SYSTECH

Quik30™ Accelerator Board

Installation and Instruction Manual

Macintosh SE™

System Technology
A Division of Novy Systems, Inc.

Quik30
Macintosh SE

Quik30™
Accelerator Board

Installation and Instruction Manual

Macintosh SE™ Version

To perform the *Quik30* board hardware installation you will need the following items, some of which are provided in the *Quik30* installation kit.

Quik30 Accelerator Board	With all options installed and board properly configured.
Torx/Allen Wrench	For removing and installing the screws securing the case.
Case separating tool	A large flat-blade screwdriver, putty knife, or metal ruler works well for separating the case of the computer.

Performing the *Quik30* Accelerator board hardware installation requires three major steps: removing the motherboard, installing the *Quik30* on the motherboard and replacing the motherboard. Detailed step-by-step instructions for performing the *Quik30* board hardware installation follow.

3-1. Removing the Motherboard

Use the following instructions to remove the motherboard from the Macintosh.

Caution

Even though the majority of hard disk systems available today are compatible with the Quik30, it is important to maintain a current backup of your hard disk. To protect against disk driver incompatibility, be certain to backup the files on your mass storage device (hard drive) before continuing.

1. Unplug the computer and remove all cables connected to the back (power cord, mouse, printer, external drive, etc.).

2. If installed, remove the programmer's switch from the side of the case by pulling straight out.

3. Place the computer face down on a soft, dry surface.

4. Four screws secure the rear case of the computer. Two are located near the bottom of the computer and two are located in the handle recess. Using the Torx/Allen wrench provided with the installation kit, remove the four screws. *Note that the top two screws are self tapping with coarse threads and the bottom two screws have fine threads.*

5. The rear case is pressed firmly into the front of the computer. The seam is located about one inch from the front of the computer and is easily visible. *Separating the case requires some patience.* Using a case separating tool, gradually widen the seam around the entire computer case and carefully remove the rear case from the computer.

6. Remove the metal foil RF shield on the bottom of the computer (back of the motherboard). *Note that the RF shield may have remained in the rear case when the case was removed.*

7. Locate the ribbon cables connected to the motherboard and make note of the connection location for each ribbon cable.

8. Gently disconnect all ribbon cables from the motherboard by grasping the cable near the motherboard connector and carefully pulling it straight out.

9. Locate the multi-colored wiring harness which connects the motherboard to the power supply/video board.

Warning

The wiring harness connector may separate suddenly. Be careful not to hit the CRT and break it.

10. Gently disconnect the wiring harness from the motherboard by grasping the wires near the motherboard connector and carefully work the connector apart.

11. Locate the motherboard and note its position in the two metal guides on both sides of the computer. It must be installed in the same position during reassembly.

12. Grasp the motherboard and gently slide it up until the indents on the right side are in line with the tabs on the right side of the metal guide.

13. The right side of the motherboard should now slip out of the metal guide.

Caution

Do not pull the motherboard away from the computer.

14. Remove the left side of the motherboard from the metal guide and hold the motherboard about 2 inches away from the computer.

15. Disconnect the 2-pin speaker wire from the motherboard.

16. Place the motherboard on a soft surface with the component side up.

You have now completed removing the motherboard.

3-2. Installing the *Quik30* on the Motherboard

Prior to installing the *Quik30* Accelerator board on the motherboard, be certain that the *Quik30* is properly configured. Use the instructions found in the chapter entitled *Quik30* Accelerator Board Configuration.

Use the following instructions to install the *Quik30* on the motherboard.

1. Be certain that the motherboard is placed on a soft surface with the component side up.

2. Locate the 96-pin connector on the motherboard. Refer to Figure 2 for location.

3. Locate the 96-pin connector on the *Quik30* board. Refer to Figure 2 for location.

4. Position the *Quik30* board over the motherboard, aligning the 96-pin connector on the back of the *Quik30* with the 96-pin connector on the motherboard. Refer to Figure 2 for location and orientation.

5. Check to make sure all the pins are properly aligned, then press down firmly to seat the pins in the socket.

6. Locate the two white plastic spacer legs on the *Quik30*.

7. Press the plastic spacer legs on the *Quik30* into the motherboard.

You have now completed the installation of the *Quik30* on the motherboard.

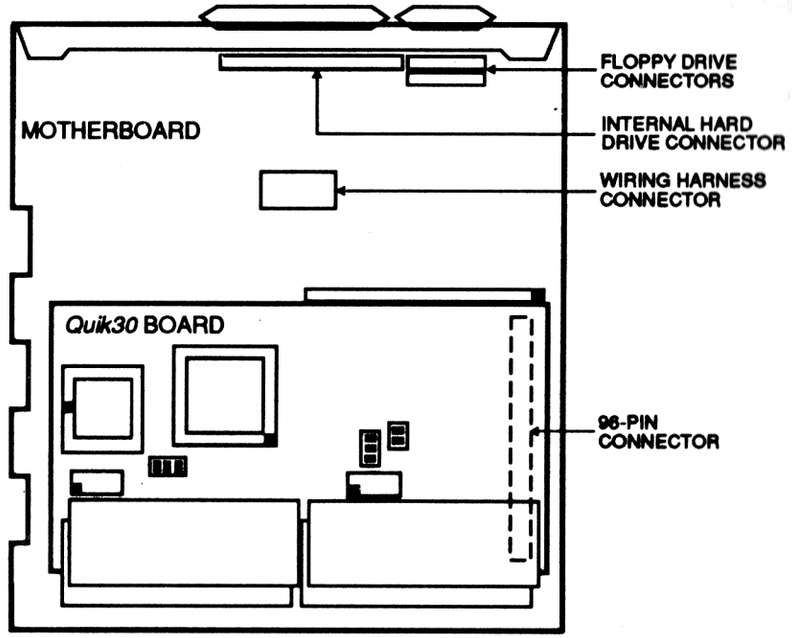

Figure 2 - *Quik30* Location on Motherboard - Top View

3-3. Replacing the Motherboard

Use the following instructions to replace the motherboard. Instructions included for the installation of the SE expansion kit option are marked as such. These instructions should be skipped if you are not installing an SE expansion kit option with the *Quik30*.

1. Position the motherboard about 2 inches away from its mounting position. Be certain to correctly orient the motherboard so that the indents on the board are on the same side as the tabs on the metal guide of Macintosh case.

2. Connect the 2-pin speaker wire to the motherboard.

3. **SE Expansion Kit Option Only** - Locate the SE expansion kit connector on the *Quik30*. Refer to Figure 1 for location and orientation.

4. **SE Expansion Kit Option Only** - Pass the ribbon cable on the SE expansion board through the slot in the motherboard mounting frame to the *Quik30* board. *Be certain to match the orientation of the ribbon cable with the orientation of the SE expansion kit connector on the Quik30.* Pin 1 on the ribbon cable is marked with an arrow cut into the connector and also with a colored stripe on the ribbon cable.

5. **SE Expansion Kit Option Only** - Plug the ribbon cable from the SE expansion board into the SE expansion kit connector on the *Quik30*.

6. Insert the left side of the motherboard into the left metal guide.

7. Gently slide the motherboard up or down in the left metal guide to align the indents on the right side of the motherboard with the tabs on the right metal guide.

8. Slip the motherboard into the right metal guide.

9. Slide the motherboard all the way down in the metal guides.

10. Be certain that the 2 metal clips on the end of the motherboard align with the frame and snap into place.

11. **SE Expansion Kit Option Only** - Disconnect the multi-colored wiring harness from the power supply/video board.

12. **SE Expansion Kit Option Only** - Connect the new multi-colored wiring harness provided with the SE expansion kit to the power supply/video board. *Be certain to connect the white connector with a single bundle of wires coming out of it to the power supply/video board.*

13. Connect the multi-colored wiring harness from the power supply/video board to the motherboard. Push the connector in until it clicks. *Be certain to connect the white connector with two bundles of wires coming out of it to the motherboard.* Refer to Figure 2 for location.

14. Using the notes made during motherboard removal, reconnect all ribbon cables to the motherboard. *Check the other end of the ribbon cables to make sure they are still firmly connected.* Refer to Figure 2 for location.

15. **SE Expansion Kit Option Only** - Fasten the SE expansion board to the feed through port on the rear of the SE chassis with the attached brackets and screws provided.

16. **SE Expansion Kit Option Only** - Connect the small black connector on the new, multi-colored wiring harness to the connector on the SE expansion board

17. **SE Expansion Kit Option Only** - Utilize the SE expansion kit 96-pin connector as desired.

18. Install the metal foil RF shield on the bottom of the computer (back of motherboard).

19. Carefully slide rear case onto the computer.

20. Install four screws which secure rear case. *Remember, the screws located in the handle are coarse thread and the screws located near the connectors are fine thread.*

21. Install programmer's switch on the left side of the computer. Be certain to place the switch in the slots which have the slightly larger indent.

22. Put the computer back in its normal upright operating position.

23. Connect all cables as before (power cord, mouse, printer, external drive, etc.).

24. Turn on the computer. It should start up normally (beep) and operate just as it did before the *Quik30* hardware installation. *If it does not, immediately turn off the computer and refer to the troubleshooting chapter of this manual.*

You have now completed replacing the motherboard. This concludes the hardware installation of the *Quik30* Accelerator board in the Macintosh SE. Continue with the *Quik30* Software Installation in the following chapter.

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4. *Quik30* SOFTWARE INSTALLATION

After successfully completing the *Quik30* Hardware Installation in the previous chapter, you must install the *Quik30* Support Software. This Support Software allows the *Quik30* to operate at its maximum potential.

The Support Software diskette contains various files and folders. The System, Finder, and related system files are present solely to allow the disk to be a bootable/startup disk. It is not necessary to update your own startup disks with the system on the Support Software diskette. The folder entitled "Files for your System Folder" contains the two files which are used to control the various features of the *Quik30* Accelerator. The NovyCdev file allows you to turn on and off the various control features of the *Quik30*. The NovyInit file is used to start the *Quik30* board with the control features set as selected.

Normally, NovyInit is automatically executed on bootup. However, if you are having problems, you can cause NovyInit to be skipped at bootup by pressing the shift key or the option key during bootup. This troubleshooting procedure allows the *Quik30* board to operate normally, but turns off all control features. Further information on this procedure is available in the chapter entitled Troubleshooting the *Quik30*.

Use the following instructions to install and set up the *Quik30* Support Software.

4-1. Installing the Support Software

Use the following instructions to install the Support Software on the Macintosh SE.

1. If the computer is not already on, turn it on just as you normally would.

2. Remove any earlier versions (if any) of the *Quik30* Support Software that may have been installed on your startup disk. These files should be found in the System folder and could include the files NovyInit, NovyCdev, or Accelerator Preferences. *Files from earlier versions of the Support Software may have different names and it is very important to remove them as well.*

3. Insert the *Quik30* Support Software diskette into the floppy disk drive of the computer and reboot. The computer should boot on the Support Software diskette, rather than the normal startup disk. *If the computer will not boot on the Support Software diskette, refer to the chapter on troubleshooting.*

4. On the Support Software diskette, open the folder called "Files for your System".

Note

The file names must not be changed in order for the Support Software to function properly. Notice that the name of the NovyCdev file starts with two blanks.

5. Copy the files NovyInit and NovyCdev into the System folder of your startup disk.

6. Remove the Support Software diskette and reboot the computer on the startup disk as you normally would. A default Accelerator Preferences file will be created by NovyInit during the first bootup after software installation. The Accelerator Preferences file allows you to specify the boot state of the various control features automatically invoked at startup. The section entitled Setting Up the Support Software discusses

these control features and how to set them in detail. Support Software Error messages appear at the end of this chapter.

You have now completed the Support Software installation. Normally, NovyInit is executed automatically each time the Macintosh boots. To prevent NovyInit from executing, hold down the shift key or the option key during bootup. NovyInit references the Accelerator Preferences file to install and initialize the various resources needed to support and control the different features of the *Quik30*. NovyCdev is used to maintain the Accelerator Preferences File. If the Accelerator Preferences File is not found, NovyInit will create one with default values.

4-2. Setting Up the Support Software

After installing the Support Software, you may use the *Quik30* with the default control settings, or you may set your own defaults. There are five control features that can be set. These control features are revealed by selecting the Control Panel and NovyCdev. The five control features are described in the following paragraphs.

- **MC68030 Instruction/Data Caches**
  One advantage of the 68030 microprocessor over the 68000 microprocessor is the internal instruction and data caches available with the 68030. With the internal caches turned on, the 68030 microprocessor remembers recently used instructions and data items. To execute one of these instructions again or reuse a data item, the 68030 does not need to fetch them from external memory. Most programs should be run with the instruction and data caches turned on. This saves time and increases performance. However, there are a few applications written with self-modifying code which will not run properly while the instruction and data

caches are turned on. For these applications, the instruction and data caches must be turned off.

- **MC68030 Sound Driver**
  The increased speed of the *Quik30* causes four voice sound to be garbled when Apple's standard sound driver is used. When the MC68030 Sound Driver is turned on, multi-voice sounds and music produced by programs using the Apple 256K ROM sound driver will no longer be garbled. Programs not using the ROM sound driver cannot take advantage of this control feature. Applications which use Apple's sound manager will operate properly, regardless of the setting of the MC68030 sound driver.

- **SANE Traps Directed to MC68881**
  This feature is disabled unless a 68881 or 68882 coprocessor is installed on the Quik30 Accelerator. SANE (Standard Apple Numeric Environment) is a floating point math software package included in the ROM and/or system file of every Macintosh. Many applications use SANE to perform their floating point math. Turning on SANE Traps to 68881 directs SANE calls to the 68881 or 68882 floating-point math coprocessor. This results in much faster floating point operations.

- **Copy ROM to 32 bit RAM**
  An important feature of the 68030 microprocessor is that is can access memory 32 bits at a time. The 68000 microprocessor can only access memory 16 bits at a time. The *Quik30* can access both the Macintosh motherboard 16-bit memories (ROM and RAM), as well as any 32-bit memory installed on the *Quik30*. Turning on the Copy ROM to 32-bit RAM copies the Macintosh's ROM into the 32-bit RAM on the *Quik30*. The net result is almost all access to ROM uses the *Quik30*'s 32-bit high speed RAM. This increases the overall performance of the Macintosh. This

increased performance is especially evident when using graphics.

- **Crash Resistant RAM Disk**
  This feature allows the 16-bit memory on the Macintosh motherboard to be used as a crash resistant RAM disk. Although accessing the 16-bit RAM is much slower than accessing the 32-bit memory on the *Quik30*, it is still much faster than accessing a floppy disk or hard disk. Turning on the Crash Resistant RAM Disk feature causes a RAM disk to be created in the 16-bit motherboard memory during the boot phase of the Macintosh. This RAM disk uses all the motherboard memory available to it. This motherboard memory is automatically protected from the operating system by the *Quik30*. This means that as long as the computer is not turned off, the contents of the RAM disk should remain in memory. If the computer is not turned off, and is rebooted using the programmer's switch or the Shutdown or Restart menu items, the contents of the RAM disk should survive most system crashes or rebooting.

Figure 3 shows the dialog box with the five control features. The left column, Accelerator Options, lists the control features available. The center column, Current, displays the current state of the features. The right column, Boot, displays the state desired for the feature the next time the Macintosh is booted. The term "desired" is used because even though the boot switch is turned on, or set to yes, the support software may not be able to actually set the requested state. For example, if a math coprocessor is not installed, then SANE Traps Directed to MC68881 cannot be enabled. If the control feature cannot be set as "desired," it will be ignored during the boot phase.

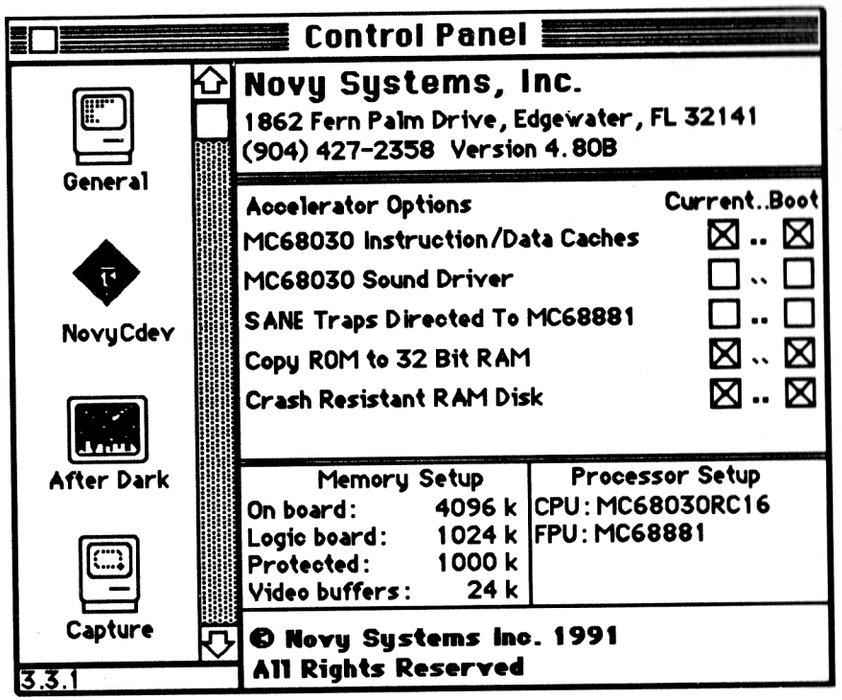

Figure 3 - Control Panel NovyCdev Dialog Box

In addition to the current and boot states of each of the control features, the dialog box (Figure 3) contains some information about the software and hardware installed. Near the top of the dialog box, to the right of the phone number, is the version number of the *Quik30* Support Software in use. Below the list of control features is the Memory Setup and the Processor Setup. The Memory Setup lists the amount of memory on the *Quik30* Accelerator, the amount of memory on the motherboard and how much of the memory, if any, is protected and available for use by the crash resistant RAM disk. The Processor Setup lists the type of processor being used, how fast it is running, and what type of math coprocessor is installed.

Use the following instructions to set the control features of the Support Software.

1. To alter the *current* state of a feature, single click on the box in the Current column of the Accelerator Option to be changed. If the two dots between the boxes in the Current column and the Boot column are grayed out, then the current state of the feature cannot be changed. Only the boot state for the next boot up can be set.

2. To alter the *boot* state of a feature, single click on the box in the Boot column of the Accelerator Option to be changed. The new setting will take effect the next time the Macintosh is booted up.

3. Select the close box for the Control Panel.

You have now completed Setting Up the Support Software. Features changed under Current will take effect now. Features set under Boot will be enabled whenever the computer is booted up. The new settings are saved in the Accelerator Preferences file. Should the Accelerator Preferences file not be found, NovyInit will create one with default values.

4-3. Support Software Error Messages

Currently, the only error message displayed by the *Quik30* Support Software is **Control Panel cannot get needed resource**. There are four possible errors which will cause this message to display. The errors and their probable remedies are discussed below.

a. **Files not properly installed.**
Verify that the NovyInit, NovyCdev and Accelerator Preferences files are properly installed in the System folder of your startup disk and reboot the Macintosh.

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1. GENERAL INFORMATION

Please read this entire installation and instruction manual before starting installation. Pay special attention to the safety precautions outlined in the Hardware Installation chapter.

This manual provides instructions for the installation and operation of the Novy Systems, Inc. *Quik30* accelerator board and its support software. Troubleshooting procedures are also provided.

The *Quik30* is an add-on board which enhances the performance of the Macintosh SE computer. The *Quik30* plugs into the expansion slot of the existing motherboard and allows operation of the SE in the accelerated 68030 microprocessor mode. Additionally, the *Quik30* is easily disabled from the programmer's switch to allow the normal operation of the motherboard in the 68000 microprocessor mode.

Note

If, after carefully reading this entire manual, you are not comfortable performing the installation of the Quik30 board and its software, refer this procedure to a qualified technician or call our Technical Support Department at (904) 427-2358.

1-1. *Quik30* Features

The *Quik30* possesses many special features. Among them are the following:

- Superior performance, reliability, and versatility.

- Easily installed by the user.
- Fully asynchronous clock rate allows boost of processing speed by upgrading chip set to a faster rating and swapping the clock crystal.
- Optional math coprocessor can be operated at an independent clock rate.
- Ability to resume processing with the original 68000 microprocessor without removing the *Quik30*.
- On-board 32-bit data bus allows various user-selectable memory configurations.
- Existing motherboard memory can be used as a crash resistant RAM disk or for hard disk caching.

1-2. Optional Upgrades

The following items are available as options with the *Quik30*. The *Quik30* may be purchased with these options installed by Novy Systems, Inc., or you may install them yourself.

Microprocessor clock option A 16, 25 or 33 MHz 68030 32-bit microprocessor clock may be installed. The speed of the clock must match the speed of the installed microprocessor.

Memory option On-board 32-bit memory can be configured by the user for 4, 8 or 16 MBs with one or two wait states. This option allows the 32-bit data bus of the 68030 microprocessor to be utilized. The 68030 accesses the motherboard memory via a 16-bit data bus. All unused memory on the motherboard can be used by the *Quik30* as a crash resistant RAM disk, or for hard disk caching.

Note

If you wish to make more than 4MBs of memory available for applications, you must use Virtual 3.0 with your Quik30. Without Virtual 3.0 your extra memory is available to the RAM disk.

Coprocessor option The Motorola 68881 or 68882 floating point coprocessor is available in clock rates of 16, 25 or 33 MHz. It may be run with the same clock as the microprocessor or may be run independently with the coprocessor clock option.

Coprocessor clock option The coprocessor clock option allows the floating point coprocessor to run at a slower clock rate than the microprocessor (ie., a 33 MHz microprocessor with a 16 or 25 MHz coprocessor).

SE expansion kit option The *Quik30* board plugs into the 96-pin connector on the motherboard. The SE expansion kit option adds a 96-pin connector to the *Quik30*, allowing the use of video cards, ethernet cards and various other cards which must be plugged into this connector.

1-3. *Quik30* Kit Contents

In addition to this manual, the *Quik30* installation kit contains the following items.

Quik30 Accelerator Board	With 68030 microprocessor installed.
Optional Upgrades	Any optional upgrades purchased through Novy Systems, Inc. should be included. If you requested they be installed, then they are already on the *Quik30* board.

3 1/2-inch diskette	*Quik30* Support Software.
Torx/Allen Wrench	For removing and installing screws securing the case.
AMP Extraction Tool	For removing SIMM memory modules.
Licensing Agreement	Included with the Support Software diskette.
Product Registration Card	Included with the Support Software diskette.

2. *Quik30* ACCELERATOR BOARD CONFIGURATION

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Prior to installation in the Macintosh SE, the *Quik30* Accelerator board must be properly configured.

If you requested optional upgrades be installed by Novy Systems, Inc., then your *Quik30* has already been configured and tested prior to shipping. You may use the following instructions to verify the configuration of your *Quik30*.

If you have purchased any optional upgrades and want to install them yourself, use the following instructions to do so.

Caution

Integrated circuits, like those found in the Macintosh are sensitive to static electricity. Work in an area of low static electricity. Wear a grounded wrist strap or touch bare metal just prior to handling any electrostatic sensitive equipment.

2-1. Changing Microprocessor Clock Rate

The *Quik30* operates at 16, 25 or 33 MHz. It may be purchased with the desired 68030 microprocessor and clock. You may also change the microprocessor and clock yourself.

The requirements for changing the 68030 and its clock are:

- A 68030 microprocessor which operates at the desired clock speed.
- A clock crystal which operates at the same desired speed as the 68030 microprocessor.

- If you have a 68881 or 68882 coprocessor, it must operate at the same speed as the desired 68030 and clock crystal or you must use the coprocessor clock option available from Novy Systems, Inc.

To change the 68030 microprocessor and clock, use the following instructions.

1. Remove the old 68030 and install the new 68030. Refer to Figure 1 for location and orientation.

2. Remove the old clock and and install the new clock. Refer to Figure 1 for location and orientation.

3. When changing the microprocessor clock rate, the memory wait state control jumper may need to be adjusted (see Figure 1 for location). If any RAM is present on the *Quik30*, refer to Table 1 to determine how many wait states must be set. If no memory option is present on the *Quik30*, or a wait state of 1 is desired, then no wait state jumper is required. Installing a jumper results in a wait state of 2.

You have completed changing the microprocessor clock rate.

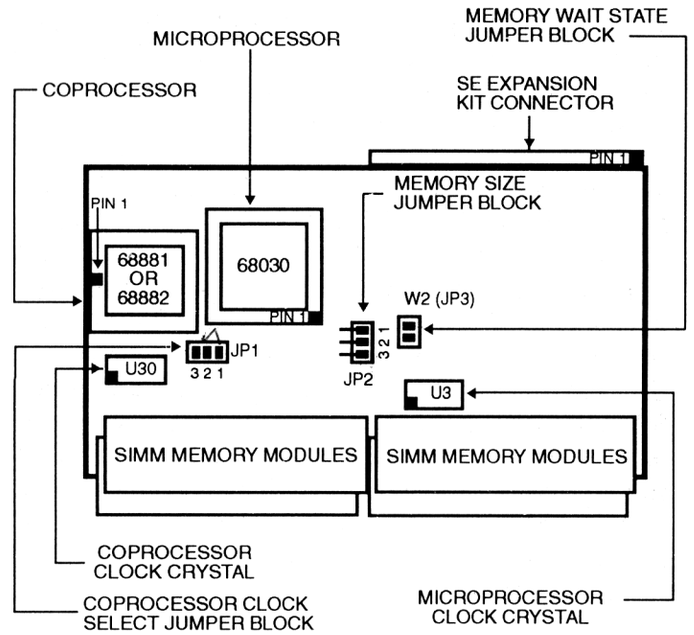

Figure 1 - *Quik30* Accelerator Board Configuration with Memory and Wait State Jumper Block Locations

Quik30 CPU Speed	Minimum SIMM speed required for: 1 wait state	2 wait states
16 MHz	110 ns	180 ns
25 MHz	70 ns	110 ns
33 MHz	53 ns	80 ns

Table 1 - 68030 Microprocessor, Memory and Wait State Cross-Reference Table

2-2. Memory Option Installation

The *Quik30* can operate under five on-board memory options. It can operate with 0, 4, 8 or 16 MBs of RAM. At least 1 MB of memory must remain on the motherboard for it to be legally configured.

The memory option installation requires a 4 SIMM (Single In-line Memory Module) upgrade with the desired amount of RAM installed on each SIMM. The SIMMs must be rated at the appropriate access time for the installed 68030 microprocessor. Refer to Table 1 for minimum access times required for each microprocessor (ie., a 33 MHz microprocessor requires 80ns or faster SIMM access). *Please note, the SIMM speeds listed are minimums.* Faster SIMMs may be used (ie., a 16 Mhz microprocessor may use 150ns SIMMs with two wait states. Additionally, the SIMMs must be low-profile, or surface-mount. They can be no taller or wider than those found on a Macintosh SE motherboard.

To install the memory option, use the following instructions.

1. Place the edge connector of each SIMM module in a SIMM socket on the *Quik30* Accelerator board. Refer to Figure 1 for location. Be certain the SIMM module is facing up and snap it into place.

2. Locate the memory size jumper block on the *Quik30*. Refer to Figure 1 for location.

Note

If you are relocating memory from your mother board to the Quik30 and reinstalling memory on the Apple logic board. You must reset the jumpers or resistors to the size of the physical memory on the logic board. Do not set the jumpers on the logic board to be the same as the amount of memory on the Quik30. If you have 1 meg on the logic board and 4 megs on the Quik30 then you would want the logic board resistors(or jumpers on the newer boards) set to the 1 meg position.

3. Place jumper on the memory size jumper block (JP2) according to the amount of RAM installed on the *Quik30*. refer to Table 2 for the jumper setings.

RAM	Jumper Pins
0 MB	2 and 3
4, 8 or 16 MB	1 and 2

Table 2 - Memory Size Jumper Locations

4. Locate the memory wait state jumper block. Refer to Figure 1 for location.

5. Place jumper on the memory wait state jumper block according to the microprocessor/RAM combination

installed on the *Quik30*. Refer to Table 1 to determine the wait state requirements for your microprocessor/ RAM combination. The *Quik30* defaults to 1 wait state if no jumper is installed. Installing the jumper results in a wait state of 2.

You have completed the memory option installation.

2-3. Coprocessor Option Installation

The *Quik30* Accelerator board may be operated with a Motorola 68881 or 68882 floating point math coprocessor installed. The coprocessor option requires a Motorola 68881 or 68882 coprocessor which operates at the same speed as the installed 68030 microprocessor and clock crystal, or you must use the coprocessor clock option available from Novy Systems, Inc.

Use the following instructions to install the coprocessor option.

1. Install the 68881 or 68882 coprocessor. Refer to Figure 1 for location and orientation.

2. Locate the coprocessor clock select jumper block on the *Quik30*. Refer to Figure 1 for location.

3. If the coprocessor is to be operated by the same clock crystal as the 68030 microprocessor, set the jumper on pins 1 and 2 of the coprocessor clock select jumper block.

4. If the coprocessor clock option is to be used, set the jumper on pins 2 and 3 of the coprocessor clock select jumper block.

You have completed the coprocessor option installation.

2-4. Coprocessor Clock Option Installation

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The coprocessor clock option allows the coprocessor to be operated faster or slower than the 68030 microprocessor. The coprocessor clock option requires a clock crystal which operates at the same speed as the coprocessor.

To install the coprocessor clock option, use the following instructions.

1. Locate the coprocessor clock crystal position on the *Quik30* board. Refer to Figure 1 for location and orientation.

2. Install the clock crystal.

3. Locate the coprocessor clock select jumper block on the *Quik30*. Refer to Figure 1 for location.

4. Set the jumper on pins 2 and 3 of the coprocessor clock select jumper block.

You have now completed the coprocessor clock option installation.

2-5. SE Expansion Kit Option Installation

The SE expansion kit option adds a 96-pin connector on a ribbon cable to the *QUIK30* board. This additional connector may be necessary because the *Quik30* uses the 96-pin connector on the motherboard and you may have other boards which require the use of a 96-pin connector. Check with the Novy Systems, Inc. Technical Support Department to be certain of the compatibility between the SE expansion kit connector and the board you wish to use it with.

The SE expansion kit option is installed in the Macintosh during the *Quik30* Hardware Installation when Replacing the Motherboard. All items necessary for installation are provided in the SE expansion kit.

3. *Quik30* HARDWARE INSTALLATION

Prior to installing the *Quik30* Accelerator board in the Macintosh SE, be certain that the *Quik30* is properly configured. Use the instructions found in the chapter entitled *Quik30* Accelerator Board Configuration.

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Safety Summary

Dangerous voltages are present when the Macintosh's case is removed. To prevent personal injury or damage to the computer, please observe all the the safety precautions outlined in this section.

- *Dangerous voltage may remain stored in some of the capacitors even when the power is removed. When working inside the computer, do not touch the CRT or the power supply/video board. The power supply/video board is installed vertically on the side of the computer*
- *Do not wear loose clothing when working inside the computer.*
- *Do not wear jewelry when working inside the computer.*
- *Integrated circuits, like those found in the Macintosh are sensitive to static electricity. Work in an area of low static electricity. Wear a grounded wrist strap or touch bare metal just prior to handling any electrostatic sensitive equipment.*

b. ***Quik30* board disabled.**
The *Quik30* board was disabled using the procedures found under Booting in the 68000 Mode. Use the procedures found there to enable the *Quik30* again.

c. **Shift or option key was held down during startup.**
Holding down the shift or option key during bootup prevents NovyInit from being executed. Reboot the Macintosh, being certain not to hold down the shift key or option key.

d. **Not enough memory to allocate resources.**
There is not enough free memory for the *Quik30* Support Software to properly operate.

4-4. Support Software Upgrades

Support Software upgrades are currently available at no charge to customers as discussed below.

1. Via First Class U.S. Mail at customers request.

2. Via Bulletin Board telephone number 904-428-6171. The modem setup is 8 bits, 1 stop bit and no parity.

3. Via AppleLink - Update Path:
Software Sampler
3rd Party Demos/Updates
Software Updates
Novy Systems

5. BOOTING IN THE 68000 MODE

After completing the *Quik30* hardware and software installation, the computer normally boots up on the 68030 microprocessor located on the *Quik30* Accelerator board. However, the computer can easily be booted on the 68000 microprocessor located on the motherboard. Booting on the 68000 does not require the removal of the *Quik30* board or software. Booting in the 68000 mode may be desired to play certain games, run tests or to use some older software which is not 68030 compatible.

5-1. Disabling the *Quik30* Accelerator Board

It is important to remember that disabling the *Quik30* also renders any additional memory unusable. Use the following instructions to disable the *Quik30*.

1. Turn the computer on.

2. Simultaneously press the RESET and INTERRUPT buttons on the programmer's switch.

3. Continue holding the INTERRUPT button down and release the RESET button.

4. After the familiar startup beep sounds, release the INTERRUPT button.

The computer is now running in the 68000 mode.

5-2. Enabling the *Quik30* Accelerator Board

There are several ways to enable the *Quik30*.

- Press the RESET button

- Turn the power off and on
- Select the Shutdown or Restart option from the Special menu in the Finder

After performing one of the enabling methods above, the computer will be running in the 68030 mode.

6. TROUBLESHOOTING THE *QUIK30*

Symptom	Problem	Solution
The motherboard and *Quik30* board combination will not fit in the Macintosh.	The *Quik30* is not fully seated in the slot.	Make sure that the base of the *Quik30* is fully seated on the motherboard connector.
No response when power is turned on.	Forgot to reconnect the internal power cable.	Using the instructions found in *Quik30* Hardware Installation as a guide, make sure the power cable is firmly attached to the motherboard.
The Macintosh beeps when power is turned on, but the internal disk drive does not work.	Forgot to reconnect the ribbon cable from the internal disk drive to the mother board.	Using the instructions found in *Quik30* Hardware Installation as a guide, make sure the disk drive ribbon cable is connected at both ends.
The Macintosh will not access the floppy drive.	Forgot to reconnect the ribbon cable from the floppy drive to the mother board.	Using the instructions found in *Quik30* Hardware Installation as a guide, make sure the floppy drive ribbon cable is connected at both ends.
The Macintosh gives a System Error 10 when you run the demonstration or floating point benchmark programs.	Your *Quik30* board is not equipped with a 68881/882 math coprocessor.	Benchmark or graphic demonstration programs that use the 68881/882 math coprocessor cannot run unless a 68881/882 is installed.

Continued

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Symptom	Problem	Solution
You perform a "SHUT DOWN" and restart. During the restart process, the Macintosh appears to hang, indefinitely.	Occasionally the increased speed of the *Quik30* will cause this condition to occur.	Simply press the reset button on the side of the Macintosh, or turn the power off and then back on again.
You perform a "SHUT DOWN" and restart. During the restart process, the Macintosh screen remains black.	Occasionally the increased speed of the *Quik30* will cause this condition to occur.	Simply press the reset button on the side of the Macintosh, or turn the power off and then back on again.
You restart to run on the 68000 and the Macintosh appears to hang during the startup process.	You set your system to use Multifinder on startup and you do not have enough memory to run Multifinder installed on the motherboard. Remember that when running in the 68000 mode the memory on the *Quik30* is not available.	Restart on the *Quik30*, turn the Multifinder off and then restart the Macintosh as a 68000, again.
You installed a new init file in the System folder and the NovyInit no longer works properly or the Macintosh will not boot correctly.	The new init file is in conflict with the NovyInit file.	Remove the new init file. Contact the Technical Support Department for further assistance, if necessary.

Continued

Symptom	Problem	Solution
After installing the Support Software and rebooting, the Macintosh will not boot correctly.	One of the init files present in the System folder is in conflict with the *Quik30* NovyInit file.	Use the steps found under Solution A on the following pages. Contact the Technical Support Department for further assistance, if necessary.
After changing the settings of the control features under NovyCdev of the Control Panel the Macintosh does not operate correctly.	One of the five control features is not compatible with your existing hardware or software.	Use the steps found under Solution B on the following pages. Contact the Technical Support Department for further assistance, if necessary.
An application that you know worked before the installation of the *Quik30* and its software no longer works properly.	Some older software is not compatible with the 68030 microprocessor.	Boot in the 68000 mode by using the instructions found in the chapter entitled Booting in the 6800 Mode to run the suspect software.

Continued

Solution A

Use the following steps to find out which init file conflicts with the Quik30 NovyInit file. Begin with step 1 and continue until the problem occurs again. The last file moved is the problem file.

1. Build a Temporary folder.
2. Move all files in the System folder to the Temporary folder.
3. Close the System folder.
4. Move the System file and the Finder file to the System folder.
5. Reboot.
6. Move NovyInit, NovyCdev and Accelerator Preferences files to Systems folder.
7. Reboot.
8. Move <u>one</u> init file from the Temporary folder to the System Folder. Repeat steps 7 and 8 until all init files have been moved back into the System folder.
9. Move all other files in the Temporary folder back into the System folder.

Solution B

Use the following steps to find out which control feature is not compatible with your existing hardware or software. Begin with step 1 and continue until the problem occurs again. The last feature turned on is the problem feature.

1. If you cannot get past the bootup stage, press the shift key or option key and reboot. This prevents the NovyInit file from executing and brings up the *Quik30* with all control features turned off.
2. Open the NovyCdev under the control panel and turn off all control features.
3. Reboot.
4. Turn on each of the control features one at a time and reboot after turning on each feature.

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