



Corsham Technologies, LLC

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SS-50 64K RAM Board

Introduction

Thank you for buying our SWTPC 6800 compatible 64K memory board!

Is this board vintage? Frankly, no. It was designed in 2014 using a RAM chip that most definitely available in the era when SWTPC was selling their systems. The 74LS04 and the Molex connectors are vintage, but not much else is.

Features

This board was on the list of things to build, but the design was easy to visualize, and when someone contacted me about needing RAM boards for his system it just seemed like a good time to build the board.

Features include:

- Provides anywhere from 0K to 64K.
- The RAM can be enabled/disabled in 4K segments via 16 switches.
- Fully compatible with the SS-50 bus.
- Very low power.

Note that this memory board does not use any of the extended address bits on the SS-50C bus commonly used on 6809 based systems.

Setting the DIP Switches

There are two eight position DIP switches located on the left side of the board which are used to enable/disable any given 4K segment. Next to each switch is a label indicating which address range that switch enables.

To enable a segment, turn the switch to the ON position, usually sliding it to the right or pushing down the switch to the right, depending on the switch style. Some switches are labeled OPEN which is the opposite of ON.

Check the DIP switches to make sure they don't cause the memory to overlap with I/O, other RAM, ROM, etc, present in your system. If you experience problems, turn on the minimal amount of memory required to test.

Installation

Once the DIP switches are set properly, simply plug the board into your system's motherboard. The Molex connectors are tight, to put it mildly, so sometimes it works best to "rock" the board in. Note that there is a missing index pin on the motherboard and the corresponding pin on the 64K RAM board has a pin that should match the motherboard.

Test Points

There are several test points on the board meant for testing during development and generally of no use to customers, but are documented here just to be complete:

Label	Use
TP1/+8V	+8 VDC directly from the SS-50 bus.
TP2	Ground. Mostly hidden by the SS-50 connector.
TP3-TP5	Ground.
TP-6	+5V power. Output from on-board regulator.

Hey, Hey, 64K!

"Hey, Hey, 16K" is the name of a song written by MJ Hibbett about the good ol' days of computers when 16K was enough memory to do many useful and fun things. I suggest you go to Wikipedia to see the entry for him and the link to the information about this particular song, or go to YouTube and search for "hey hey 16k."

Great lyrics:

*Hey, Hey, 16K, what does that get you these days?
You need more than that for a letter,
Old School Ram Packs are much better!*

Since “64K” kind of sounds like “16K” I decided to pay homage to Mr. Hibbett’s great song and put that phrase on the board. I had seriously considered making a 16K board but that seemed kind of silly.

Why This?

Back when SWTPC was around, I was a teenager without much money to spare. I got their catalogs and was intrigued by their inexpensive kits and simple designs that could be assembled by average people. The entry point for a working system was a bit beyond my means, so I ended up with a KIM-1 instead.

Years later, I have my own company that has been making Apple/Franklin and KIM-1 expansion boards and one night I decided it was within my abilities to make a clone of the original SWTPC machine. By using some parts available now, the design can be simplified.

*Bob Applegate
June 2014*

Revision History

Version	Changes
A	Initial Beta. June 2014.
1	Production release, July 2014

Errata

C1 and C2 are now much smaller, either 10uf or 22uf.

R1 can vary from 2K to 6.8K. For a 1 MHz 6800, 6.8K is fine, but for a faster processor the value should be smaller in order to pull the /SELECT line high fast enough.

Parts List

Part	Number	Description
PCB	1	Printed Circuit Board (Corsham Tech)
J1	3	Molex 09-52-3101
C1, C2	2	10uf, 25v electrolytic capacitor
C3, C4, C5	1	.1 uf disc capacitor
IC1	1	628128-7 128K static RAM
IC2	1	74159
IC3	1	7805 +5 VDC regulator, TO-220 case
IC4	1	74LS04
	1	32 pin socket for IC1
	1	24 pin socket for IC2
	1	14 pin socket for IC4
R1	1	6.8K resistor
SW1, SW2	2	8 position DIP switch