

# RamWorks **2 MEG *Plus*** Memory Expander

This guide tells you how to install and configure your RamWorks 2 MEG PLUS Memory Expander card. The RamWorks 2 MEG PLUS Memory Expander is an accessory printed circuit card for both the RamWorks II and RamWorks III extended memory cards. (The 2 MEG PLUS will not work with the original RamWorks card. The original RamWorks had only two rows of RAM chips with a maximum capacity of 512K.)

When installed on either RamWorks II or III, it will provide an additional 1 to 2 megabytes of RAM (Random Access Memory) storage. Unless specifically noted, the name "RamWorks" in these instructions refers to both the RamWorks II and the RamWorks III cards.

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### Applied Engineering

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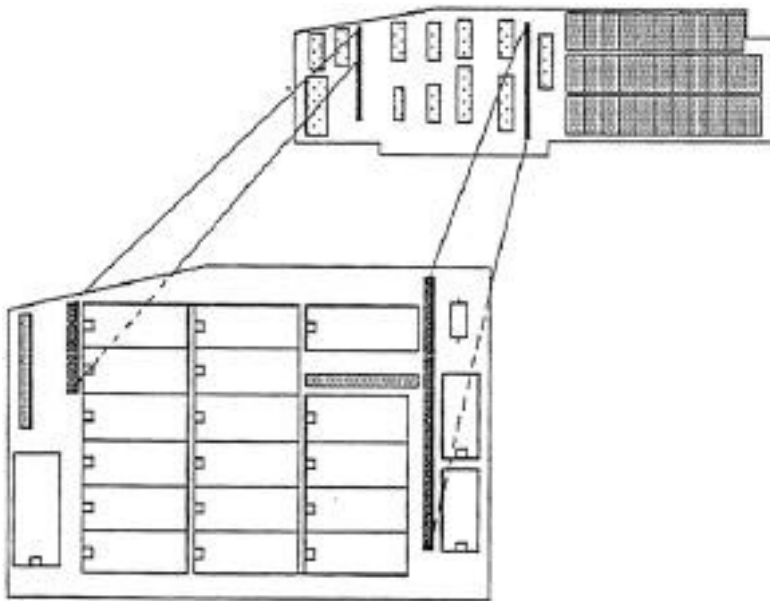
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## Installing the 2 MEG+

- First, TURN OFF THE POWER SUPPLY.
- Remove the cover from your Ile.
  
- Discharge any static electricity on your body by touching the Ile power supply case before touching any of the components.
  
- \* Warning! Don't ZAP your chips! There are many static sensitive components in the Ile and on the RamWorks and 2 MEG+ Memory Expander cards. Be sure that you touch the power supply case before continuing.
  
- Remove the RamWorks card.
- Carefully line up the pins on the underside of the 2 MEG+ Expander with the corresponding sockets on the chip side of the RamWorks card. Refer to the illustration below.



- Press the pins gently but firmly into the sockets until they are fully seated. (Even when it's fully seated there may still be some of the pin showing between the connectors, so don't press too hard!)

.. Now, re-install the expanded RamWorks following the installation instructions in your user's manual

## ***Testing Your 2 MEG+***

After installing the Expander card, you should test it by running the RamWorks Memory Test on the AppleWorks 2 Expander disk (Version 1.3) or the Super AppleWorks Desktop Expander disk. The test will display X's on empty sockets and bad chips. Those sockets containing good chips will be displayed as clear rectangles.

## ***Adding Even More Memory...***

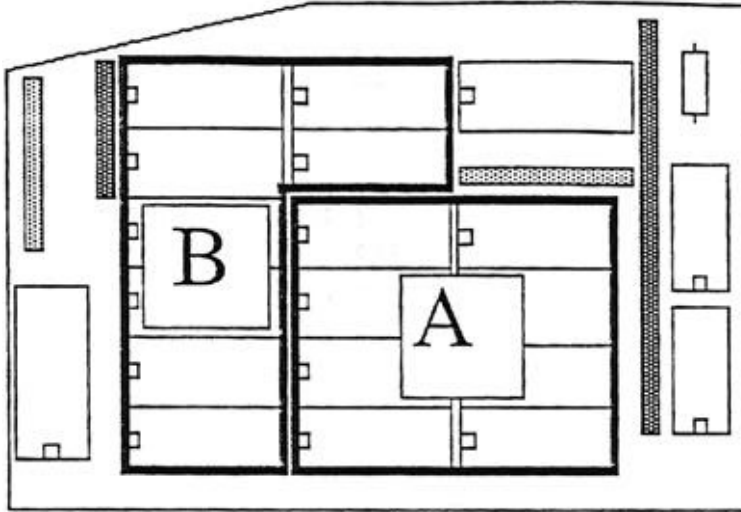
There are sixteen RAM chip sockets on the 2 MEG+ Expander which can accommodate from 1 to 2 megabytes of RAM, using groups of eight 1 megabit dynamic RAM chips.

Memory chips with the correct specifications can be obtained at some computer or electronics parts stores, or you can get them through Applied Engineering; possibly at a lower cost. Because Applied Engineering gets bulk-quantity discounts on its purchases of memory chips, we can often offer them at lower prices. We use high-quality memory chips and warrant them for 5 years. (Most electronics parts vendors sell their chips 'as is.')

With Æ memory chips you are also assured of getting the right chips.

## ***Memory Chip Installation***

Memory on the 2 MEG+ Expander is organized into two BLOCKS, shown as A and B in the illustration below. Each block must be completely empty or completely populated with 8 D-RAM chips. It is recommended that you fill block A first, then block B. (See graphic following.)



It is extremely important to insert the Expander's memory chips properly. The illustration shows the correct orientation of the RAM chips and which memory chip sockets are allocated to each block on the 2 Meg+ Expander. Note the position of the notch (or dot on some chips). Each RAM chip should have all legs fully seated in the socket and in the correct position.

**OOPS!** If power is applied to a chip that is plugged in backwards, the chip will probably be zapped immediately. The chip will be damaged. However, no harm should be done to the board.

*Note:* You may return your RamWorks card and/or RamWorks Memory Expander to Applied Engineering for a memory upgrade with no additional charge for the installation or testing. Call Applied Engineering Sales for the latest memory chip prices. The sales office phone number is (214) 241-6060.

### ***Bank Configuration for Programmers***

The table below shows the relationship between the chips and the bank numbers. From this table you can determine the addressable banks for each of the chips. The bank designations are in hexadecimal notations.

Block A	\$10	\$11	\$12	\$13
	#14	\$15	\$16	\$17
	\$30	\$31	\$32	\$33
	\$34	\$35	\$36	\$37

Block B	\$50	\$51	\$52	\$53
	\$54	\$55	\$56	\$57
	\$70	\$71	\$72	\$73
	\$74	\$75	\$76	\$77

## ***Problems?***

If you require more information on using the expanded memory, please see your RamWorks II or RamWorks III Users Manual. If you encounter any difficulties in the installation or use of the card, contact the dealer from whom you purchased the card. Most dealers are knowledgeable about the products they sell and will be able to help you. In the event that the dealer is not able to solve the problem, contact an Applied Engineering Technical Support representative. Applied Engineering's Technical Support representatives are technicians dedicated to helping you by answering your specific questions about Applied Engineering products.

- \* *Note:* You **MUST** have a Return Material Authorization Number (RMA) for any items sent for service to Applied Engineering Technical Support. Not having an RMA will cause delays and create additional expense.

### **Applied Engineering**

#### **Technical Support**

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