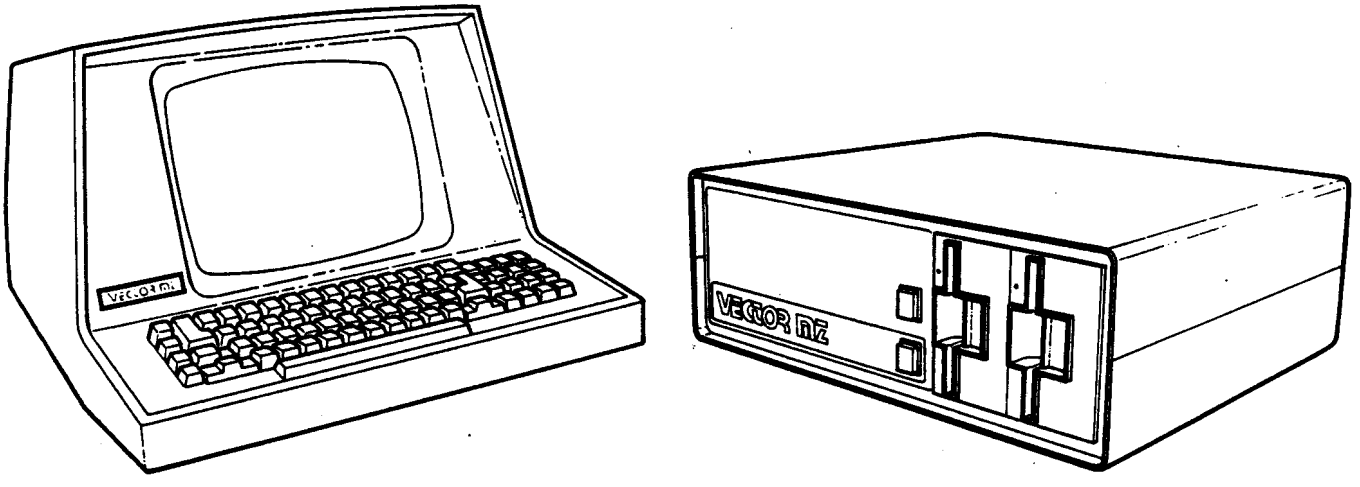
MOTHERBOARD

USERS MANUAL



VECTOR GRAPHIC INC.

REPAIR AGREEMENT

The Motherboard sold hereunder is sold "as is", with all faults and without any warranty, either expressed or implied, including any implied warranty of fitness for intended use or merchantability. However, the above notwithstanding, VECTOR GRAPHIC, INC., will, for a period of ninety (90) days following delivery to customer, repair or replace any Motherboard that is found to contain defects in materials or workmanship, provided:

1. Such defect in material or workmanship existed at the time the Motherboard left the VECTOR GRAPHIC, INC., factory;
2. VECTOR GRAPHIC, INC., is given notice of the precise defect claimed within ten (10) days after its discovery;
3. The Motherboard is promptly returned to VECTOR GRAPHIC, INC., at customer's expense, for examination by VECTOR GRAPHIC, INC., to confirm the alleged defect, and for subsequent repair or replacement if found to be in order.

Repair, replacement or correction of any defects in material or workmanship which are discovered after expiration of the period set forth above will be performed by VECTOR GRAPHIC, INC., at Buyer's expense, provided the Motherboard is returned, also at Buyer's expense, to VECTOR GRAPHIC, INC., for such repair, replacement or correction. In performing any repair, replacement or correction after expiration of the period set forth above, Buyer will be charged in addition to the cost of parts the then-current VECTOR GRAPHIC, INC., repair rate. At the present time the applicable rate is $35.00 for the first hour, and $18.00 per hour for every hour of work required thereafter. Prior to commencing any repair, replacement or correction of defects in material or workmanship discovered after expiration of the period for no-cost-to-Buyer repairs, VECTOR GRAPHIC, INC., will submit to Buyer a written estimate of the expected charges, and VECTOR GRAPHIC, INC., will not commence repair until such time as the written estimate of charges has been returned by Buyer to VECTOR GRAPHIC, INC., signed by duly authorized representative authorizing VECTOR GRAPHIC, INC., to commence with the repair work involved. VECTOR GRAPHIC, INC., shall have no obligation to repair, replace or correct any Motherboard until the written estimate has been returned with approval to proceed, and VECTOR GRAPHIC, INC., may at its option also require prepayment of the estimated repair charges prior to commencing work.

Repair Agreement void if the enclosed card is not returned to VECTOR GRAPHIC, INC. within ten (10) days of end consumer purchase.

VECTOR 1 MOTHERBOARD

TABLE OF CONTENTS

PARTS LIST

QTY.	DESCRIPTION
1	PRINTED CIRCUIT BOARD
2	820 OHM 1 WATT RESISTORS (STRIPES OF GRAY, RED, BROWN)
1	100 OHM 2 WATT RESISTORS (STRIPES OF BROWN, BLACK, BROWN)
1	7805/340T-5 REGULATOR
1	#6-32X3/8 SCREW, NUT AND LOCKWASHER
41	330 OHM 1/4 WATT RESISTORS (STRIPES OF ORANGE, ORANGE, BROWN)
41	470 OHM 1/4 WATT RESISTORS (STRIPES OF YELLOW, VIOLET, BROWN)

MOTHERBOARD USERS MANUAL

THE VECTOR 1 MOTHERBOARD HAS 18 SLOTS, IS BASED ON THE POPULAR S-100 BUS STRUCTURE AND IS DESIGNED TO PROVIDE A NUMBER OF FEATURES NOT PREVIOUSLY AVAILABLE.

IN ACCORDANCE WITH VECTOR GRAPHIC INC.'S COMMITMENT TO HIGH PERFORMANCE STANDARDS AND TOP QUALITY PRODUCTS, OUR MOTHERBOARDS ARE NOW SUPPLIED WITH BUS TERMINATORS. WITH THE INCREASED USE OF LOW POWER SCHOTTKY TTL AND ITS REDUCED NOISE IMMUNITY, BUS TERMINATION BECOMES A DESIRABLE FEATURE. NOT TO BE CONFUSED WITH SO CALLED "ACTIVE" TERMINATORS, FULL TIME TERMINATION IS PROVIDED.

FEATURES

MOST POPULAR "ALTAIR/IMSAI" S-100 BUS STRUCTURE

CAN BE USED TO RETROFIT YOUR SECTIONED ALTAIR MOTHERBOARD

POSITIONS FOR 18 .125" X 0.25" 100 PIN EDGE CONNECTORS

ACCEPTS EITHER SOLDER PINS OR WIRE WRAP PINS

MOST POPULAR 0.25" CENTER TO CENTER SPACING BETWEEN PIN ROWS

0.75" CENTER TO CENTER SPACING BETWEEN CONNECTORS

EXTRA HEAVY 0.93" WARP RESISTANT, AEROSPACE QUALITY G-10 EPOXY BOARD

FULL GROUNDPLANE REDUCES NOISE ON BUS LINES

PLATED THROUGH HOLES FOR MORE RELIABLE CONNECTIONS

TRACES ON BACK OF BOARD ONLY

LESS RISK OF SHORTS FROM CONDUCTIVE ITEM BEING INADVERTENTLY DROPPED DURING OPERATION

MUCH EASIER TO TROUBLE SHOOT

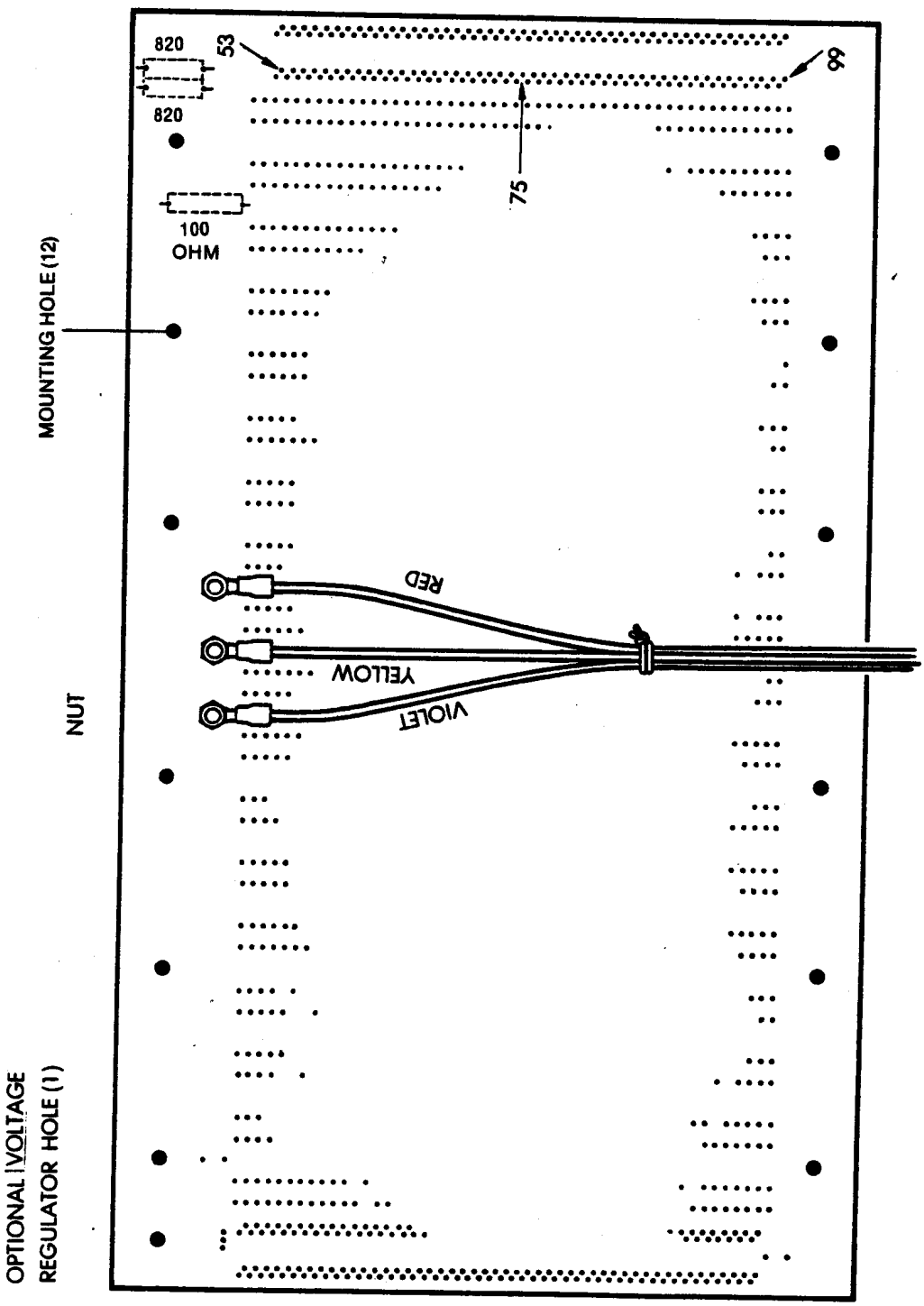
REDUCED CAPACITANCE BETWEEN TRACES

SOLDER MASKED TO REDUCE RISK OF SOLDER BRIDGES DURING ASSEMBLY

BUS TERMINATION

POWER RATING: 20 A FOR +8 VOLT TRACE; 25 A FOR $\pm$16V TRACES

BOARD SIZE 15" X 8.5"


820
820
53
99
75
100
OHM
MOUNTING HOLE (12)
RED
YELLOW
VIOLET
NUT
OPTIONAL VOLTAGE
REGULATOR HOLE (1)
5 - MOTHERBOARD BOTTOM

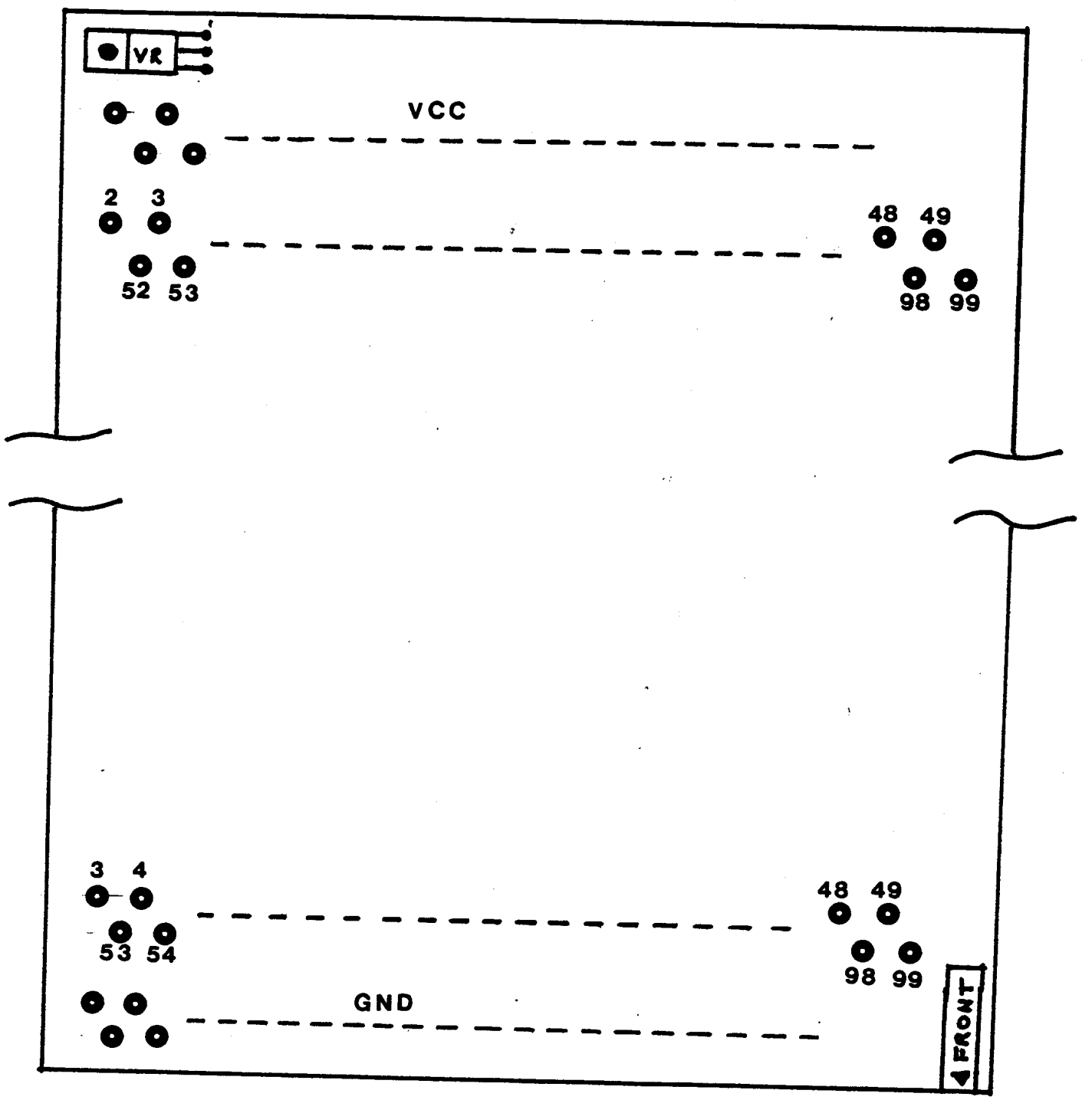
BUS TERMINATION

THE TERMINATORS PROVIDED ARE 330 OHM PULL-UP (TO +5V) AND 470 OHM PULL-DOWN (TO GND).

TABLE 1

LINES TERMINATED

24 - 2	38 - DO4	76 - PSYNC	86 - A14
25 - 1	39 - DO5	77 - PWR	87 - A11
29 - A5	40 - DO6	78 - PDBIN	88 - DO2
30 - A4	41 - DI2	79 - A0	89 - DO3
31 - A3	42 - DI3	80 - A1	90 - DO7
32 - A15	43 - DI7	81 - A2	91 - DI4
33 - A12	47 - SMEMR	82 - A6	92 - DI5
34 - A9	49 - CLK	83 - A7	93 - DI6
35 - DO1	54 - EXT CLR	84 - A8	94 - DI1
36 - DO0	68 - MWRITE	85 - A13	95 - DI0
37 - A10			


VR
VCC
2
3
48
49
52
53
98
99
3
4
48
49
53
54
98
99
GND
FRONT

S-100 BUS

1.	+8V	UNREGULATED INPUT TO +5V REGULATORS
2.	+16V	UNREGULATED INPUT TO +12V REGULATORS
3.	XRDY	ANDED WITH PRDY AND GOES TO 8080 RDY
4.	VIO	VECTORED INTERRUPT REQUEST 0
5.	VI1	VECTORED INTERRUPT REQUEST 1
6.	VI2	VECTORED INTERRUPT REQUEST 2
7.	VI3	VECTORED INTERRUPT REQUEST 3
8.	VI4	VECTORED INTERRUPT REQUEST 4
9.	VI5	VECTORED INTERRUPT REQUEST 5
10.	VI6	VECTORED INTERRUPT REQUEST 6
11.	VI7	VECTORED INTERRUPT REQUEST 7
12.	XRDY2	
13.		
14.		
15.		
16.		
17.		
18.	$\overline{\text{STA DSB}}$	STATUS BUFFER DISABLE
19.	$\overline{\text{C/C DSB}}$	COMMAND/CONTROL BUFFER DISABLE
20.	UNPROT	INPUT TO MEMORY PROTECT CIRCUITRY ON MEMORY BOARD
21.	SS	INDICATES MACHINE IS IN SINGE STEP MODE
22.	$\overline{\text{ADD DSB}}$	ADDRESS BUFFER DISABLE
23.	$\overline{\text{DO DSB}}$	DATA OUT (FROM CPU) BUFFER DISABLE
24.	Φ2	PHASE TWO CLOCK TTL LEVELS
25.	Φ1	PHASE ONE CLOCK TTL LEVELS
26.	PHLDA	HOLD ACKNOWLEDGE, BUFFERED 8080 OUTPUT

27.	PWAIT	WAIT ACKNOWLEDGE, BUFFERED 8080 OUTPUT
28.	PINTE	INTERRUPT ENABLE, BUFFERED 8080 OUTPUT
29.	A5	BUFFERED ADDRESS LINE 5 (32)
30.	A4	BUFFERED ADDRESS LINE 4 (16)
31.	A3	BUFFERED ADDRESS LINE 3 (8)
32.	A15	BUFFERED ADDRESS LINE 15 (32768)
33.	A12	BUFFERED ADDRESS LINE 12 (4096)
34.	A9	BUFFERED ADDRESS LINE 1 (2)
35.	DO1	BUFFERED DATA OUT LINE 1
36.	DO0	BUFFERED DATA OUT LINE 0
37.	A10	BUFFERED ADDRESS LINE 10 (1024)
38.	DO4	BUFFERED DATA OUT LINE 4
39.	DO5	BUFFERED DATA OUT LINE 5
40.	DO6	BUFFERED DATA OUT LINE 6
41.	DI2	DATA INPUT LINE 2
42.	DI3	DATA INPUT LINE 3
43.	DI7	DATA INPUT LINE 7
44.	SMI	LATCHED 8080 M1 STATUS
45.	SOUT	LATCHED 8080 OUT STATUS
46.	SINP	LATCHED 8080 INP STATUS
47.	SMEMR	LATCHED 8080 MEMR STATUS
48.	SHLTA	LATCHED 8080 HLTA STATUS
49.	CLOCK	2 MHZ CLOCK, CRYSTAL CONTROLLED
50.	GND	LOGIC AND POWER GROUND RETURN
51.	+8V	UNREGULATED INPUT TO +5V REGULATORS
52.	-16V	UNREGULATED INPUT TO NEGATIVE REGULATORS
53.	$\overline{\text{SSW DSB}}$	SENSE SWITCH DISABLE
54.	$\overline{\text{EXT CLR}}$	CLEAR SIGNAL FOR I/O DEVICES

55.	RTC	REAL TIME CLOCK OR 48K FAST RESET
56.	$\overline{\text{STSTB}}$	STROBE SIGNAL (BY 8224 CLOCK CHIP 8800B D/C BOARD)
57.	DIGI	ENABLE SIGNAL FOR CPU DI DRIVERS 8800B
58.	FRDY	8800B FRONT PANEL READY SIGNAL
59.		
60.		
61.		
62.		
63.		
64.		
65.		
66.	48K $\overline{\text{REFRESH}}$	
67.	$\overline{\text{PHANTOM}}$	
68.	MWRT	WRITE ENABLE SIGNAL FOR MEMORY
69.	$\overline{\text{PS}}$	INDICATES IF ADDRESSED MEMORY IS PROTECTED
70.	PROT	INPUT TO MEMORY PROTECT CIRCUITRY ON MEMORY BOARD
71.	RUN	INDICATES MACHINE IS IN RUN MODE
72.	PRDY	ANDED WITH XRDY AND GOES TO 8080 RDY
73.	$\overline{\text{PINT}}$	INPUT TO 8080 INTERRUPT REQUEST
74.	$\overline{\text{PHOLD}}$	INPUT TO 8080 HOLD REQUEST
75.	$\overline{\text{PRESET}}$	CLEAR SIGNAL FOR CPU
76.	PSYNC	BUFFERED 8080 SYNC SIGNAL
77.	$\overline{\text{PWR}}$	BUFFERED 8080 WRITE ENABLE SIGNAL
78.	PDBIN	BUFFERED 8080 BDIN SIGNAL
79.	A0	BUFFERED ADDRESS LINE 0 (1)
80.	A1	BUFFERED ADDRESS LINE 1 (2)
81.	A2	BUFFERED ADDRESS LINE 2 (4)
82.	A6	BUFFERED ADDRESS LINE 6 (64)

83.	A7	BUFFERED ADDRESS LINE 7 (128)
84.	A8	BUFFERED ADDRESS LINE 8 (256)
85.	A13	BUFFERED ADDRESS LINE 13 (8192)
86.	A14	BUFFERED ADDRESS LINE 14 (16384)
87.	A11	BUFFERED ADDRESS LINE 11 (2048)
88.	DO2	BUFFERED DATA OUT LINE 2
89.	DO3	BUFFERED DATA OUT LINE 3
90.	DO7	BUFFERED DATA OUT LINE 7
91.	DI4	DATA INPUT LINE 4
92.	DI5	DATA INPUT LINE 5
93.	DI6	DATA INPUT LINE 6
94.	DI1	DATA INPUT LINE 1
95.	DI0	DATA INPUT LINE 0
96.	SINTA	LATCHED 8080 INTA STATUS
97.	$\overline{\text{SWO}}$	LATCHED 8080 WO STATUS
98.	SSTACK	LATCHED 8080 STACK STATUS
99.	$\overline{\text{POC}}$	LO DURING POWER UP, RESET
100.	GND	LOGIC AND POWER GROUND RETURN

Φ = PHI