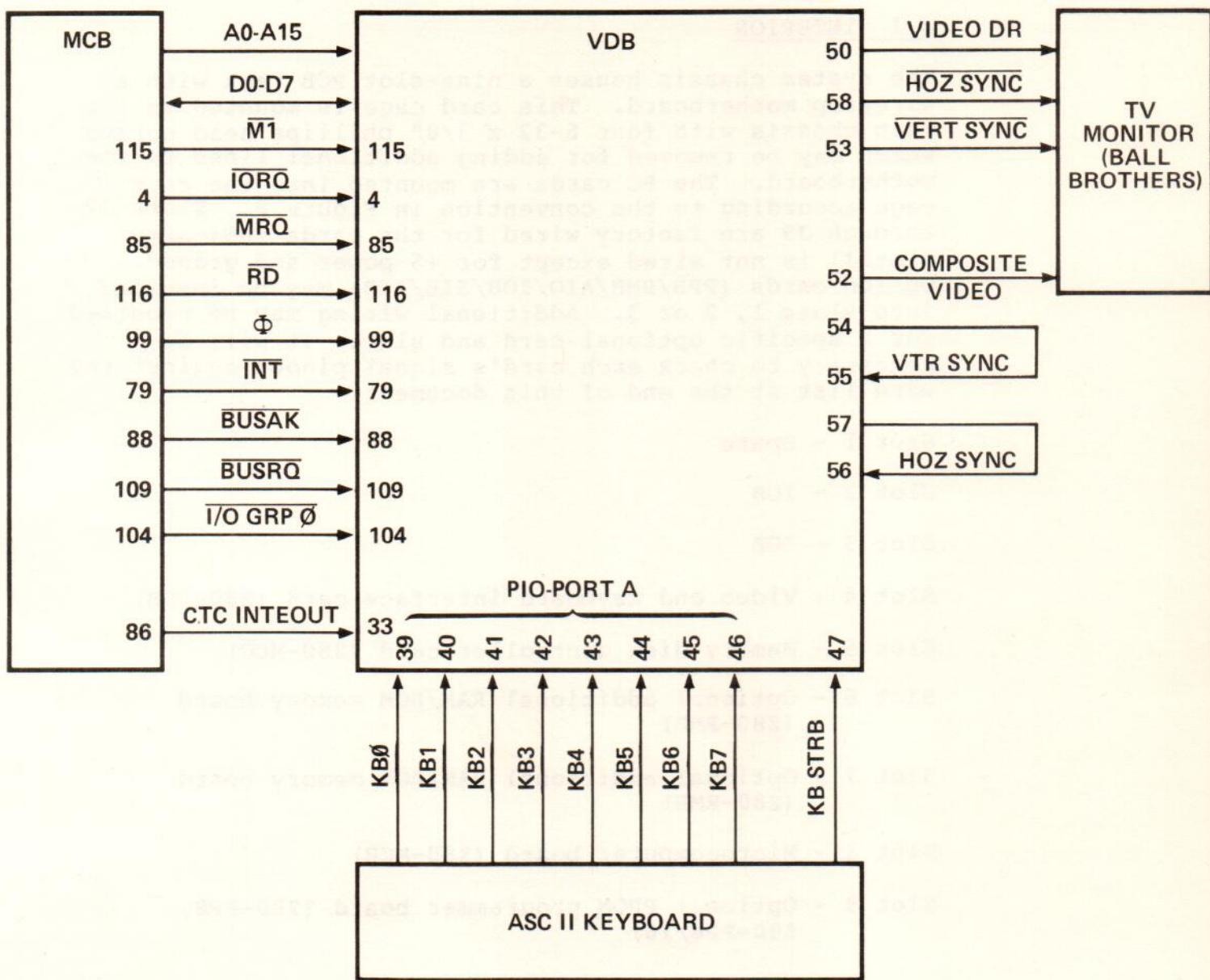


Figure 7 MCB/VDB/TV Monitor/Keyboard Interface

SECTION 4. INTEGRATION

4.1 INTERIOR

The system chassis houses a nine-slot PCB rack with a wirewrap motherboard. This card cage is mounted to the main chassis with four 6-32 x 3/8" phillips head screws which may be removed for adding additional lines to the motherboard. The PC cards are mounted into the card cage according to the convention in Figure 8. Slots J2 through J9 are factory wired for the cards indicated. Slot J1 is not wired except for +5 power and ground. Option cards (PPB/PMB/AIO/IOB/SIB/AIB) may be inserted into slots 1, 2 or 3. Additional wiring may be required for a specific optional card and slot. It will be necessary to check each card's signal pinout against the wire list at the end of this document.

Slot 1 - Spare

Slot 2 - IOB

Slot 3 - IOB

Slot 4 - Video and keyboard interface card (Z80-VDB)

Slot 5 - Memory disk controller card (Z80-MDC)

Slot 6 - Optional additional RAM/ROM memory board
(Z80-RMB)

Slot 7 - Optional additional RAM/ROM memory board
(Z80-RMB)

Slot 8 - Microcomputer board (Z80-MCB)

Slot 9 - Optional PROM programmer board (Z80-PPB,
Z80-PPB/16)

4.2 INTERNAL CABLING

On a standard system, there are four cables that are internally connected between the nine-slot card cage and the rest of the system. J13 is connected from the card cage to the floppy disk drives. J14 is connected to the rear chassis and is used to connect to the external

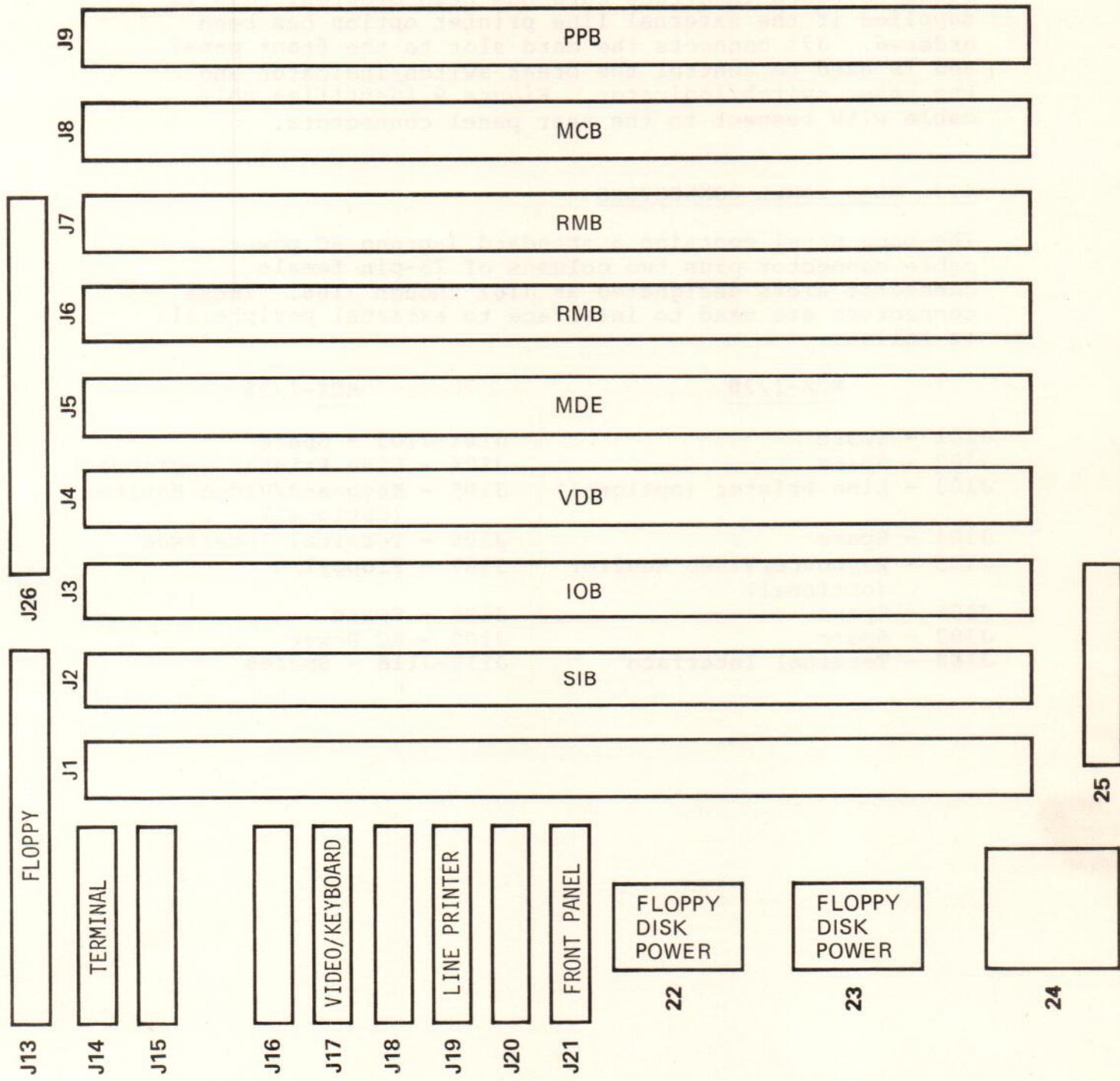


Figure 8 Top View MCZ Motherboard Organization

system terminal. J17 is connected only if an optional video/keyboard interface card has been ordered. J19 is supplied if the external line printer option has been ordered. J21 connects the card slot to the front panel and is used to control the break switch/indicator and the reset switch/indicator. Figure 9 identifies this cable with respect to the rear panel connectors.

4.3 REAR PANEL CONNECTORS

The back panel contains a standard 3-prong AC power cable connector plus two columns of 25-pin female connector slots designated as J101 though J108. These connectors are used to interface to external peripherals as follows:

MCZ-1/20

J101 - Spare
J102 - Spare
J103 - Line Printer (optional)
J104 - Spare
J105 - Keyboard/Video Monitor (optional)
J106 - Spare
J107 - Spare
J108 - Terminal Interface

MCZ-1/25

J101-J103 - Spare
J104 - Line Printer (optional)
J105 - Keyboard/Video Monitor (optional)
J106 - Terminal Interface
J107 - FloppyI/O
J108 - Spare
J109 - AC Power
J110-J118 - Spares

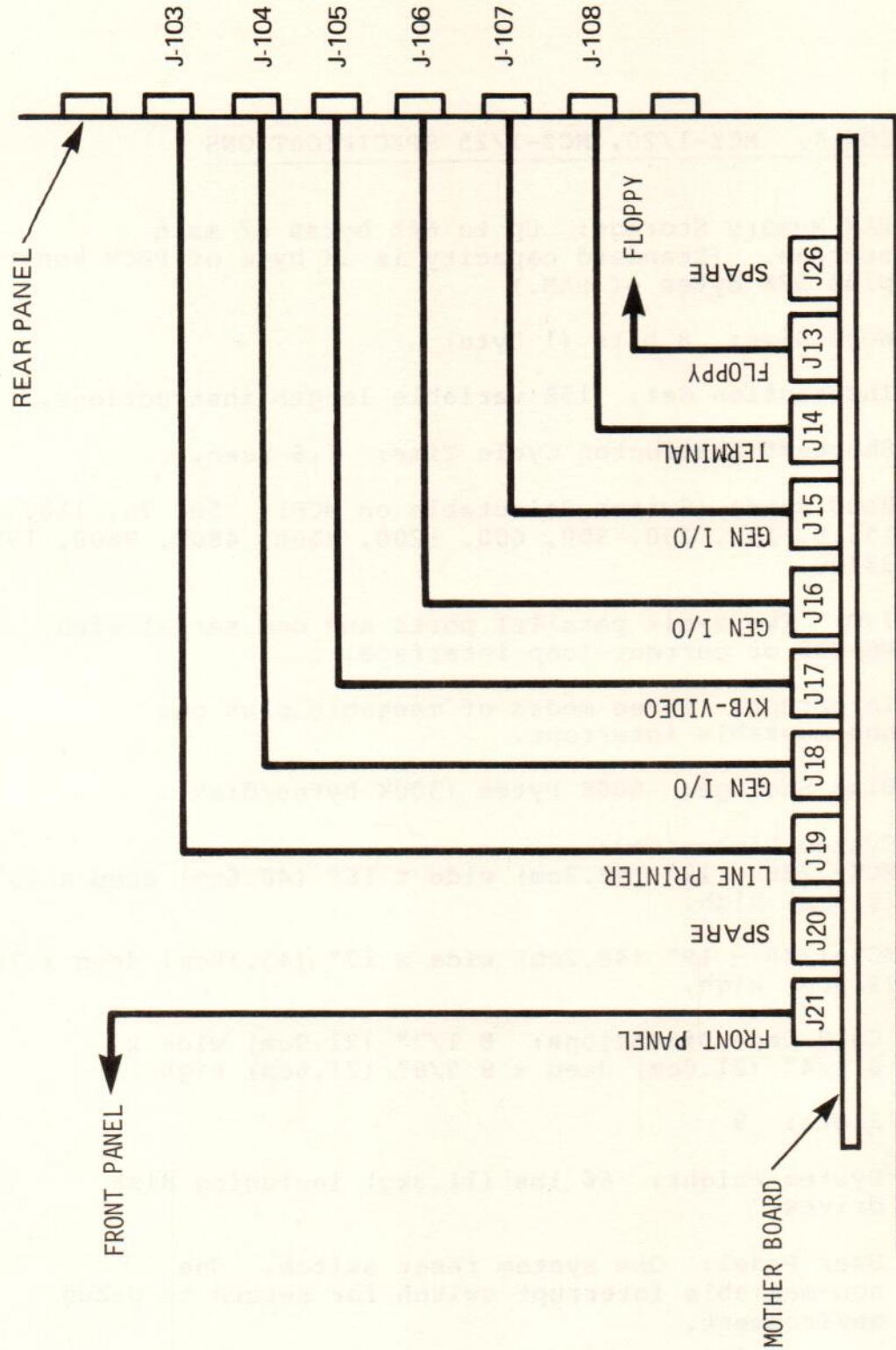


Figure 9 MCZ Cabling

SECTION 5. MCZ-1/20, MCZ-1/25 SPECIFICATIONS

1. RAM Memory Storage: Up to 64K bytes of main storage. (Standard capacity is 3K byte of PROM monitor plus 32K bytes of RAM.)
2. Word Size: 8 bits (1 byte)
3. Instruction Set: 158 variable length instructions.
4. Shortest Instructon Cycle Time: 1.6 usec.
5. Baud Rates (Switch Selectable on MCB): 50, 75, 110, 134.5, 150, 200, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400.
6. I/O: Two 8-bit parallel ports and one serial with RS-232 or current-loop interface.
7. Interrupt: Three modes of maskable plus one non-maskable interrupt.
8. Disk Storage: 600K bytes (300K bytes/disk).
9. System Dimensions:
MCZ-1/20 - 19" (48.2cm) wide x 16" (40.6cm) deep x 10" (9.5cm) high.

MCZ-1/25 - 19" (48.2cm) wide x 17" (43.18cm) deep x 10" (9.5cm) high.
10. Card Cage Dimensions: 8 1/2" (21.9cm) wide x 8 1/4" (21.0cm) deep x 8 5/8" (21.6cm) high

Slots: 9
11. System Weight: 66 lbs (11.3kg) including disk drives
12. User Panel: One system reset switch. One non-maskable interrupt switch for return to debug environment.
13. Power Requirements:
110-115 VAC/3.0 A
200-240 VAC/1.5 A
50-60 HZ

14. Internal Power Supply:
+5 VDC 12 A capability
-5 VDC .5A capability
+24 VDC 1 A capability
+12 VDC 1.2 A capability

15. Connectors:

MCZ-1/20

J101 - Spare
J102 - Spare
J103 - Line Printer (Optional)
J104 - Spare
J105 - Keyboard/Video Monitor (optional)
J106 - Spare
J107 - Spare
J108 - Terminal Interface

MCZ-1/25

J101-J103 - Spares
J104 - Line Printer (Optional)
J105 - Keyboard/Video monitor (optional)
J106 - Terminal Interface
J107 - Floppy I/O
J108 - Spare
J109 - AC Power
J110-J118- Spares

16. Environment: 0 degrees C - 40 degrees C operating temperature range.
17. ON/OFF: An ON/OFF switch is located at the rear of the unit.
18. Internal Cable: Flat ribbon with Ansley connector (26-pin, 609-2600m) to motherboard and Ansley connector (25-pin, 609-25S) to rear panel.
External Cable: 25-pin Ansley 609-25P.
19. Optional Hardware:
PROM Memory Board (PMB)
Serial I/O Board (SIB)
Parallel I/O Board (IOB)
Analog Boards (AIO, AIB)
PROM Programmer Boards (PPB, PPB/16)
Video Display Board (VDB)
PROM Set No. 33-0084-08, 09, 10 required
20. Optional Keyboard: Keytronics model 1440
18" (45.7cm) wide x 8 3/4" (22.2cm) deep x 2" (5.1cm) high
21. Optional Video Display: TECO 12" (30.5cm)

TV monitor.

22. Software Support: Relocatable Assembler (OS-RIO), Editor, Debug, File Maintenance
Optional Software: BASIC, COBOL, FORTRAN IV, PLZ

SECTION 6

MCZ-1/20, 25

INTERCONNECT AND SIGNAL LIST

BOARDS

REVISION A

CONNECTORS

Z80-MCZ-1/20, 1/25

Page 1 of 7

SPARE		J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-13	J-14	J-15	J-16	J-17	J-18	J-19	J-21	J-22	J-23	J-24	J-25	POWER
+05V	61																						
+05V	60																						
+05V	60																						
+05V	60																						
01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	02	POWER
02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	03	DISC POWER
03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	03	FRONT PANEL
59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	LINE PRINTER
60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	KEYBOARD VIDEO
61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	GEN I/O
+12V																							
+12V																							
+12V																							
+24V																							
-05V																							
-05V																							
-12V																							
-12V																							
1/2 PHI.(C/T.1)																							

BOARDS

CONNECTORS

Z80-MCZ-1/20, 1/25

Page 2 of 7

SPARE	I0B	VDB	MDC	RMB	MCB	RMB	MDC	I0B	PPB	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-13	J-14	J-15	J-16	J-17	J-18	J-19	J-21	J-22	J-23	J-24	J-25						
20MA. DATA																																				
20MA. DATA.RET																																				
20MA. RECV																																				
20MA. RECV.RET																																				
2X.SERIAL.CLOCK																																				
8.PHI-																																				
AB00	103	103	103	103	103	103	103	103	103	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93							
AB01	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102							
AB02	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101						
AB03	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100						
AB04	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98					
AB05	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29					
AB06	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30					
AB07	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26					
AB08										27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27			
AB09										89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89			
AB10										91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91			
AB11										37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37			
AB12										87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87			
AB13										36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36			
AB14										94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94			
AB15										32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32			
ACKNOWLEDGE-																																				
BUSAK-	88																																			
BUSRQ-	109																																			
BUSY	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	
PHI-																																				
CLEAR.T0.SEND																																				
IEI.MCB.CTC																																				

BOARDS

CONNECTORS

	SPARE	I/OB	DB	MD	MB	PB	MCB	MB	DB	I/OB	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-13	J-14	J-15	J-16	J-17	J-18	J-19	J-21	J-22	J-23	J-24	J-25
DB00											13	13	13	13	13	13	13	13	13												
DB01											75	75	75	75	75	75	75	75	75												
DB02											71	71	71	71	71	71	71	71	71												
DB03											08	08	08	08	08	08	08	08	08												
DB04											68	68	68	68	68	68	68	68	68												
DB05											05	05	05	05	05	05	05	05	05												
DB06											12	12	12	12	12	12	12	12	12												
DB07											73	73	73	73	73	73	73	73	73												
DATA01																			40											01	
DATA02																			41											02	
DATA03																			42											03	
DATA04																			43											04	
DATA05																			44											05	
DATA06																			45											06	
DATA07																			46											07	
DATA08																			47											08	
DATA_SET.RDY																			74											09	
DATA_STROB -																			48												
DATA_TERM.RDY																			76											20	
DIRECTION-																			70												
DISK.(C/T.0)																			17												
DISK.R/W																			72												
DISK_STRB																			25												
DR00 -																			18											38	
DR01 -																			78											39	
DR02 -																			76												
DR03 -																			74												
DR04 -																			81												
DR05 -																			15												
DR06 -																			14												
DR07 -																			07											10	
DRIVE_PRESENT-																			34												

BOARDS

CONNECTORS

	Spare	I0B	VDB	MDC	RMB	MCB	PPB	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-13	J-14	J-15	J-16	J-17	J-18	J-19	J-21	J-22	J-23	J-24	J-25
FAULT	62																											
GND01																												
GND03																												
GND04																												
GND05																												
GND06																												

BOARDS

CONNECTORS

Spare	I/OB	VDB	MDC	RMB	MCB	PB	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10	J-11	J-12	J-13	J-14	J-15	J-16	J-17	J-18	J-19	J-21	J-22	J-23	J-24	J-25
LINE.SIG.DET																														
LPCNTL1 IEI.MCB.PIO																														
IEO.MCB.PIO IEI.MDC.PIO																														
MEMORY.SEL.(RAM OUT)																														
M1 - MASTER.RESET MASTER.RESET- MRQ-																														
NMI - PAPER.EMPTY RAM.DISABLE																														
RECV.DATA RD-																														
RD.DATA READY- REQ.T0.SEND RESET-																														
RFSH- ROM.DISABLE ROM.SELECT.(OUT)																														
SEL0- SEL01- SEL02- SEL03-																														

BOARDS

CONNECTORS

	SPARE	I/OB	IOB	VDB	MDC	MB	MCB	PBP	POWER																	
	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10	J-11	J-12	J-13	J-14	J-15	J-16	J-17	J-18	J-19	J-20	J-21	J-22	J-23	J-24	J-25	
SELECT																										
SPARE																										
STEP-																										
SUBG00-																										
SUBG01-																										
SUBG02-																										
SUBG03-																										
SYNC .DET																										
TRACK .00-																										
IEO .MCB .CTC																										
TTY .TAPE .CNTL																										
TTY .TAPE .CNTL .RTN																										
USER .C/T .2																										
RTC .(USER.C/T.3)																										
USERSTRB																										
VERT .SYNC																										
VIDEO .DRV																										
WAIT-																										
WR-																										
WR .GATE																										
WR .PROT																										
WRT .DATA																										
XMIT ED .DATA																										
GND02																										
TET-																										
I EI2-																										
INDEX00																										

SECTION 7

MCZ-1/20, 25

POWER SUPPLY SCHEMATIC

