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# HOW I ADDED 4K OF STATIC RAM TO MY MASTER CONTROLLER BOARD

The MASTER CONTROLLER BOARD© is a single board computer that is very useful in control applications. It has lots of parallel I/O, two serial channels, plus a high speed arithmetic chip, and more (The board is available from R.W. Electronics, 3165 N. Clybourn, Chicago, IL 60618, 312/248-2480). However, it does not have enough on board RAM for many applications. I was working on an EPROM programmer for 2732 EPROMS. I needed 4K RAM plus a stack area. The MASTER CONTROLLER BOARD has room for only 2K of 2114 RAM. However, there are two EPROM sockets available for up to 4K of EPROM in each socket. Since the sockets have the various chip select, address pins, and the write enable signal available in the jumper area, I decided to try using a 2K by 8 RAM in two of the EPROM sockets.

I used Hitachi HM6116P-3 RAMS since they are inexpensive and use very little power (they are CMOS).

The installation of the 6116's is very simple. IC sockets 22 and 23 are wired in the following manner:

## Jumpers

EPROM socket pin 19 to A10
EPROM socket pin 18 to pin 20 ($\overline{CS}$)
EPROM socket pin 21 to $\overline{WE}$

That's all there is to it!!!

Since these are 2K RAMS occupying an undecoded 4K slot in memory, the data in RAM will be "mirrored" in the upper and lower 2K sections of the 4K slot. By using one 6116 in IC 23 and filling up the 2K of 2114 on board you would have an effective RAM addressing space extending from 2800 hex to 37FF hex, or with 6116's in IC's 22 and 23, the effective address space (not including the on board 2114's) would be 1800 hex to 27FF hex.

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