MaraThon™

WORKSTATION PERFORMANCE PRODUCTS FOR THE MACINTOSH™ FROM

DOVE
COMPUTER
CORPORATION

Installation Guide

MaraThon™ Workstation Products Installation Manual

This manual explains how to install your MaraThon™ workstation product. A Product Overview and a Glossary of terms provides a good reference as you establish or expand your workstation environment.

The manual contains individual sections for installing each MaraThon product. Refer to the section which gives specific information for the particular MaraThon product that you are installing. After the installation refer to the MaraThon User's manual for specific operating instructions.

We assume that you are familiar with your Macintosh personal computer. If you haven't already done so, read and follow the instructions in your Macintosh User's Manual about setting up, configuring, and loading software for your Mac.

Your comments and suggestions about this manual and our products are welcome. Please let us know how we can better serve your workstation or Macintosh needs. A "comments" form is included in the back of the manual for your convenience.

Thank you for supporting our products. We will do everything possible to support you in using them. Please call Dove's Product Support Group at 1 (800) 622-7627 if we can be of assistance in any way.

MaraThon Workstation Products Overview

Dove's MaraThon™ family of workstation products are designed to expand your productivity and system flexibility.

The MaraThon MultiComm NuBus card offers the Macintosh II user one additional Centronics parallel and three serial ports for connecting peripheral devices. MaraThon Serial Parallel provides one IBM PC compatible serial and one Centronics parallel port for your Mac II. Both products offer access to numerous devices which extend the workstation environment.

Speed and power are the primary benefits offered by the MaraThon 030 accelerator for the Macintosh II. And Dove's MaraThon 020 accelerator offers better than Mac II performance for the SE.

For one-slot, multifunction productivity, Dove's MaraThon LAN 020, provides a combination Ethernet adaptor and 020 accelerator for the SE.

Opening the Macintosh SE

The Work Space

Clear off a large work space on a table (3 feet by 4 feet.) You will need to have access to a grounded electrical outlet in the immediate area. Make sure your work area is well lighted.

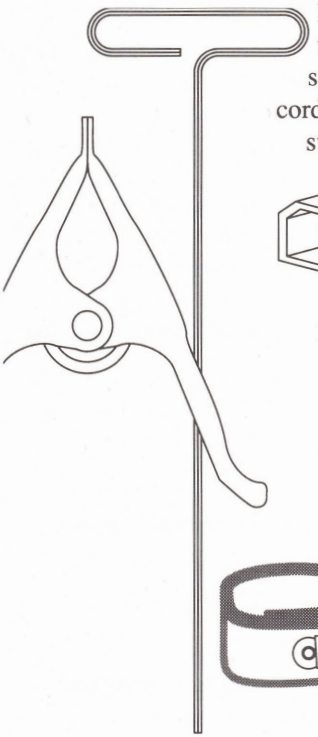
Gather Your Materials

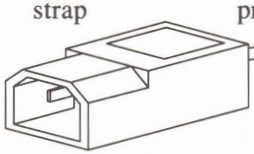
Check to see if all of the materials on the table are easily accessible.
You will need:
• The correct Dove product for the Macintosh computer that you are servicing.
• T-shaped driver (10 inch long) which fits the TORX® screws on the Macintosh case.
• Grounding device to be worn around your wrist.
• Safety glasses.
• A small (c. 3 inch), flat screw driver.
• A bright light and flashlight.
• A piece of corrugated cardboard large enough to place between the computer and work surface.

WARNING
There is high voltage and high vacuum picture tube inside the Macintosh Computer. To prevent serious injury and property damage, make sure you read and understand the safety information on Page 1.3 of Apple Macintosh Technical procedures (included in this manual) before you remove the cover.

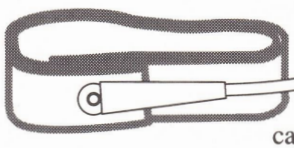
The MacSnap™ Tool Kit

If you purchased the optional MacSnap™ Tool Kit, take a minute to familiarize yourself with your new tools. The static ground strap is a flexible strap about one inch wide with a two foot wire leading from it. Wear this strap whenever the Macintosh case is open. Plug the end of the static ground strap into the line cord for your Macintosh. Plug the line cord into a grounded three prong outlet. (The static ground strap protects electronic boards from static electricity which will damage them. Even a minimum level of static electricity that you cannot see or feel can damage the boards.)





A 10 inch T-shaped driver is needed to remove the TORX® screws on the Macintosh.



The V-shaped, spring loaded clamp is your tool for separating the two halves of the Macintosh case after the case screws have been removed.

Read the following warning carefully...

1. Never plug in the Macintosh while it is open!
Plugging in the machine while the case is open presents a shock hazard due to exposed line connections

2. Never try to operate the machine while it is open!
Operating the machine while open presents a severe shock hazard from the high voltage generated to drive the CRT.

3. Always wear safety glasses while working with the machine open.
The CRT (picture tube) contains a high vacuum. If cracked or broken, it can implode (collapse into itself and subsequently explode) which results in many glass projectiles. To protect your eyes from serious injury, always wear safety glasses or goggles while working near the CRT.

4. Do not pick up or lift a CRT by its neck.
To prevent an implosion, you should take every precaution against breaking the picture tube, especially at the neck where the tube is thinnest.

5. Remove rings, wristwatches, and other jewelry before performing repairs near a CRT.
Metal jewelry is an excellent conductor of electricity. Removing jewelry will reduce the potential for electric shock.

6. To prevent serious injury, always discharge the anode before performing any service.
High voltage can be present on the anode and other components even when the power is off. Discharging the anode reduces the risk of lethal injury. Discharging procedures are given in Section A, Apple Macintosh Technical Procedures.

7. Never touch the anode.
Normally the anode has a connector plugged into it, but when a CRT is replaced, this connector is removed, exposing the anode. **The anode can maintain a charge of several thousand volts (even when the power is off).**

8. Keep one hand in your pocket or behind your back while adjusting or discharging a live CRT. This reduces the risk of lethal injury should you accidentally contact high voltage. It is a good idea to have someone else close by in case an accident does occur.

9. Do not attempt to continue unless you fully understand and accept the hazards associated with working near the CRT. The precautions listed above will reduce the possibility of injury but not eliminate them. If you are totally unfamiliar with working in the vicinity of a CRT seek the aid of an experienced technician.

WARNING
There is a high voltage and high vacuum picture tube inside the Macintosh Computer. To prevent serious injury and property damage, make sure you read and understand the safety information on Page 1.3 of Apple Macintosh Technical procedures (copied in part in this manual) before you remove the cover.

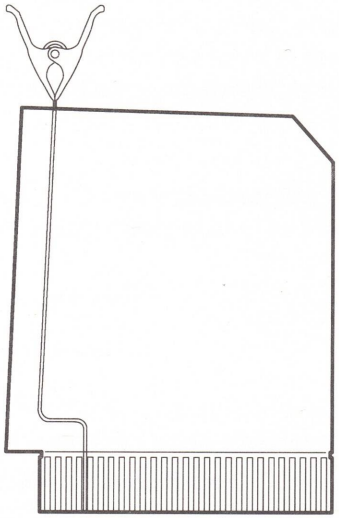
Removing the Attachments

Unplug the main power cord from the wall outlet and the back of the Macintosh case. Unplug any peripheral devices from the ports at the rear of the Macintosh. External drives, modem, printer, mouse, keyboard, etc., must be removed.

The Macintosh is now standing with no attachments. Now look at the left side of the Macintosh. Remove the RESET/INTERRUPT switch from the lower left corner by prying it out of the mounting slot with a screwdriver. (You may not have one of these switches installed on your machine).

Removing the Macintosh Case Screws

Stand in back of the Macintosh so the machine appears as shown in the illustration. Locate the four TORX screws as shown in illustration. With a T-shaped driver, remove the two screws adjacent to the mouse and modem ports on the lower rear of the case. Turn the driver **counterclockwise.** Remove the two TORX screws recessed in the carrying handle.



YOU ARE NOW READY TO OPEN THE MACINTOSH SE CASE.

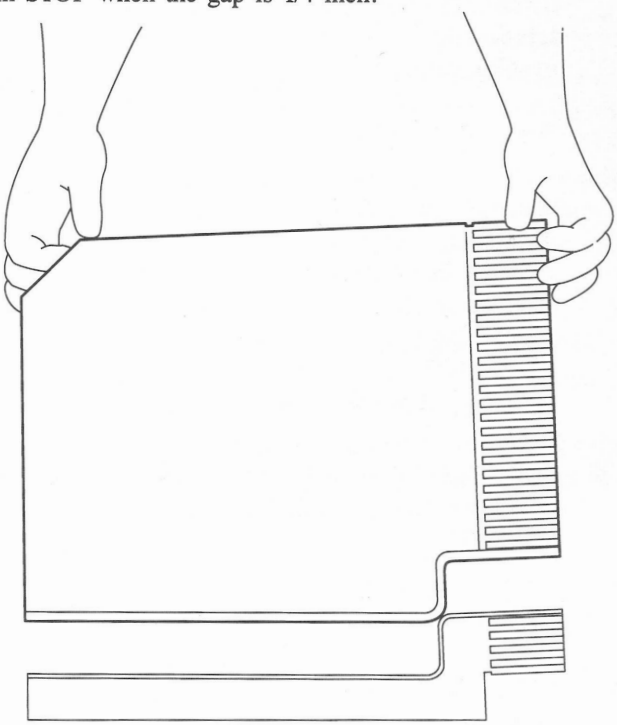
Opening the Case

Pick up the V-shaped tool and insert the jaws into the groove that extends around the top and sides of the case as shown in the illustration.

- Begin at the bottom of the case.
- Seat the jaws of the V-shaped tool into the groove around the front of the machine. Make sure the jaws are completely seated in the grooves and then separate the front from the back. Continue the spreading procedure up the side of the case.
- STOP when the gap is 1/4 inch.

Position the jaws of the V-shaped clamp in the groove on the opposite side of the Macintosh case and repeat the process as described on the previous page.

- Again STOP when the gap is 1/4 inch.



Carefully turn the Macintosh so the front is facing down on a soft surface. The back of the case can now be lifted after completing the steps using the V-shaped tool as described above.

Carefully lift the computer case off the Macintosh SE and store in a safe place. Remove the RF foil shield from around the bottom of the motherboard and access ports on the bottom.

Grounding Procedures Before Removing The Processor Board

The semiconductor devices used in the Macintosh are extremely susceptible to damage from static electricity. Static electricity can be generated anywhere and there is a strong possibility of damaging a semiconductor within the Macintosh unless proper precautions are taken. One method for insuring that no static is present is to wear a static ground strap. This strap is designed to ground any static your body might generate.

The static ground wrist strap in the optional MacSnap tool kit will prevent semiconductor damage while handling your Dove product. To begin secure the static ground strap comfortably around your wrist.

Plug the end of the static ground strap into the line cord for your Macintosh. Plug the line cord into a grounded three prong outlet. Have no fear, the only metal in the plug is the D ground attched to the wrist band through a 1 million ohm resistor. There is no possibility of receiving a shock.

The ground strap must be worn at all times while handling the boards. Wear the wrist band the entire time you are working with the Macintosh case open.

Removing the Connectors

The Macintosh processor board is located on the bottom side of the machine. The board is mounted in slots which allow it to slide in and out when the connectors are removed.

The Macintosh should now be rotated to its normal position with the screen perpendicular to the work surface.

There are four connectors attached to the Macintosh board:
- the main power and video cable,
- two internal disk drive connectors, and
- the speaker cable.

All of these connectors must be unplugged to remove the processor board.

The main power and video cable should be removed by grasping the wire bundle, pressing the locking device to unlock it, and gently pulling it away from the board.

The internal floppy(s) and /or hard drive connectors should be removed by grasping the ribbon cable assembly and gently pulling them out of the sockets on the main board.

After rotating the machine to the screen down position, the processor board may be removed by grasping the two corners and sliding it up and out from the frame. After the motherboard is lifted out of the frame, disconnect the speaker wire. Place the main processor board on a clean, flat work surface. You are now ready to install your Dove product. Refer to the specific installation section in this manual for installation instructions.

Closing the Macintosh SE

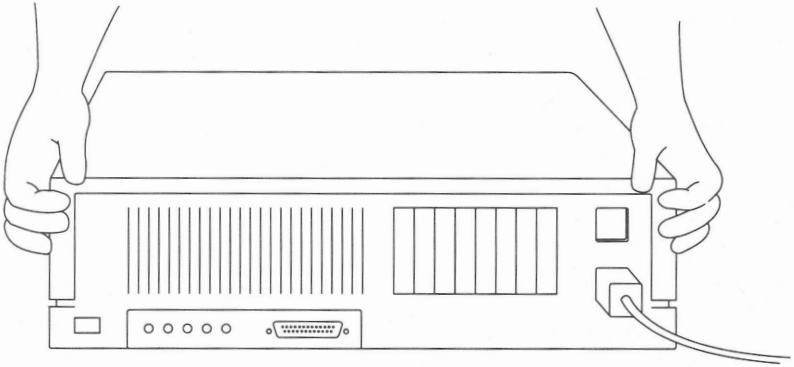
Replace the RF foil shield wrap around the bottom of the main processor board and access ports. Replace the case by placing the SE on its face and sliding the case into position. Replace the four screws on the case.

Opening the Mac II

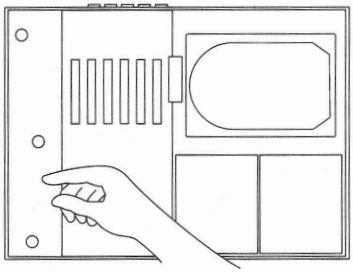
The Macintosh II computer is designed to grow as your computing needs grow. Inserting Dove's expansion cards is very easy. Just follow these instructions and you can expand your capabilities simply and safely. You may want to refer to your Macintosh II User's Manual (Chapter 1: Setting Up Your Macintosh II) for additional information and illustrations.

Begin the installation safely: turn off and unplug your Macintosh II. If it has been running, allow the machine to cool for five minutes. The power supply can get hot during normal use.

First remove the cover from the Mac II's main unit. Use a Phillips-head screwdriver to loosen and remove the security screw which holds the lid on the main unit. It's located at the top center of the machine's rear panel. There are lid latches on both sides of the rear panel. Grasp the rear corners of the case and press on the latches as you lift up on the back of the lid. When you feel it release, lift the lid completely off the case and set it aside.



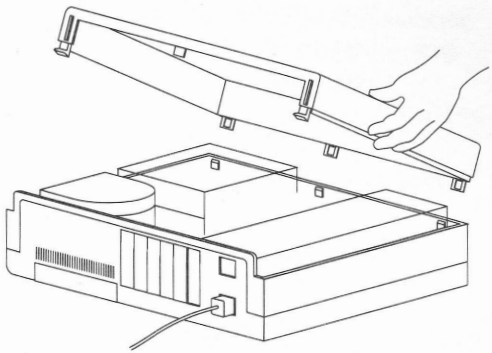
The Mac II has a power supply case inside the computer. Touch this case now to discharge any static electricity that may be on your clothes or body. **Make sure your machine has been shut off for at least five minutes before touching the power supply. It can get hot during normal use.** (See the illustration on the following page.)



You are now ready to install your expansion device. Refer to specific sections of this manual for instructions on installing your particular Dove product. After installation, refer back to this section for instructions on closing your Macintosh II.

Closing the Macintosh II

Tip the front of the lid down so that it catches the three hooks under the lid in the front of the machine's case. Lower the back of the lid onto the case until the rear latches snap into place. Replace and tighten the security screw.



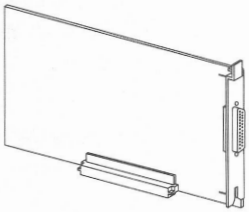
IMPORTANT

Make sure the lid is properly replaced before turning on your Mac. To check, press firmly down at the two rear and three front latch positions.

Installing the MaraThon Serial Parallel Board

The MaraThon Serial Parallel (MaraThon SP) is a typical Nubus expansion card device that plugs into the Macintosh II. Because the Mac II is designed to accept expansion boards, installation is easy.

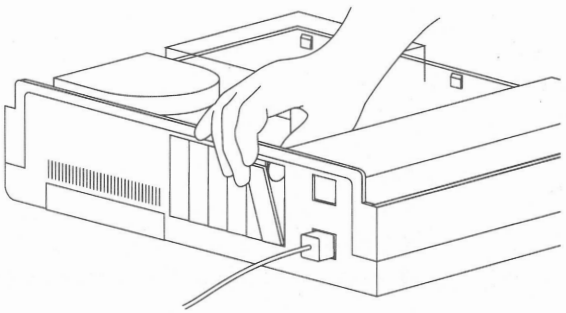
Refer to the chapter "Opening and Closing the Macintosh II"



Take a minute and look at the MaraThon SP card. It has a standard 96 pin connector on the bottom which plugs into one to the Mac II's expansion slots-narrow, plastic connectors running along the bottom of the machine's main unit. Also on the MaraThon card, there is a standard DB25 parallel connector and a DB9 serial connector attached to a flexible cable. These two interfaces will exit the rear of the machine and allow you to attach peripheral devices to your Macintosh II.

Slot #9, which is adjacent to the power supply, is reserved for the Macintosh II Video card. You may use either of the remaining slots (A through E) for the MaraThon SP card.

There is a cover shield behind each expansion slot. Remove the cover shield that's behind the slot you plan to use for the MaraThon SP card. Lift up on the shield until it is free of the guide and pin. There is also a plastic hole cover that lines up with the slot you have chosen. Push the cover out with your

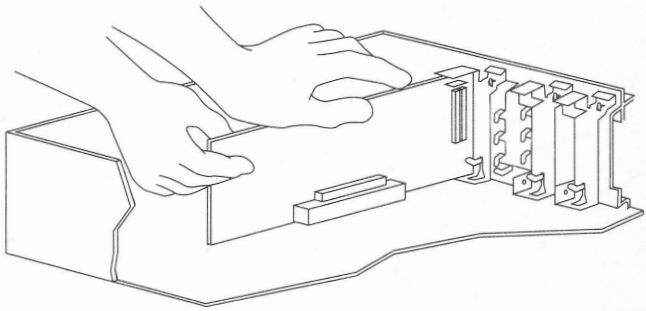


thumb. The DB25 parallel connector and the serial connector of the MaraThon card will occupy this space after installation.

Now you are ready to insert the MaraThon SP card into an expansion slot. Pick up the card by the top of the metal bracket and the top of the card's other end. (Be careful not to touch the pins on the connector on the bottom of the card.) Pass the DB9 connector and cable through the opening of the slot you have selected.

The expansion cover shield on the card attaches to the inside of the back panel in the same way as the shield you removed. Align the card so that the guide fits through the lower slot in the shield on the card and the pin sticks up slightly through the hole at the top of the shield.

Align the connector at the bottom of the MaraThon SP card, directly over the slot. Place one hand along the top edge of the card, directly over the connector area, and push down firmly until the connector is fully seated. The DB25 and serial connectors should now occupy the hole cover space of the Mac II.



IMPORTANT
Don't force the card. If you meet resistance pull the card out and try the installation again. Don't wiggle the card from side to side during installation. This puts unnecessary stress on the card and slot.

You can determine if the card is properly connected by lifting the card gently. If it resists but stays in place, it's installed correctly. You are now ready to reassemble your Macintosh.

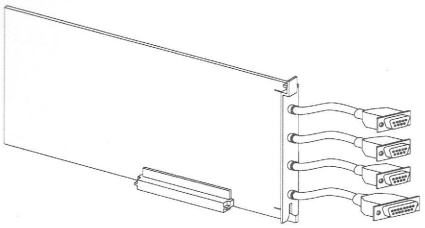
Refer to the chapter "Opening and Closing the Macintosh II" in this manual.

Power Requirements

The electrical power required to run MaraThon SP is well within the parameters specified by Apple Computer, Inc. MaraThon SP draws .6 amps of power from the +5V bus current. If you are using cards in other expansion slots be sure that the total power consumption does not exceed the limits specified by Apple. Refer to your Macintosh II manual for details on power requirements.

Installing the Marathon MultiComm Board

The MaraThon MultiComm (MaraThon MC) is a typical Nubus expansion card device that plugs into the Macintosh II. Because the Mac II is designed to accept expansion boards, installation is easy.

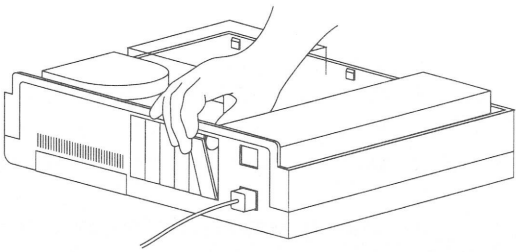


Refer to the chapter "Opening And Closing the Macintosh II" in this manual.

Take a minute and look at the MaraThon MC card. It has a standard 96 pin connector on the bottom which plugs into an expansion slot on the Mac II- narrow, plastic connectors running along the bottom of the machine's main unit. Also included with the MaraThon MC card is a molded chassis connector with four interface cables attached. The molded chassis connector will attach to the MaraThon MC card once it is installed in the machine. The four cables will provide three serial (DB25) and one parallel (DB37) connection for attaching peripheral devices to your Macintosh II.

Slot #9, which is adjacent to the power supply, is reserved for the Macintosh II Video card. You may use any of the remaining slots (A through E) for the MaraThon MC card.

There is a cover shield behind each expansion slot. Remove the cover shield that's behind the slot you plan to use for the MaraThon MC card. Lift up on the shield until it is free of the guide and pin. There is also plastic hole cover that lines up with the slot you have chosen. Push the cover out with your thumb. The molded chassis connector which you will attach to



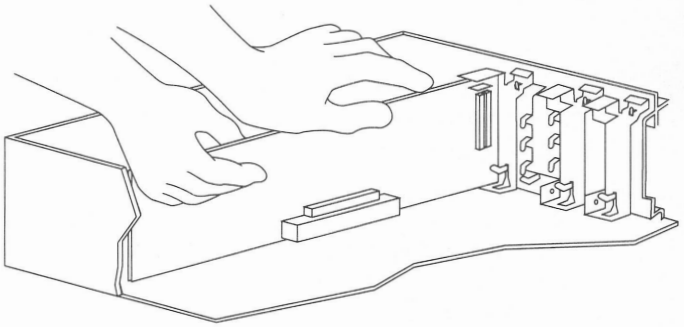
MaraThon MultiComm Installation 1

the MaraThon MC card will occupy this space after installation.

Now you are ready to insert the MaraThon MC card into an expansion slot. Hold the card by the top edge and the end opposite the chassis connector end. The 96 pin connector should be positioned over the expansion slot you've selected. **(Be careful not to touch the pins on the connector on the bottom of the card.)**

The expansion cover shield on the card attaches to the inside of the back panel in the same way as the shield you removed. Align the card so that the guide fits through the lower slot in the shield on the card and the pin sticks up slightly through the hole at the top of the shield.

Align the connector at the bottom of the MaraThon MC card directly over the slot. Place one hand along the top edge of the card, directly over the connector area, and push down firmly until the connector is fully seated. The connector for attaching the chassis connector should now occupy the hole cover space of the Mac II.



IMPORTANT
Don't force the card. If you meet resistance pull the card out and try again. Don't wiggle the card from side to side during installation. This puts unnecessary stress on the card and slot.

You can determine if the card is properly connected by lifting the card

gently. If it resists but stays in place, it's installed correctly. You are now ready to reassemble your Macintosh.

Refer to the Chapter "Opening and Closing the Macintosh II" in this manual.

After the Mac is closed, attach the molded chassis connector with the four cables connected to the DB25 pin connector now visible in the rear of the Mac II. These four cables will allow you to connect three serial devices and parallel-connected peripherals. Cable #1 provides a parallel port with a DB37 connector. Cable #2 supplies an RS-232 serial port connection and Cable #3 is an RS-530 serial connector. The fourth cable is a DB37 pin connector for the RS-449 port. With these connections you can significantly increase your productivity and peripheral options.

Power Requirements

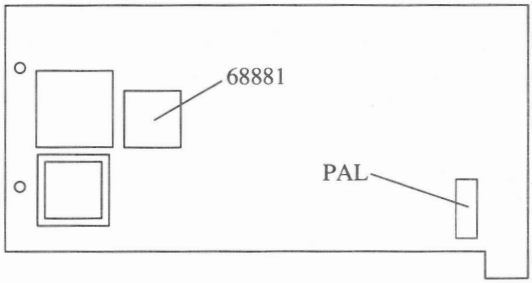
The electrical power required to run MaraThon MultiComm is well within the parameters specified by Apple Computer, Inc. MaraThon MC draws 1.2 amps of power from the +5V bus current. If you are using cards in other expansion slots be sure that the total power consumption does not exceed the limits specified by Apple. Refer to your Macintosh II manual for details on power requirements.

Installing the Math Kit

NOTE
The Math Kit must be dealer installed! The pins are extremely fragile, and the chips are sensitive to static electricity.

The Math Kit consists of two chips: the 68881 and a Programmable Logic Array (PAL) Chip. Both of these chips need to be placed on the MaraThon 020 Accelerator board before the board is installed on the main processor board.

The 68881 chip is one of the three square chips on the left of the MaraThon 020 Accelerator board. Note in the illustration that the PAL is located on the left of the bus on the lower right of the MaraThon 020 board.



The PAL chip should be oriented with the print readable from the right of the board. Line it up with the socket and apply firm downward pressure to secure the chip in the socket.

The 68881 chip should be oriented with the print upside down. Line it up with the socket and apply firm downward pressure to secure the chip in the socket.

You are now ready to install the MaraThon 020 accelerator into your machine. Refer to the chapter in this manual, "Installing the MaraThon 020".

The MaraThon 020 Accelerator Board

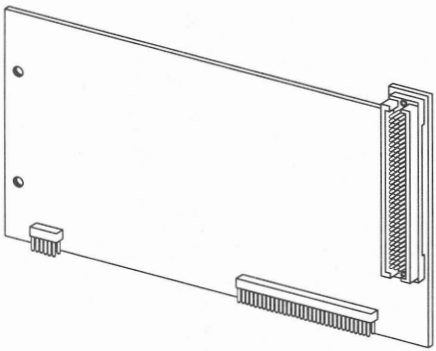
There are four versions of the MaraThon 020 Accelerator Board. They are:

Model MSE1
- Basic Accelerator
- No Memory
- No Math Kit

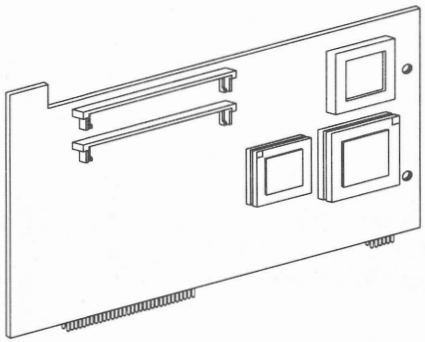
Model MSE2
- Basic Accelerator
- 1 Meg of Memory Installed
- No Math Kit

Model MSE3
- Basic Accelerator
- No Memory
- Math Kit Installed

Model MSE4
- Basic Accelerator
- 1 Meg of Memory Installed
- Math Kit Installed



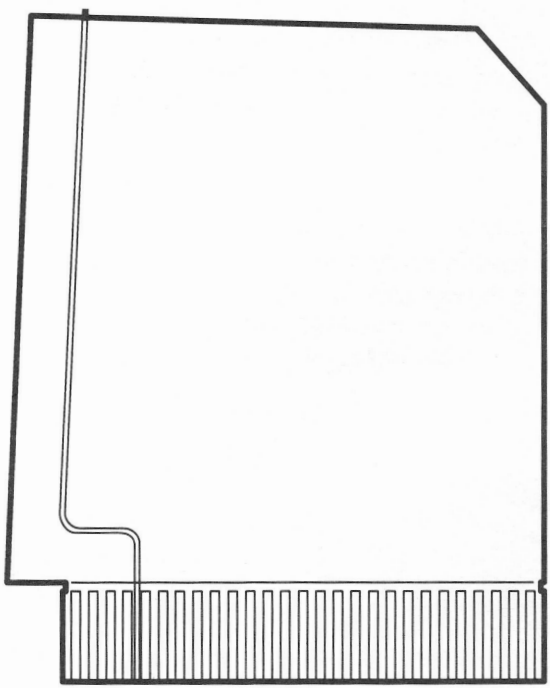
Both the memory and the Math Kit (68881 co-processor and controller chip set) can be purchased from and installed by your dealer at a later date. If you are installing a Math Kit now, do so before installing the accelerator board into the SE.



Note
The Accelerator must always have 4 identical memory size SIMMs installed, either 256K or 1024K. You cannot mix SIMM types on the accelerator board.

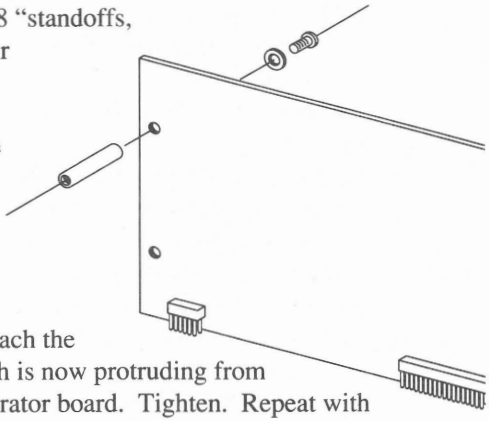
The basic **MSE1** and **MSE2** can be upgraded to have a math co-processor. However, the math co-processor chip set that can be added after the fact, **must be dealer installed.**

Installation of the MaraThon 020 Accelerator board requires that your Macintosh case be opened to allow access to the main logic board inside the machine. Refer to the chapter in this manual, "Opening and Closing the Macintosh SE".



Installing Standoffs

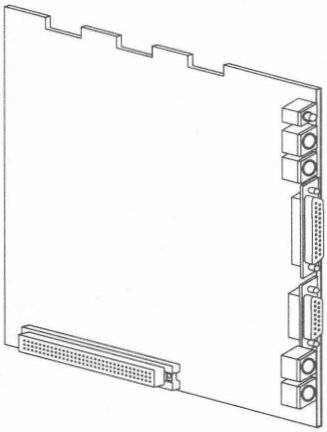
Note the two holes on the right side of the accelerator board and the male bus connector on the left side of the accelerator board. Two 5/8 "standoffs, four lock washers and four mounting screws are supplied to hold the SE accelerator board onto the main processor board.



Push one standoff screw with a lock washer below it through the top of the SE Accelerator board. Attach the standoff to the screw which is now protruding from the underside of the accelerator board. Tighten. Repeat with the other standoff screw, lock washer and standoff.

Installing the Accelerator Board

Locate the male bus connector on the accelerator board. Locate the female bus connector on the right of the main processor board and the holes on the left of the main processor board.



Make sure that the connectors and the holes for the standoffs are lined up correctly. The male bus must be over the female bus on the right side of the motherboard and standoffs directly over the two holes on the left side of the motherboard.

Grasp the accelerator board at each end. Keep the pins aligned properly with the socket. Apply gentle pressure and push the pins of MaraThon 020 Accelerator board bus into the socket bus on the main processor, being careful not to bend the pins.

Lift the main board and locate the holes which are below the standoffs. Place the lock washer and screw into the standoff from below the main processor board. Tighten them.

The main processor board and accelerator board assembly is now ready to be replaced in the SE computer.

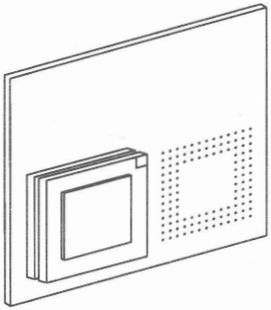
Replacing the Main Board and Connectors

Turn the Macintosh onto its face. Before sliding the main board back into the guide channel, reconnect the speaker wire. Carefully insert the main board back into one of the channel guides and insert a small flat screw driver into one of the the three gaps on the chassis and the board will pop into place. Reconnect the power and video cable. Then connect the internal floppy and/or hard drive ribbon cables.

You are now ready to close your computer. Refer to the chapter, "Opening and Closing the SE" in this manual.

Installing the MaraThon 030 Accelerator Board

The MaraThon 030 accelerator for the Macintosh II is a daughter board that plugs into the existing 020 socket on the Mac II's mother board. Because the Mac II is designed to accept expansion boards, installation is easy.

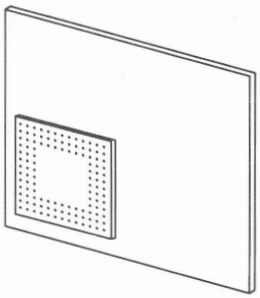


Take a minute to look at your MaraThon 030 board. The daughter board contains a Motorola 68030, an EPLD control chip and a small crystal. The back of the board has a 114 pin connector which will fit into the Mac II's existing 020 socket once the 020 chip is removed. Be careful not to touch these pins—alignment and pin integrity is critical to a successful installation and proper product operation.

Refer to the Chapter "Opening and Closing The Macintosh II" in this manual.

When the machine is open, locate the 020 control chip on the mother board of the Macintosh II. It is in the socket labeled U1-13 near the speaker. Using a small screwdriver, **carefully** pry the 020 chip off of the motherboard. The MaraThon 030 daughter board will install into this socket. Be careful not to damage it!

Align the pins on the MaraThon 030 daughter board with the U1-13 socket on the motherboard. **PROPER ALIGNMENT OF THE PINS IS CRITICAL TO A SUCCESSFUL INSTALLATION.** With pins properly aligned, firmly push the daughterboard into the socket.



Turn your Mac II on. If the machine "beeps" as it does during normal start-up, you have installed the MaraThon 030 correctly and will be operating at 33 MHz. If the computer does not run, check the pin alignment of the daughter board. You may need to remove the Mara-Thon daughter board and try the installation again. Pay close attention to pin alignment and integrity.

If you need assistance with installation, please don't hesitate to call Dove's Product Support Group at 1-800-622-7627.

You are now ready to reassemble your computer.

Refer to the chapter "Opening and Closing the Macintosh II" in this manual.

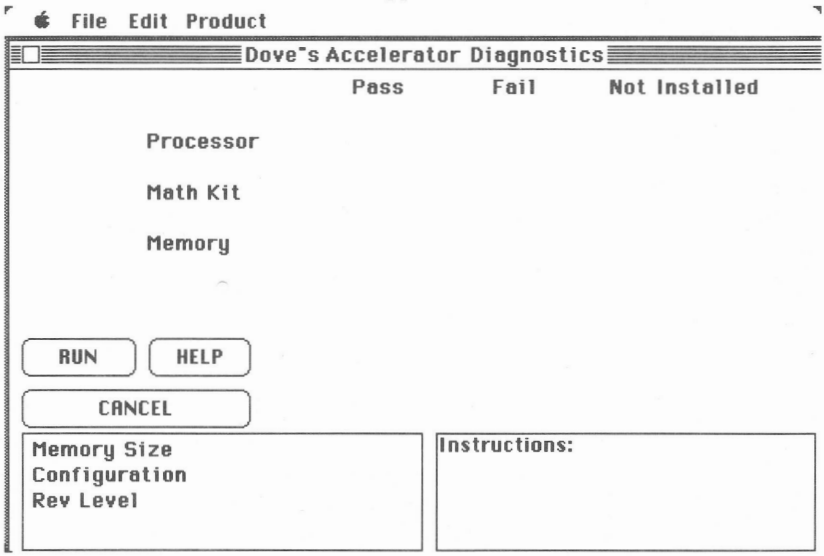
Marathon Accelerator Diagnostics

If you are experiencing a problem with your MaraThon accelerator, this portion of the manual will guide you through testing procedures to help determine the problem and how to solve it.

When you test a MaraThon accelerator you are checking the integrity of the 68020 processor, the 68881 Math co-processor, the associated circuitry, and performing extensive memory diagnostics. Any problem with the accelerator may be isolated to one of three areas: 1. in the choice of Configuration files, 2. in reading or writing to memory, or 3. in the socketing of a component.

Running the Accelerator Test

1. Insert the MaraThon installation disk and double-click on the MaraThon icon to open it.
2. Open the Diagnostics Folder and select **Accelerator Diagnostics**. The screen should appear like this:



3. Click on **Run**.
4. The results of the test will appear to the right as **Pass** or **Fail**.

If your accelerator fails any portion of the test, go back and repeat the installation procedure. Rerun the Accelerator Diagnostics.

Should any of the tests fail again and you are certain that the installation was performed correctly, contact Dove's Technical Support Group at 1 (800) 622-7627.

Troubleshooting Your Accelerator Product

In this Troubleshooting section we list a few errors that you may encounter with your MaraThon accelerator and the steps you should take to solve them.

- If the computer gives you an error message and leaves a sad face on the screen: Either the Dove Initialization File is missing or the wrong configuration file is being used. Go through the software installation procedures again.
- If your system does not recognize all the memory that is in your computer: Make sure that Dove's Configuration files support the memory configuration that is installed in your machine.
- If some programs that you are using produce error messages when you try to use them: Turn off the accelerator. Call Dove's Technical Support for program compatibility information.
- If your accelerator is not performing correctly: Rerun Accelerator diagnostics.

Troubleshooting MaraThon Parallel/Serial and MultiComm

In this Troubleshooting section are some of the typical problems that you may face while using the MaraThon Serial/Parallel and Multi-Comm boards and the steps you should take to solve them. Generally, the difficulties will be a result of the files from parallel or serial port not transfering correctly. Most of the time the information you need to correct the problem can be found in the manual for the peripheral device to which the MaraThon product is connected.

If you print a document and the printed copy does not correspond to what you see on your screen there are two possible causes: 1. the MaraThon is not interfaced to an IBM compatible device, or 2. the driver parameters on the peripheral device are not set to match those of your software driver.

If problems with your MaraThon product persist and you are certain that the installation was done properly, call Dove's Technical Support Group at 1 (800) 622-7627.

Following is a brief glossary of terms that will help you understand the language of workstation and peripheral products. It is by no means all inclusive but serves as a basic guide in understanding the function, operation and versatility of Dove's workstation products.

Accelerator A processor board that replaces the function of the processor on the motherboard, providing faster operation through a faster microprocessor.

Address A set of numbers that uniquely identifies something.... a node on a network, a location in computer memory, or a packet of information transmitted over a network. Similar to the address of a house.

Asynchronous A method of transmitting data. A low-cost alternative to synchronous communications where additional bits ("framing" bits) are added to the beginning and the end of each data character. This allows the receiver of the signal to recognize the characters being sent. This is the simplest form of communication - the sender and receiver do not need a clock to time each other in order to stay "in synch". However, the addition of these extra bits means that more bits have to be transmitted to get the same message across, unlike synchronous methods.

Background A program operates "in the background" if it continues to function, automatically, while you use another program.

Bandwidth The difference, expressed in Hertz (Hz), i.e. cycles per second, between the highest and the lowest frequencies of a transmission channel. A measure of the information capacity of the transmission channel.

Baud A measurement of the signaling speed of a data transmission device. The speed in baud is equal to the number of times the line condition (be it frequency, amplitude, voltage or phase) changes per

second.

Binary The representation of numbers and other characters in the base-2 system, using only the two digits 0 and 1.

Bridge Equipment which connects different LANs allowing communication between devices on separate networks. Bridges connect LANs that use the same protocol as compared to gateways which connect LANs that use different protocols.

Buffer Storage space in RAM or in a separate device used to compensate for differences in the speed of data transmission. Computers can send data faster than most devices can accept or process the data. A buffer is used to temporarily "store" data from the computer so it can be off-loaded to another device at a slower rate without slowing the computer.

Cache A cache is a designated area and amount of RAM which stores frequently used parts of a program and or document for rapid retrieval. This minimizes disk access time and thereby speeds performance. Another type of cache exists within the microprocessor itself and is used to store data or program instructions. This is the cache referred to in the MaraThon 020 Accelerator control panel settings "CACHE ON" and "CACHE OFF".

Centronics Standard A standard developed by and named for a printer company. The Centronics standard is for parallel printers. The Centronics plug is a 36 pin interface with eight of the 36 pins carrying their respective bits in parallel. The Centronics standard has been adopted by many companies for parallel device interfacing.

Cheapernet A low-cost, flexible companion system to standard Ethernet. It offers an alternative baseband cabling system that provides full Ethernet capability for personal computers, workstations, and local networks in offices and other local work areas. (Also called ThinWire Ethernet.)

Configuration Files Files which must be present in the system folder

in order for the MaraThon 020 Accelerator to be recognized at start-up.

Control panel A Desk Accessory which allows you to set your preferences, personalizing the computer to your tastes. You can change the desktop pattern, set the clock, date, and speaker volume, as well as set accelerator functions, keyboard, and mouse preferences.

Co-processor An additional processor that takes care of specific tasks like math calculations, to reduce the load on the CPU and, as a result, speed up operation. These tasks can vary.

CPU Abbreviation for central processing unit, that part of a computer in which mathematical operations are performed. The "heart" of a computer.

CSMA/CA Carrier Sense Multiple Access with Collision Avoidance A method of having multiple workstations access a transmission medium by monitering until no signals are detected, then transmitting within a timing specification so as to avoid a collision.

Daisy chain Connecting devices one after another. Device A connects to B which connects to C ... and so on.

Driver A program that lets a peripheral device and a computer send and receive files. Printer drivers control printers; a hard disk driver controls exchanges between a hard disk and a computer, etc.

Driver resource A file in a System Folder that tells the computer how to communicate with a particular device.

Ethernet A CSMA/CA system, utilizing coaxial cable, developed at Xerox. One of the most popular baseband LANs in use.

Floating Point Unit (FPU) Another term for the 68881 math co-processor. The presence of this chip greatly enhances the speed of operations involving floating point math calculations. Spreadsheet calculations and screen refreshing of complex drawings are examples where speed can be enhanced over 100-fold by the presence of the

FPU.

Gateway A computer system and its software that permit two networks using different protocols to communicate with each other.

Handshake A preliminary procedure, usually part of a communications protocol, to establish a connection.

Initialize To prepare a disk to receive information. You can initialize 800K disks on both sides or on just one side.

Interface A link between two devices, where the electrical signals, connectors, timing and handshaking meet.

Local Area Network A data communications network spanning a limited geographical area that provides communication between computers and associated peripherals.

Logic Cell Array (LCA) A programmable integrated circuit configured internally with a number of logic groupings which can be programmed to do a wide variety of different functions. The large number of cell groups present allow replacement of up to as many as 25 individual integrated circuits in some designs.

Math Co-processor A processor that works in conjunction with main processor and performs floating-point math calculations at a high rate. See FPU.

Network Interface Controllers Electronic circuitry that connects a workstation to a network. Usually a card that fits into one of the internal expansion slots of a PC or an external box or peripheral that connects to an external port. It works with the network software and computer operating system to transmit and receive messages on the network.

Network Control Software The algorithms or code that controls or manages the various procedures, communication, handling, and

administration of a LAN.

Nodes Points on a network where connectivity is made or where service is provided. The term node may be used interchangeably with workstations.

Packet A group of bits, including address, data and control elements, that are switched and transmitted together. Think of a packet as one sentence or one group of numbers being sent at the same time.

Parity Checking A method of error checking. The receiving and sending computers decide to transmit with either even or odd parity. The receiving computer can then look at the parity bit to determine the accuracy of the information and sort out potential errors.

Parallel Port A data control device which transmits or receives more than one bit of data simultaneously. Usually, data is presented as eight bits (byte) or sixteen bits (word) simultaneously. Numerous handshake and control lines are necessary to synchronize the transfer of data on a parallel port. Several standard types of parallel ports are used today including SCSI and Centronics; the primary difference lies in how the control of transfers is handled.

Protocol A set of rules for communicating between computers. These rules govern format, timing, sequencing, and error control. Without these rules, the computer would not be able to make sense of the stream of incoming bits.

RAM An acronym for random-access memory, the part of the Macintosh memory that stores information temporarily while you're working on it. RAM can contain both application programs and your own information. Information in RAM is temporary, gone forever if you switch the power off. All that is not affected is a small amount of memory used to save settings, such as the clock and the speaker volume, which are powered by battery when your Macintosh is switched off. See also ROM.

RAM Cache RAM you can designate to store information that an

application uses repeatedly. Using the RAM cache can increase the speed of your work but should be used sparingly or not at all with applications that require large amounts of memory. You set the RAM cache in the Control Panel.

ROM An acronym for read-only memory, the part of memory that contains information that the computer uses (along with system files) throughout the system, including the information it needs to boot. Information in ROM is permanent; it doesn't vanish when you switch the power off. The Macintosh contains 128K of ROM. See also RAM.

Serial Port The simplest form of data communications, which changes the parallel arrangement of data within computers to the serial form (one bit after the other) for use on data transmission lines.

SIMM Single In-line Memory Module. A narrow memory board with 8 RAM chips preinstalled that is inserted into a SIMM socket. The Macintosh uses two types of SIMMs: 256K SIMMs or 1 Meg SIMMs (either Dip- or Surface-mount style).

Small Computer System Interface (SCSI) A specification of mechanical, electrical, and functional standards for connecting intelligent peripherals such as hard disks, printers, optical disks, scanners, network interfaces, etc. to small computers.

SCSI Address All SCSI devices have a numeric address. For the SCSI system to work correctly, each device must have its own address.

SCSI Driver The SCSI driver is a small program (a Device Driver) that resides on the drive. It loads automatically when the Macintosh boots.

SCSI port The port on the back panel of the main unit to which you connect SCSI devices.

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Dove Computer Corporation
1200 North 23rd Street
Wilmington, North Carolina, 28405
attn: Documentation

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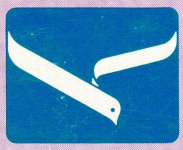

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