

8K STATIC RAM BOARD

IA-1110

Instruction Manual

Issued Jan., 1979

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BOARD CONSTRUCTION

Begin construction of the 8K memory board by first examining it for obvious shorts. Measure with an ohm meter between all address lines, data lines and the ground and +5 volt lines for possible shorts. The sockets are the first item that should be soldered into the PCB. Notice the orientation of the IC's against the layout and the silk-screen. All chips are orientated with the Pin 1 on the left side of the IC.

After installing the sockets, the capacitors may be soldered in next. Begin with C9 (47 uf) and C10,C11 (0.001 uf). The remaining caps are 0.1 uf. The dip switch should be installed after the caps.

Now the board should be checked with an ohm meter for possible solder bridges and shorts again as before. If none are found you may proceed.

Install the resistors, diodes and the four regulators. Heatsink compound is not required. Use 6-32 x 3/8 screws and nuts to secure the regulators. Be cautious for the correct orientation of the diodes.

POWER ON CLEAR

The jumper option "A,B,C" is for Power On Clear initialization of memory protect. With this selection you may choose for the memory protect feature of this board to be initialized in either the "Protect" or "Unprotect" mode of operation. If no standby voltage is used to retain memory data when the power is down then "Unprotect" (B to C) is the best choice. This will allow immediate use of the memory when power is first applied.

If however you choose to use the Standby Data Retention feature the "Protect" mode (B to A) is best. This will automatically put the memory in write protect when power is applied so that the processor may not erase memory before you have programmed it. After power is up you may then reset it to unprotect and use it as you desire. Make the jumper selection for the mode you want to use.

STANDBY VOLTAGE

The standby voltage is used to retain memory data while the rest of the system is off. The voltage can be generated for your system by the use of two NI-CAD batteries. This voltage may be applied to the unit on the S-100 buss Pins 13 and 14. The positive voltage should be applied to the pin marked "Standby" or Pins 13 and 14. The negative return should then be connected to Ground.

If Pins 13 and 14 are used for some other purpose in your system, you may select to cut the trace on the PCB in order to disconnect them.

WAIT STATE SELECTION

If you have 450 ns or faster memory IC's and are using an 8080 CPU, you will need zero wait states. If you then go to a faster CPU you may want to include 1, 2 or 3 wait states.

Alternately, if you used a slower memory IC you may need to allow for this by selecting enough wait states to achieve faultless operation of the memory.

8K REV. A

PARTS LIST:

| | | |
|---------|---|-------------|
| 4 | Heat Sinks | |
| U1-U4 | 7805 Voltage Regulator (A.K.A. 340 T-5) | |
| U5 | 8 Position Dip Switch | |
| U6,U7 | 74LS85 | |
| U8 | 74LS138 | |
| U9 | 74LS74 | |
| U10 | 74LS08 | 1- 4 1N4006 |
| U11 | 74LS32 | 5 1N4148 |
| U12 | 74LS02 | |
| U13-U16 | 74LS04 | |
| U17 | 74175 | |
| U18,U19 | 74LS368 | |
| U20-U83 | 2102 Type Memory | |
| | (not numbered on silk screen) | |
| RP1 | 4.7K | SIP |
| R1, R2 | 2.4K | 1/4 watt |
| R3 | 4.7K | |
| R4 | 470 | |
| R5 | 560 | |
| C10,C11 | 0.001 uf | |
| C9 | 47 uf | |
| C1-8 | and all the rest are 0.1 uf | |

DESIRED MEMORY ADDRESS RANGE

ADDRESS SWITCH POSITION

| K | DECIMAL | HEX | SPLIT OCTAL | ADDRESS SWITCH POSITION | | | | | | | |
|-------|-------------|-----------|-----------------|-------------------------|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F | G | H |
| 1- 8 | 1- 8194 | 0000-1FFF | 000 000-037 377 | C | C | C | C | 0 | C | C | C |
| 5-12 | 4097-12288 | 1000-2FFF | 023 000-057 377 | 0 | C | C | C | C | 0 | C | C |
| 9-16 | 8193-16384 | 2000-3FFF | 040 000-077 377 | C | 0 | C | C | 0 | 0 | C | C |
| 13-20 | 12289-20480 | 3000-4FFF | 060 000-117 377 | 0 | 0 | C | C | C | C | 0 | C |
| 17-24 | 16385-24576 | 4000-5FFF | 100 000-137 377 | C | C | 0 | C | 0 | C | 0 | C |
| 21-28 | 20481-28672 | 5000-6FFF | 120 000-157 377 | 0 | C | 0 | C | C | 0 | 0 | C |
| 25-32 | 24577-32768 | 6000-7FFF | 140 000-177 377 | C | 0 | 0 | C | 0 | 0 | 0 | C |
| 29-36 | 28673-36864 | 7000-8FFF | 160 000-217 377 | 0 | 0 | 0 | C | C | C | C | 0 |
| 33-40 | 32768-40960 | 8000-9FFF | 200 000-237 377 | C | C | C | 0 | 0 | C | C | 0 |
| 37-44 | 36864-45056 | 9000-AFFF | 220 000-257 377 | 0 | C | C | 0 | C | 0 | C | 0 |
| 41-48 | 40961-49152 | A000-BFFF | 240 000-277 377 | C | 0 | C | 0 | 0 | 0 | C | 0 |
| 45-52 | 45057-53248 | B000-CFFF | 260 000-317 377 | 0 | 0 | C | 0 | C | C | 0 | 0 |
| 49-56 | 49153-57344 | C000-DFFF | 300 000-337 377 | C | C | 0 | 0 | 0 | C | 0 | 0 |
| 53-60 | 53248-61440 | D000-EFFF | 320 000-357 377 | 0 | C | 0 | 0 | C | 0 | 0 | 0 |
| 57-64 | 57345-65536 | E000-FFFF | 340 000-377 377 | C | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

NOMENCLATURE: C = Closed (On) Address line Low
 0 = Open (Off) Address line High

In order to address your board, first determine the address space desired. Then set the select switches from the ADDRESS SWITCH POSITION Table.

FORREST DUSTON

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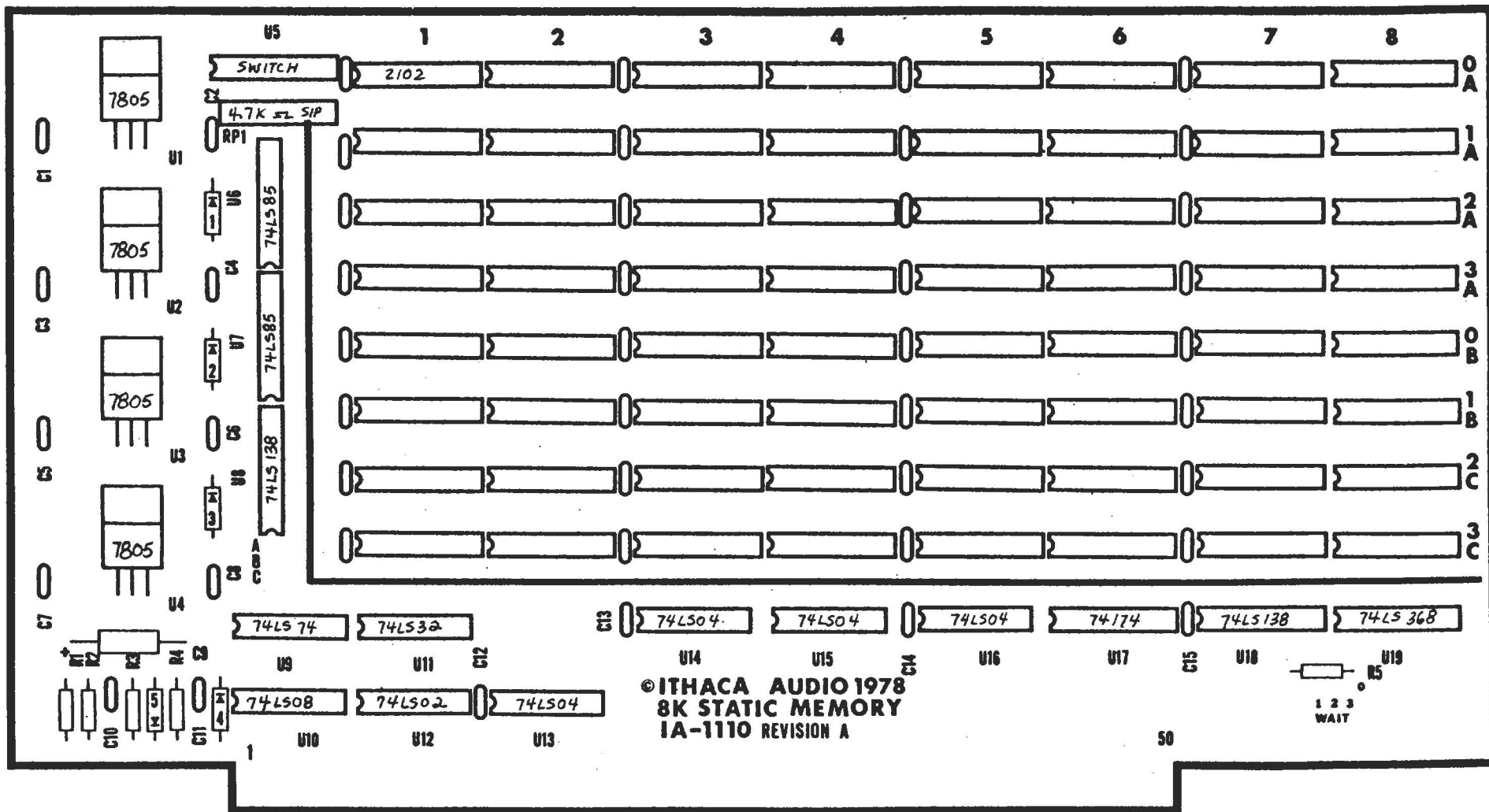
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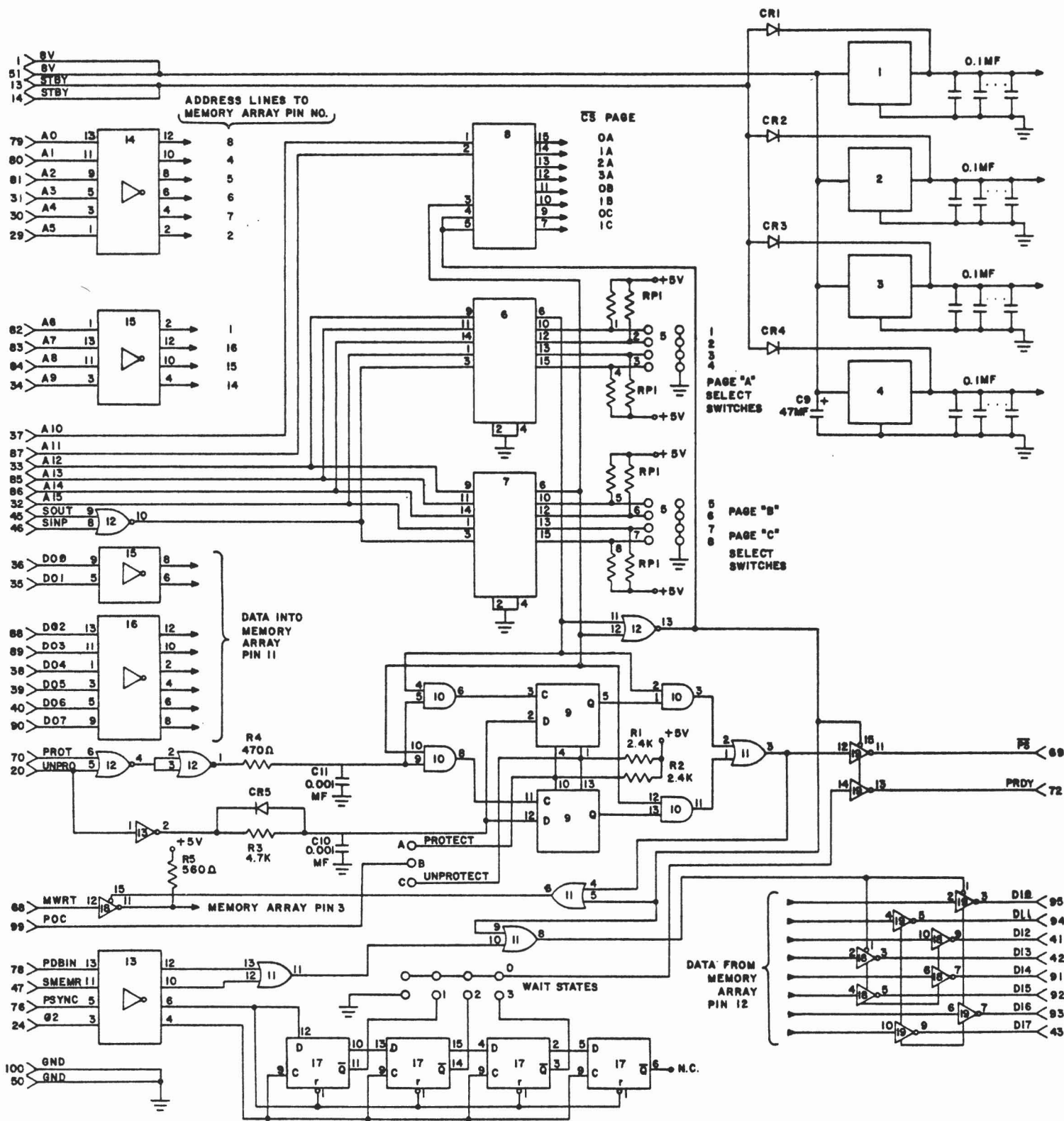
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