

June 1, 1998

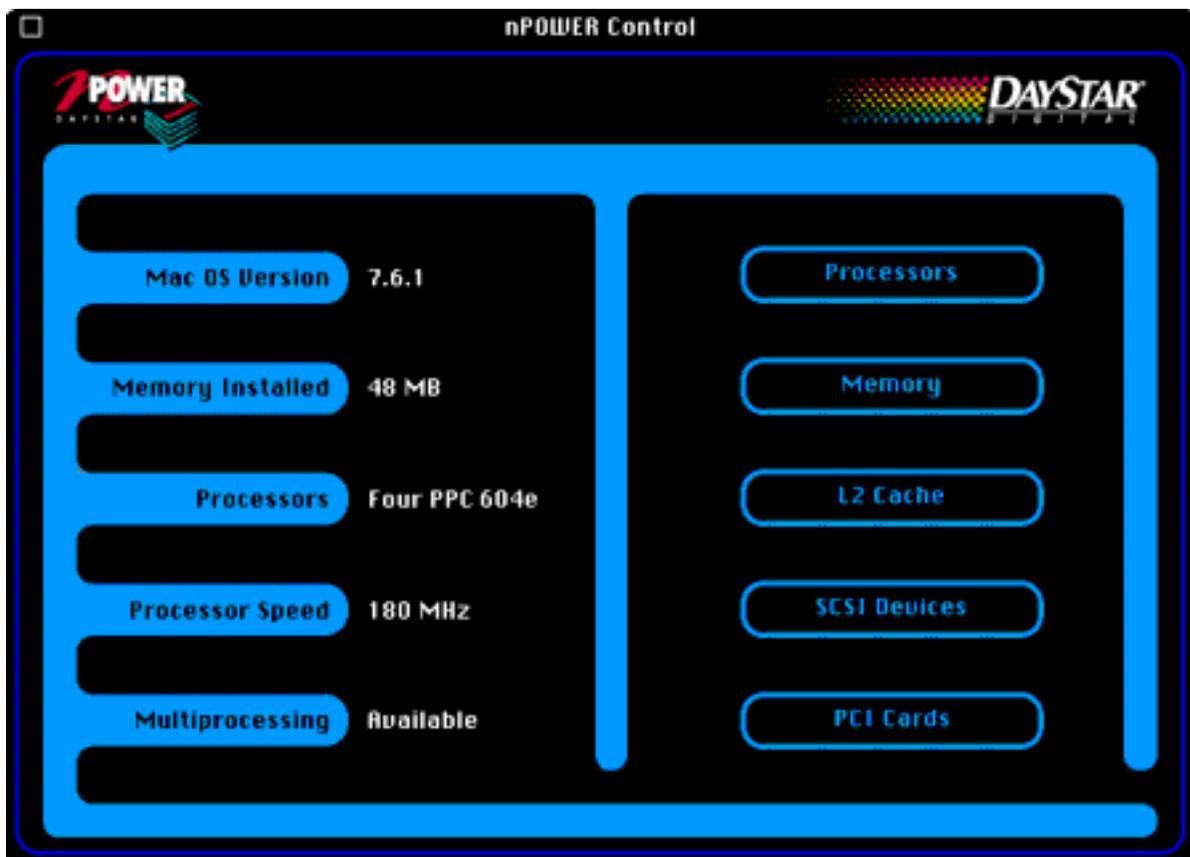
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PowerControl v2.0

PowerControl is an application that allows you to peer into the world of your PowerPC 601, 604, 604e Mac or PowerMac. In addition to displaying system information such as the amount of memory and number of processors installed in your computer, PowerControl contains a processor performance monitor. New to version 2.0 is a set of diagnostics to help confirm both uniprocessor and multiprocessor operations.

Using PowerControl

When PowerControl is opened, the following window appears:

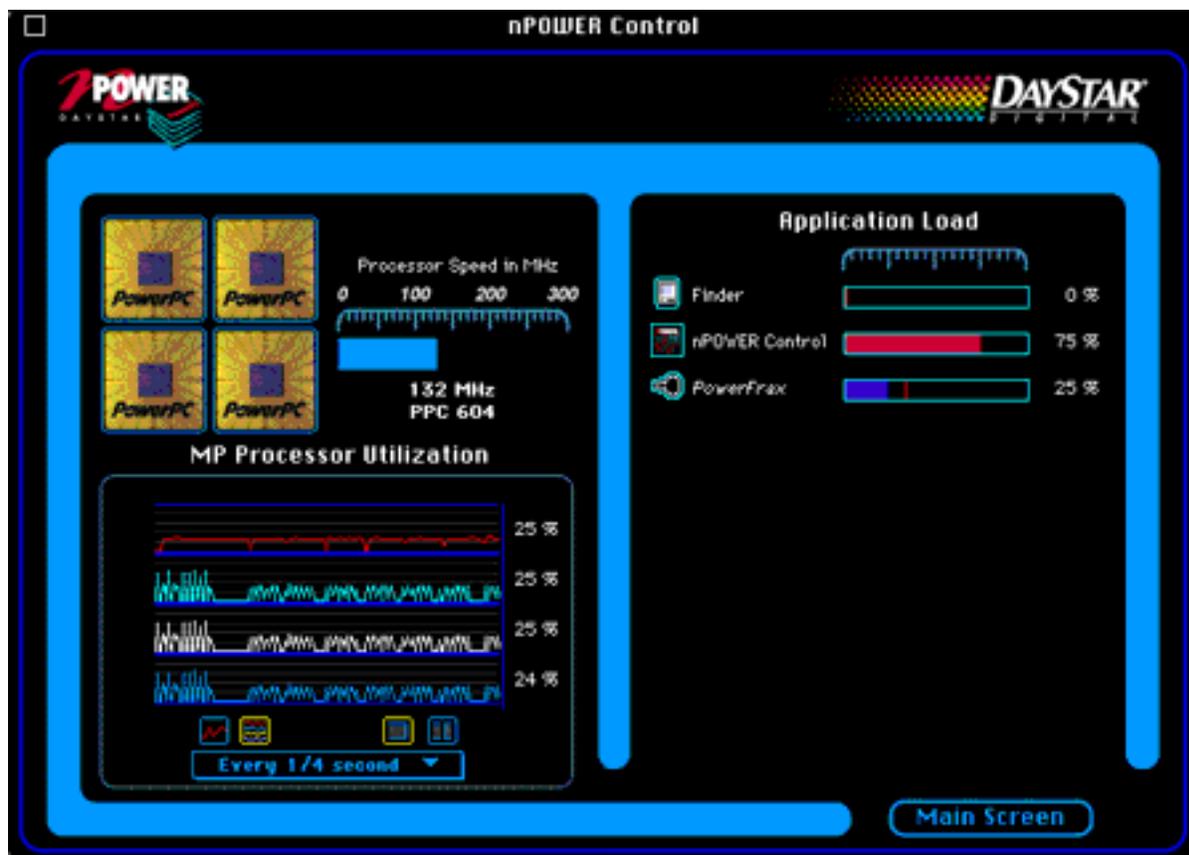


There are five buttons that bring up information about portions of your machine:

Processors , Memory , L2 Cache , SCSI Devices , and PCI Cards . If you do not have a secondary cache installed in your computer, the L2 Cache button will be gray (inactive).

Processors

This window displays the number of processors and contains a processor performance monitor which can be "torn off" so you can monitor your machine's performance while running applications. There is also a list of the currently running applications and the percentage of overall time they take according to Mac OS.



The Processor Utilization window and the Application Load window can each be torn off the Processors window, which can then be closed. This allows you to display a performance monitor in the background while you work on your machine. These windows can be moved and resized to suit your needs. Once you get the windows where you want them, you can choose **Remember Window Locations** from the **Windows** menu. The next time you use PowerControl all windows will be where you want them. If you want them to be displayed each time you start up your machine, put PowerControl (or an alias to it) into your Startup Items folder within the System Folder.

The Processor Utilization window can be torn off the Processors window by holding the mouse button over the processor utilization graph and dragging the window away. The resulting performance window will be displayed:



The two buttons in the bottom left-hand corner of the above window determine whether you get individual graphs for each processor's performance or a combined graph which averages the multiprocessor values. The rightmost one gives separate graphs for each processor as shown above:



The next two buttons control the style of graph, either scrolling or sweeping:



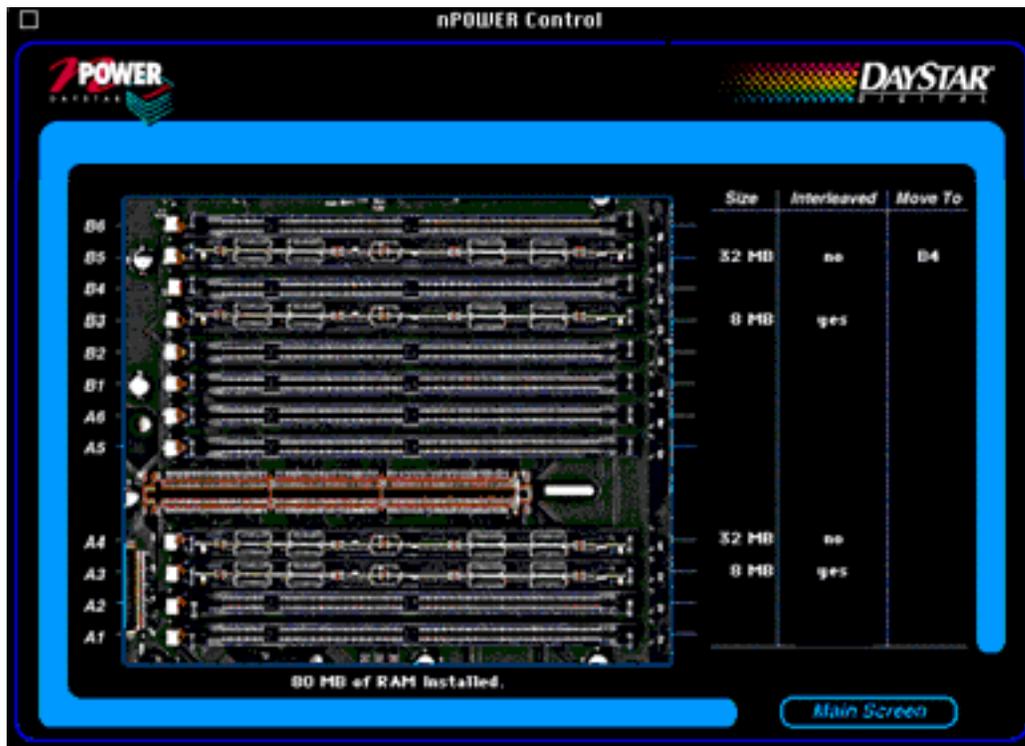
The Application Load window displays each of the currently running applications along with a graph showing the percentage of time this application is running as determined by the Mac OS:



Please note that the system runs slightly slower when these performance monitors are displayed. To minimize the effect on the overall system performance, you can change the frequency with which the MP Processor Utilization window is updated using the pop-up menu in the lower right hand corner of the window.

Memory

The **Memory** window shows a picture of the portion of the machine's motherboard in which memory DIMMs (Dual In-line Memory Modules) are installed. Each DIMM capacity is displayed along with suggestions for improving overall system performance by enabling memory interleaving.



The total amount of memory is displayed beneath the picture. The size of each DIMM is displayed to the right of the slot in which the corresponding DIMM is installed.

The second column, Interleaved , shows whether the memory in each slot is being most efficiently used by the machine. In order to be interleaved, the memory DIMMs must be installed in matching pairs (consult your DayStar User Guide for details). If they are not properly installed, the third column (Move To) will contain a DIMM slot number. The corresponding DIMM should be moved to the slot number listed in this column.

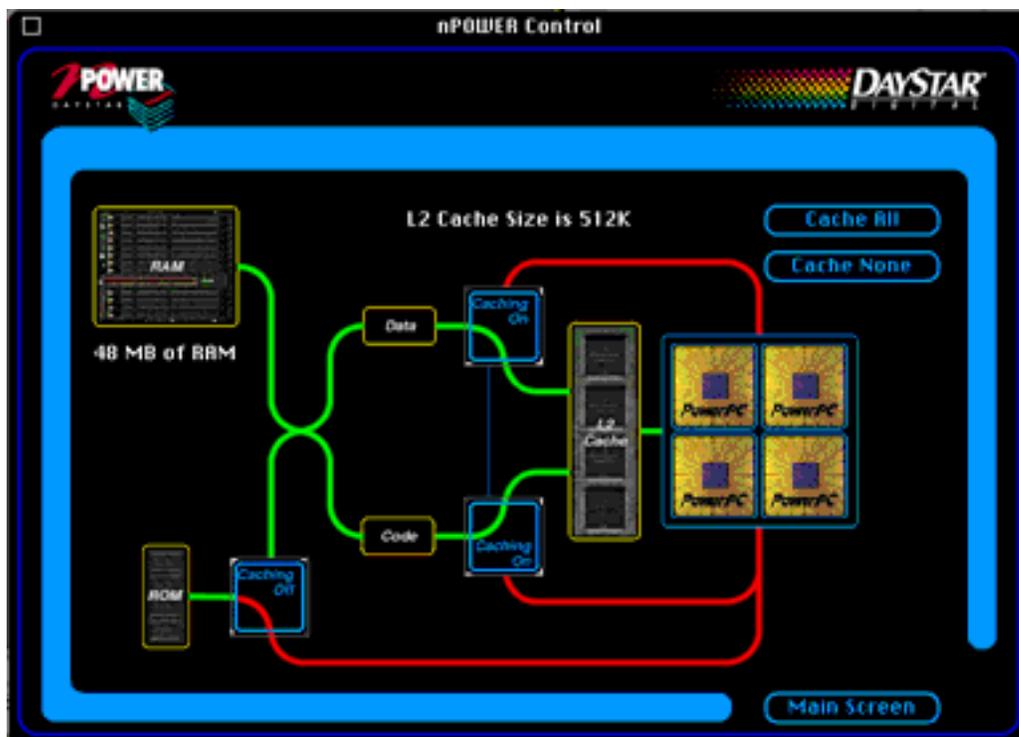
In the example above, there are four DIMMs installed. Two of the DIMMs are in corresponding slots, A3 and B3, are the same size (8 MB each) and are therefore being interleaved. The other two, although the same size (32 MB each) are not in corresponding slots - they are in slot A4 and B5. The Move To column indicates the DIMM in slot B5 should be moved to slot B4. This will then enable the two 32 MB DIMMs to be interleaved, thus improving the performance of that 64 MB of memory.

For more information about memory you can choose the **Report** item from the

Windows menu. This report is discussed in detail below.

L2 Cache

This option allows some control over the operation of your computer's L2 (sometimes also called secondary) cache. Not all computers have an L2 cache. If you have one, your L2 cache is comprised of a relatively small amount of fast memory. It can supply data to the CPU faster than main memory and is used to hold a copy of recently used data. This data can then be provided to the CPU when needed, or copied into main memory and discarded from the cache if not needed. (If this explanation confuses you, please refer to your owner's manual and/or a local computer nerd for a better one.)



This window allows you to control the operation of the L2 cache in your computer. Note that for maximum performance, the L2 cache should remain on. This window is provided for troubleshooting purposes and should normally be left in the **Cache All** state. The display shows the current state of the L2 cache. In the example above, the cache is enabled to cache RAM, but the Macintosh ROM is not being cached.

There are two switches to the right of the labels **Data** and **Code** that control whether the L2 cache is actually enabled. Press these switches to change the state of the cache. A green line will appear when the cache is enabled (as in the picture

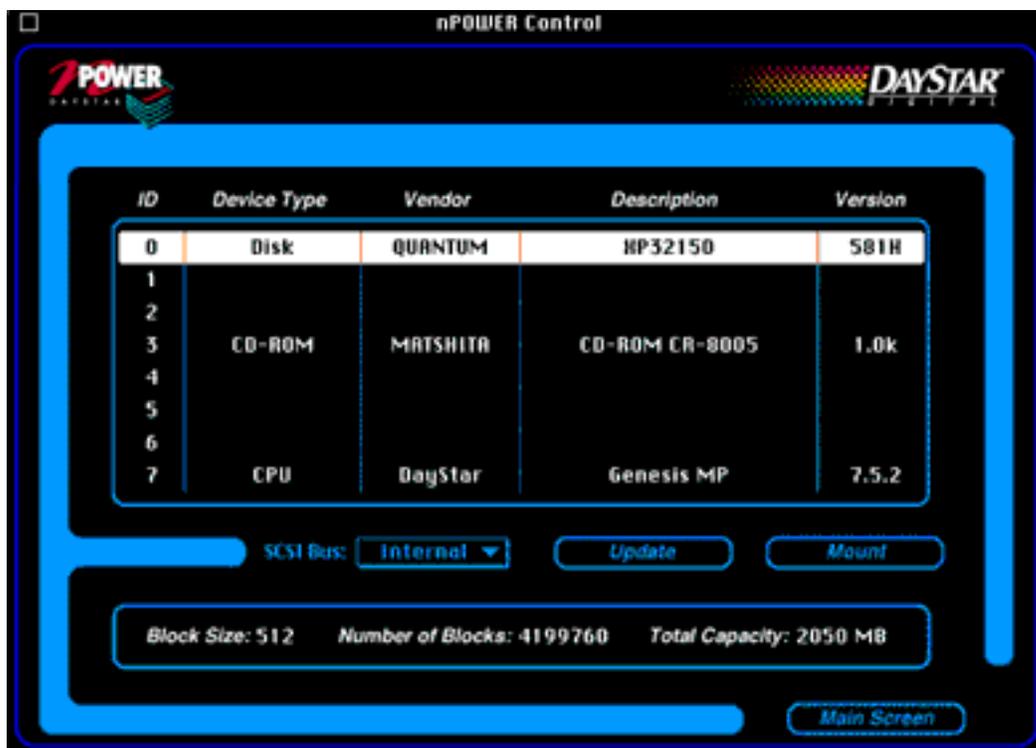
above) while a red line indicates the cache is disabled. Both of these switches change when you click on either switch.

When the cache is enabled, you can control the ROM caching separately using the switch in the lower left-hand corner of the window. Note that the cache has to be enabled (the other switches must be in the on position) for the ROM caching switch to apply.

The two buttons (**Cache All** and **Cache None**) in the upper right-hand corner should be used to change the state of the L2 cache in most cases.

SCSI Devices

This window allows you to display the devices on the internal and external SCSI chains, as well as any devices connected to PCI SCSI cards. A pop-up menu displays the SCSI bus being scanned:



The SCSI Bus pop-up menu allows you to select among internal, external, or add-in PCI SCSI busses. You can force the bus to be scanned again by pressing the Update button. You can also use the Mount button to mount the selected device. At the bottom of the window the block size, number of blocks, and total capacity of the selected device is displayed.

PCI Cards

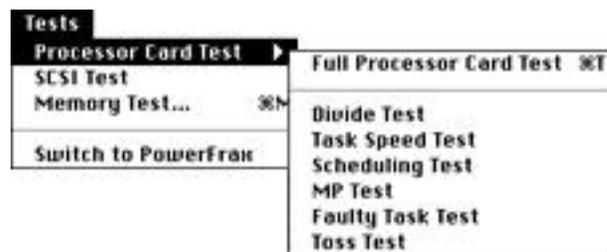
This window, similar to the SCSI Devices window shown above, displays the slot number, type, manufacturer and revision level of all PCI cards installed in your machine.

The panel at the bottom of the window displays the manufacturer's name and the card name in more detail when possible. The slot number matches the ones adjacent to the PCI slots on the motherboard.

The Tests Menu

This menu allows you to run diagnostics on your Mac. DayStar recommends that you reboot your system using only Apple and DayStar system extensions (no third party extensions) before running any tests.

The **Tests** menu appears as follows:



The tests are divided into three categories:

1) **Processor Card Test** - verifies the operation of your processor card. A full processor card test can take up to 10 minutes, depending on the speed of your processors. You can also perform individual processor card tests. Their purposes are as follows:

Divide Test - Detects defective processors

Task Speed Test - Determines that all processors are operating at full speed

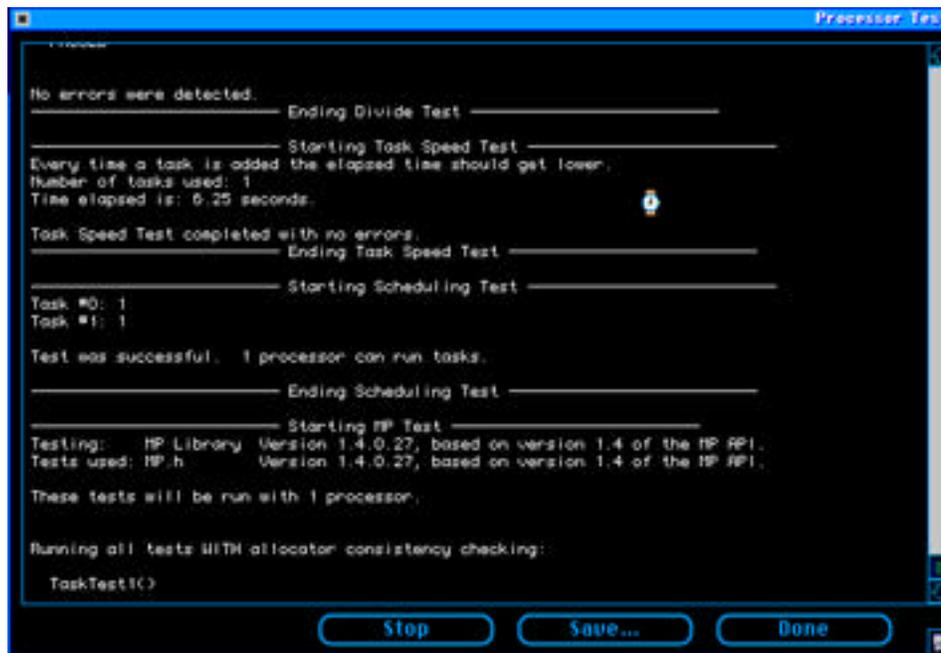
Scheduling Test - Ensures all processors are available for multiprocessing

MP Test - Verifies operation of the multiprocessing system software

Faulty Task Test - Confirms that defective software can be properly dealt with

Toss Test - Stress testing on the multiprocessing system software

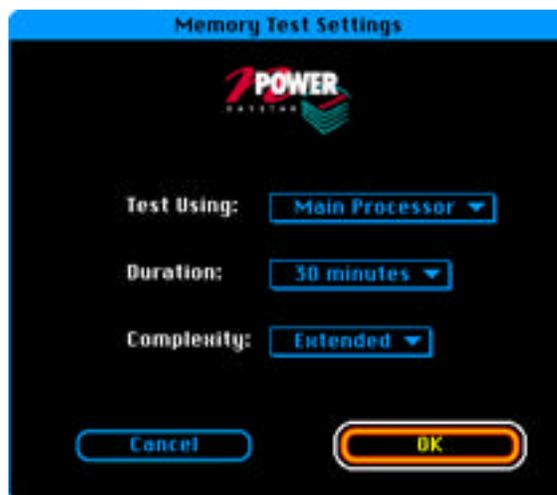
A full processor test will show a window similar to the following:



Many of these tests will detect one or more defective processors. It is also possible that your computer will freeze when running one of these tests. If this is the case, you may have a problem that requires technical support.

2) **SCSI Test** - Runs a short read/write test on each mounted volume, including AppleShare volumes, and reports any errors detected.

3) **Memory Test** - Performs an exhaustive memory test on all remaining memory (all memory not being used at the time the test is run). When you choose this option, the following dialog appears:



You can limit the test to run on a subset of the processors. The test can also be

configured to run for different amounts of time. Finally, you choose whether the complete test is run or whether only a subset of the memory tests are run (for quicker completion).

If errors are detected, they are reported in a text window which can be saved to disk or printed.

The **Window** Menu

This menu allows you to go directly to the performance windows as well as display the **Report** which lists your system information in a window which can be saved in a text file.

The **Internet** Menu

This menu allows you to go directly to specific web pages on DayStar's World Wide Web site without having to worry about URLs. When you make a selection from this menu, it causes your web browser to go to a specific page on DayStar's web site. The browser that is used is specified by a **Default World Wide Web Browser** in the Default Internet Browser menu - a hierarchical menu at the bottom of the menu.

