

XLR8 MACH Speed Control - OSX

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Thank you for purchasing MACH Speed Control – OSX. This product is designed to offer an unparalleled level of compatibility for all G3 and G4 upgrades.

MACH Speed Control – OSX has been re-written from the ground up to provide the most modern and most compatible cache control solution available today.

This file contains information about the XLR8 MACH Speed Control software for Mac OS X. You will find instructions on how to set up XLR8 MACH Speed Control and solutions to common problems in the manual that came with your software or upgrade card. Additional information about this product can be found at <http://xlr8.com> and <http://daystartechnology.com>

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Features

The MSC-OSX utility is designed to allow automated and manual configuration of the CPU and Cache on all G3 and G4 ZIF CPU cards within Mac OS 10.2 (Jaguar).

- **Virtual Firmware Support ensures full compatibility on older “unsupported Macs”**. Its exclusive ROM and Kernel patches repair deficiencies in older systems that were designed before the newest CPUs. Unlike other third party compatibility software "zapping" PRAM or booting without extensions cannot flush Virtual Firmware.
- **Full Compatibility in Jag, Classic and “Unsupported Systems”** is assured through an extensive history of delivering award winning upgrade solutions.
- **Advanced AltiVec Support** – Only XLR8 MACH Speed Control has the exclusive ability to run AltiVec with 100% unconditional compatibility. Its advanced AltiVec initialization allows the CPU to run AltiVec (Velocity Engine) instructions exactly as it is done on native G4 systems. This is NOT available with any other third party Cache / CPU management system.
- **MVP Support or Maximum XLR8 upgrade performance** – The software fully supports XLR8’s exclusive MVP (Multiple Variable Processing) hardware technology. MVP allows the user to change RAM, CPU, and Cache performance settings without motherboard jumper modifications.
- **Temperature Scan** monitors the temperature of the processors in the system and will report if any of them are overheating. This exclusive XLR8 technology takes away the worry that a processor can be damaged due to the misplacement or failure of cooling equipment.
- **Automatic cache testing**, profiling and initialization at startup, insures a robust test of the system each time you begin work.
- **Interactive cache and CPU testing when the utility is open** – The graphical display provides an active test and architectural information about the system at a glance.
- **Semi-automatic cache and system controls** provide interactive tested safe settings and allow the user to choose from additional tested backside cache speeds (italic settings indicate failed tests) as well as cache and CPU configuration settings.
- **Automatic control recovery** will reset the settings to new safe settings should the system lock

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- o up on startup due to aggressive cache or CPU settings.
- o **Includes important system tuning** that overcomes deficiencies in varied environments and improves overall stability.
- o **Provides information about the upgrade**, including its speed, CPU temperature and version, and backside cache if any. System information about the motherboard cache and motherboard memory is also provided when appropriate.

Installation

Before installation, you need to remove all third party cache enablers. Removal of earlier versions of MACH Speed Control is also recommended.

Note: *MSC-OSX* is designed to handle all aspects of Cache and CPU control. Its semi-automatic controls can conflict with other “manual” cache enablers such as offerings from Sonnet, PowerLogix and OWC. These utilities **MUST** be removed before installation.

Third-party and earlier MSC components will not be removed automatically. If you are using alternative upgrade software, consult the accompanying documentation for instructions on its removal. You may need to boot into SAFE MODE (holding the shift key on boot) in OS X to remove any existing or third party enablers. These usually reside in the Library directories within the System directory. Review the information in the Deinstallation section for removal of earlier versions of MACH Speed Control

To Install and Use MSC-OS

1. **Boot into OS X (Jaguar)**, startup your system as you normally would.
2. **Remove all other OS X Cache enablers** following each manufacturer’s instructions.
3. **Open the *MSC-OSX* image file** by double-clicking the downloaded file.
4. **Review the Read Me** and documentation to understand installation and use.
5. **Double-click the .pkg file** to begin the installation.
6. **Follow all instructions** to complete the installation.
7. **Restart your system** to initialize MSC-OSX.
8. **Open the *MACH Speed Control - OSX* utility** (in /Applications/Utility/) and enter the serial number provided with your purchase. You can drag this to the dock first for easier use in the future.
9. **Review all settings** and close the utility.
10. ***MACH Speed Control - OSX* is now fully operational.**

Installation Tips and Side Notes

- Please review the Daystar’s end-user license agreement before installing.
- Installing the software prior to installing the processor upgrade card is recommended but not necessary.
- Note that the software will not be enabled until MACH Speed Control is opened and the correct serial number is entered. The number is a 16 digit number (including dashes), and begins with DSX- (3.0.0).
- Your machine will double-boot one time after installing the software and restarting. It will not do this again unless a new system less than Mac OS X is installed.
- XLR8 MACH Velocity owners using Mac OS X should make sure that the appropriate version of XLR8 MACH Speed Control MP is installed.

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Serialization

A serial number (including dashes) is required for this release of the MACH Speed Control software. You will be prompted for this number when the *MSC-OSX* utility is first opened. Until a valid serial number is provided, the caches on your machine may not be correctly enabled.

- This serial number is provided at the time of purchase. It will begin with "DSX-". Write this number down and keep it in a safe place for future reference. The number was provided with your purchase.
- Open XLR8 MACH Speed Control in the Utilities folder to enter the serial number. If the number is already entered correctly the utility will open without any prompts.
- All XLR8 MACH Speed Control versions after 1.4.3 (OS 8.x) require a serial number. Until a serial number is entered, the software will not function (although the machine will be stabilized at startup). The number is a 16 digit number (including dashes), and begins with XLR- (2.6.1), DS9- (2.6.3) or DSX- (3.0.0).
- XLR8 MACH Velocity (multiprocessing) owners should not install this software. Multiple CPU configurations are not supported in MSC-OSX. You should continue to use the software that came with the velocity. Due to the discontinuance of the multiprocessing program (associated with severe hard drive corruption), a multiprocessing version of MSC-OSX is not expected.

Purchasing and Upgrading

Note that version 3.0 (for OSX) is not bundled with any hardware. This software is available via download or separate purchase only from <http://daystartechnology.com>, or <http://daystar-store.com>.

- Users that purchased an XLR8 brand card previous to the release of MSC-OS9 (2.6.3+) & MSC-OSX (3.0+), can use the serial number (XLR-) found on the CD label or on the card itself for 2.6.1 ONLY.
- Users that purchased an XLR8 card manufactured after the release of 2.6.3 can use the serial number (DS9-) found on their CD label, or sent with the download of the software.
- Users owning version 2.6.1 and wanting to upgrade to MSC-OS9 for improved OS 9.2 compatibility can purchase the new version of software at <http://daystartechnology.com> or <http://daystar-store.com>.

Compatibility

- MACH Speed Control 1.4.3 is compatible with System 7.5.2 through 8.6x
- MACH Speed Control 2.6.1 is compatible with System 9 through 9.1x
- MACH Speed Control – OS9 (2.6.2+) is compatible with System 9 through 9.2x
- MACH Speed Control – OSX (3.0.0+) is compatible with OS X 10.1 through 10.2x

Notes

- Note for users of Adaptec UW cards with boot drives attached: If you are using Adaptec firmware previous to version 4.0, you must install the XLR8 MACH Speed Control software prior to installing the processor upgrade. If you don't do this, you may not be able to boot from drives attached to your

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Adaptec card. If you forget to do this you will have to reinstall your old processor card in order to install the software.

- After installing the XLR8 MACH Speed Control software, you will be prompted to restart your Mac. If you have not installed the processor upgrade yet, then you do not need to restart -just quit the installer, shutdown the machine, and install your processor upgrade. If the card is already installed, let the installer restart the machine.
- Your Mac may restart during the boot process. This will only occur once.

Deinstalling

To deinstall MSC-OSX, log in as root, or boot from Mac OS 9 and manually remove the components listed below. Then restart. MSC-OSX will be completely deinstalled and inactive.

NOTE: Some of the file names may differ slightly with additional version numbers.

- In: /Applications/Utilities/
 - Remove utility: **XLR8 MACH Speed Control**
- In: /System/Library/Extensions/ (some below may not exist)
 - Remove file: **XLR8MACHSpeedKernel.kext**
 - Remove file: **XLR8MACHSpeedKernel101.kext**
 - Remove file: **XLR8MACHSpeedKernel102.kext**
 - Remove file: **XLR8MACHSpeedPlatform.kext**
- In: /System/Library/StartupItems/
 - Remove directory: **XLR8MACHSpeedStartup**
- To completely refresh system cache files also (optional)
In: /System/Library/
 - Remove file: **Extensions.kextcache**
 - Remove file: **Extensions.mkext**

Using the XLR8 MACH Speed Control Software

The first time the machine starts up with the processor upgrade installed, the XLR8 MACH Speed Control software will establish the necessary settings automatically. However, if the software has not already been serialized, the caches on your upgrade will not be enabled.

The software must be run and serialized at least once for full-functionality. It is a good idea to open the control panel and inspect the settings to make sure everything is set the way it should be. In particular check the backside cache settings to make sure that the caches are running at the rated speed of your upgrade.

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Panels

Settings panel -- Displays the current settings for the processor upgrade. The mute button will silence the animation.

Processor Panel -- Displays the processor version number and other processor related information. Note that if an XLR8 MACH Velocity is installed, its version information can be obtained here.

- *Changing the status of Thermal Monitoring* -- Thermal monitoring is only available when one or more CPUs in the system provide temperature measuring facilities. While enabled by default, it is okay to disable monitoring after you are comfortable that the systems cooling measures are functioning consistently well. Even when disabled, thermal monitoring will still take place for two minutes after startup. Thermal monitoring is not yet available under Mac OS X.
- *Changing the status of Speculative Processing* -- The option to change the status of speculative processing is only available on systems where speculative processing may cause problems. If you have a choice, please note that enabling speculative processing is NOT recommended. Please refer to the XLR8 white paper.

Cache panel -- This panel allows the user to change the backside cache speed and to adjust the status of speculative processing and the motherboard cache on certain machines (for more information on speculative processing, please refer to the XLR8 white paper).

Changing the Backside Cache Speed -- Selecting the "Automatic" setting will cause the cache to run at the safest working speed. Sometimes this is not the fastest speed that may be available -see the earlier note about usable speeds. Selecting the "Manual" setting allows the user to select any available speed, possibly including speeds faster than that selected by "Automatic". Speeds selected manually will remain in effect until changed by the user.

Changing the status of Power Conservation -- Checking "Power Conservation" will allow the OS to put the backside cache into low-power mode when the system is inactive. Battery life on portables will be extended and electricity bills will be reduced. Enabling Power Conservation will not affect system performance.

Changing the status of Write-through -- Generally write-through is not necessary except on some older machines or at very high CPU speeds. If you are having stability issues on 6 PCI-slot hardware, or are running at 500 MHz or faster, you may wish to consider turning write-through on. Note that there is a modest performance penalty associated with this action. If write-through comes on by default in the control panel, it is a good idea to leave it on.

Changing the status of the Motherboard Cache -- This selection is only available on systems that have a motherboard cache. If you have a choice, please note that enabling the motherboard cache is NOT recommended -your system will run more reliably with the motherboard cache disabled. If your motherboard cache is removable, it is highly recommended that it be physically removed from the system.

Memory Panel -- The memory panel provides highly detailed information about the DIMMs installed in pre-"blue and white" machines. This information is particularly useful on clone-era equipment. Enough information is provided that will allow a memory configuration to be calculated that will take maximum advantage of the interleaving capabilities of those machines. Note that information provided by alternative tools will not correctly cover the more unusual possibilities that exist. DIMM information for later machines is not provided.

Support panel -- Contact info and addresses for XLR8. Includes World Wide Web links to XLR8.

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MVP Jumper Settings

XLR8 processor upgrade cards feature the ability to select system bus speed and processor multipliers to allow the selection of speeds faster than normal. See the Speed Chart included on the CD (with the software), or on the web at <http://daystartechnology.com>.

Troubleshooting

Problem: Cannot delete old extensions. Cannot log-in as root.

Solution 1: Reboot in OS 9. Search and move to trash, then reboot.

Solution 2: Enable Root access in OSX by following these steps:

1. In the Finder, click on the File menu and select New Finder Window.
2. Click the Applications icon. Open the Utilities folder. Open Net Info Manager.
3. Click the lock icon and enter a user name and password for a user with administrative rights.
4. Select the Security menu. Then select Enable Root User.
5. Click OK when you get a message stating that the password is blank.
6. Set a root password. Click Set. Verify the password. Click the lock.
7. Select: "Log Out" (under the Apple Menu).
8. Select "Other" to log in. Enter "root" and the new password.
9. You can now trash Extensions as needed.

Problem: Panic on bootup.

Solution 1: This could be a possible software conflict. Boot in Safe Mode by shutting down then pressing the shift key on boot until the "Safe Mode" progress bar is shown. If the problem persists, then try booting from the Jag CD. If the system runs well, review the System/Library/StartupItems/ folder for possible third party conflicts and remove them. Then reboot.

Solution 2: This could be a hardware conflict or RAM issue. Shut down. Remove all optional hardware then reboot into Safe Mode. If problem persists, remove all DIMMs except one and reboot. If problem persists, swap with another DIMM. If problem still persists, replace all RAM and change the ZIF module. If problem still persists, disconnect drives and boot from the OS CD. If the problem still persists, it is most likely a motherboard problem.

Problem: Does not accept serial number.

Solution: Ensure that all characters and dashes are being entered correctly. The number should start with DSX-.

Problem: Intermittent Crashing.

Solution 1: This could be due to a software conflict, or a ZIF card problem (cache or CPU). Disable all third party extensions by rebooting into safe mode (hold shift key on boot). If the system runs well, review the System/Library/StartupItems/ and System/Library/Extensions/ folders for possible third party conflicts and remove them. Then reboot.

Solution 2: This could be due to a hardware problem in the ZIF module or RAM.

- To verify that it is not the cache - open the MSC-OSX utility and disable the cache.
- Verify the CPU speed by double checking the settings. Over-clocking the CPU will often cause intermittent crashes.
- Test the RAM by removing a DIMM at a time. Or test RAM using TechTool Pro.

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Problem: 5 tones at startup -screen stays black.

Solution: You need to update your firmware. Remove the G4 ZIF upgrade from your Blue&White machine and replace the original G3 processor. Follow instructions for the Blue&White ROM updater from the XLR8 CD.

Problem: System does not seem to run full speed.

Solution 1: First verify that the cache and CPU are running full speed. Open the XLR8 MACH Speed Control in the Utilities folder. Check the settings panel. If the backside cache and CPU are correct, you are most likely experiencing another speed bottleneck such as "limited RAM". Make sure you have at least 128 MB of RAM installed.

Solution 2: Ensure that the serial number is entered and that the application is initialized by opening the MSC-OSX utility in /Applications/Utilities/. Review all CPU and System information; these are created from actual performance testing.

Solution 2: Ensure that all other third party cache enablers have been removed, specifically those produced by Sonnet, PowerLogix and OWC. Log in as root and check the /System/Library/Extensions/ and the /System/Library/StartupItems/ folders for any other third party enablers that may be conflicting with MSC-OSX.

Problem: Intermittent Crashing.

Solution: If you have used MVP to boost the processor upgrade beyond its default settings, i.e. running at a faster bus speed, or a faster processor speed, you may have boosted it beyond its capabilities. Back the speeds down towards the default settings and try again.

- Try running the backside cache at a slower speed. The automatic setting used by the XLR8 MACH Speed Control software should generally be safe, but it is not foolproof. In particular, if MVP is being used to squeeze extra performance out of the processor upgrade, the software may select a speed that is unsustainable. Use "Manual" to select the next lowest speed from the popup menu and restart the machine.
- If it behaves after that, then the backside cache was running too fast. If you are using MVP, it would pay to move the processor upgrade back towards its default speed in order to regain cache performance. An extra 50 MHz of backside cache performance is far more beneficial than an extra 10 MHz of processor performance.
- If a motherboard cache is present (clone-era machines only) physically remove the cache, or, if the cache is soldered to the board, press and hold down the command, option 'x' and 'd' while booting, then use control panel to disable the motherboard cache.

Problem: Screen artifacts.

Solution 1: Verify that you don't have software conflicts. Boot in "Safe Boot" in OSX by holding the shift key down on boot until the Mac splash screen appears with the text "Safe Boot". If the artifacts disappear, then disable extensions systematically to determine the problem.

Solution 2: Check CPU current cache and speed settings by opening MACH Speed Control in the Utilities folder. Verify that you are not over-clocking the bus or the CPU. If you are using MVP to overclock the CPU, Bus, or Cache, then return the settings to a point within factory settings.

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Contacting Daystar Technology

If you have questions about your MACH Speed upgrade card or any other XLR8 products you may contact us as follows:

Daystar Technology

1532 Turtlebrook Lane, Lawrenceville, GA 30043 USA

(678) 377 9669 (email is preferred and fastest)

Fax: (678) 547-3163

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