dev4h2p1.bmp

dev4h2p2.bmp

U1 CDP1802ACE MICROPROCESSOR

U2 see TABLE 1

U3 74HC373 ADDRESS LATCH

U4 4093

U5 4013

U6 74HC244 INPUT BUFFER

U7 74HC374 OUTPUT LATCH

U8 CY7C199 32K RAM underU2

U9 4071

U10 74HC157

Membership Card <-- | --> Front Panel Card

P1 PIN HEADER

J1 MOLEX KK SOCKET

P2

P3

P4 POWER +3-5V

P5 A/B

P6 RXD

J2 DB25F I/O

C1 1.8MHz

C2 0.1uF

C3 0.1uF

C4 0.1uF

C5 0.10F

C6 0.1uF X7R

C7 0.1uF

C8 4.7uF

R1 1Meg BOURNS 3266W

R2 (see notes)

R3 100K

R4 499K

R5 100K

R6 100K

R7 1Meg

R8 499K

R9 499K

R10 499K

R11 1K

R12 100K

R13 100K

R14 3.3K

R15 (see notes)

D1 5LP01SP

D2 5LN01SP

D8 EF3 GREEN

D8 RED

D9 1N4148

D10 1N4148

D11 5.1Vz 1N5231B

D12 1N5818

D13 1N4148

D14 1N4148

D15 1N5231B 5.1Vz

Q1,2 S D G
Q3,5 E C B
Q4 E B C

Q4 2N3904

Q5 FJN3307

Q3 FJN4303

S8 MEMORY PROTECT

S9 CLR

S10 WAIT

S11 IN

MEMORY MAP JUMPERS (between Q1-Q2)
----default-----
U2 to LO: 0-32K
U8 to HI: 32-64K
--cut & jumper--
U8 to LO: 0-32K
U2 to HI: 32-64K

U2 MEMORY TYPE JUMPERS

(JUMPERS P7-P10 TO J2)

If used with a PC Parallel Port: Short P5, open P7-10

D=Data @BASE
S=Status @BASE+1
C=Control @BASE+2

name direction bit

SERIAL I/O
RXD (Receive) Normal: Short P6 pins 1-2, and 3-4
or Inverted: Short P6 pins 2-3, and 4-5
TXD (Transmit) NORmal: Install Q3 in Q3N position
or INVerted: Install Q3 in Q3I position
For RS-232 levels (+V/-V): Install C8
or TTL levels (+5v/0v): Short C8

If used for general I/O: Short P7-10, open P5

TABLE 1		Pin Numbers				Jumpers	
U2	part#	type	1	23	26	27	P2	P3
	62256	32K RAM	A14	A11	A13	/WE	1-2,4-5	1-3,2-4
	6264	8K RAM		A11	VDD	/WE	3-4	1-3,2-4
*	6116	2K RAM		/WE	VDD		3-4	2-3
	27256	32K EPROM	VDD	A11	A13	A14	2-3,4-5	1-3,4-6
	27128	16K EPROM	VDD	A11	A13	VDD	2-3,4-5	1-3,4-5
	2764	8K EPROM	VDD	A11	NC	VDD	2-3	1-3,4-5
*	2732	4K EPROM		A11	VDD		3-4	1-3
*	2716	2K EPROM		VDD	VDD		3-4	3-5

* is a 24-pin IC: put its pin 1 into socket pin 3.

P4 power connector: pin 1 VDD: +3 to +5 VDC; 3 AA cells etc. pin 2 RUN: to VDD to run; open stops osc. pin 3 LED: to GND enables LEDs; open=off. pin 4 GND: Common for power (VSS).

Notes:
For PC Parallel Port, set S0-7 & S9-11 UP, S8 DOWN.
Rev.B: Add Q1 to set U2 /CE=0 when TPB=1 & A15=0. R8-10 was 100K, now 470K. Add RUN on P4-2. Add C6=82pF. Add feedthru "O" (drill for 1804 to open VCC). I/O port was 5 or 7, now 4-7.
Rev.C: R4, 8-10 was 470K, now 499K. C6 was 82pF, now 100pF.
Rev.D: R2 was 15K, now 6.8K. Add R14 for RS-232 input. Add D12. Add J2 signal names. Swap P1-J1 designators. Add jumpers A/B, Q0-Q3 for 8 outputs on J2. Add N0-N2 & Q1 options to stack 2 Membership Cards w/o memory or I/O conflict.
Rev.E: Add room for larger C5 (up to 0.22F).
Rev.F: Remove R2 (R1 now does its job). Replace C1 with 1.8 MHz ceramic resonator.
Rev.G: Add U8. Change C6 to bypass cap for U8. Add serial I/O to J2 using Q and EF3. D8 is red for Q=1 (TXD active), green for EF3 pin=1 (RXD active).
Rev.H: Add D14. R4 was /CLEAR now GND. Q1 was 2N7000 now FJN3301. R5 was 100K now 10K.
Rev.H2: Add Q1+Q2 for /A15 inverter. Replace R15 with P6 serial RXD jumper. Add D15.

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Title		
1802 Membership Card and Front Panel Card		
Size	Document Number	REV
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Date: May 28, 2015	Sheet 1 of 1	