



Corsham Technologies, LLC

www.corshamtech.com

617 Stokes Road, Suite 4-299

Medford, NJ 08055

KIM-1 4K Memory Board

Thank you for purchasing our KIM-1 4K memory expansion boards! I hope you enjoy the additional RAM on your system. Included with this package are:

- This instruction sheet
- 4K memory expansion board
- Schematic

For references to direction, the board is assumed to be in “normal” position, that is with the edge connector facing to the right, ready to plug into the KIM’s Expansion connector. The Expansion connector is along the top, left-hand edge of the KIM. The Application connector is the lower one, where you have connected power to the KIM.

To install the 4K memory board, plug it into the KIM Expansion connector. That’s the easy part.

The KIM provides 8 decoded lines called K0 to K7, each going low when the corresponding 1K segment at the bottom of the KIM’s memory map is selected. So, when you access memory from \$0000 to \$03FF, the K0 line goes low. K5, K6, and K7 are used to select ROM and peripherals on the KIM main board. This leaves K1 to K4 available for our use. Those four signals are on the Application connector.

J2 on the 4K memory board is where you want to connect K1 to K4. Pin 1 of J2 (to the right, closest to the KIM) is ground, while pin 2 connects to the chip select lines from the KIM’s Application connector. The lines K1-K4 can be “wire-ored” together right at the Application connector, then bring a single wire to J2 on the memory board.

Here are the pins from the Application connector that you’ll probably want to bring over to the memory board:

Signal Name	Pin Number	Memory Range
K1	C	\$0400 - \$07FF
K2	D	\$0800 - \$0BFF
K3	E	\$0C00 - \$0FFF
K4	F	\$1000 - \$13FF

On the current connector you have plugged onto the Application connector, simply install wires

from pins C, D, E, and F, then bring a single wire over to pin 2 of J2 on the 4K memory board.

Your RAM is now ready to use! I'd strongly recommend a good memory test program, such as the one by Jim Butterfield in *The First Book Of KIM*. Or, simply write to any location between \$0400 and \$13FF and verify the data was written correctly. A modified memory test is located at our web site on the 4K board web page. It is supplied in source code, listing, and "teletype" format. The output of the memory test is sent to the TTY port.

Note that the memory chip on this board is 8Kx8, so it can be used for more than the 4K expansion discussed in this document. If you add external address decoding, you can bring the select line to J2 on this board. Note that the select line must drop low (0 volts) to be active, and high (5 volts) to be inactive.

About me...

I got interested in microcomputers in 1976 after reading several articles in QST magazine (ham radio). In 1978, I finally purchased my first computer... a KIM-1. This got me started in the best career I could have ever found. Over the many years since, I've made a comfortable living as an embedded software engineer, founder/manager of a consulting company and then an ISP, and finally back to full-time embedded programming.

I designed/built this card simply to enjoy the old-days of computers, and to pay for the production of the boards. From the prices and small market, you can safely assume this isn't a big company, and I'm not getting rich. The blank PC boards are laid out by me, then produced by a board house. The parts are hand-soldered by me, often with the kids helping, then we put boards onto the KIMs (two now) for testing.

Bob

Bob@corshamtech.com