

Instability or Crashing in POST with the Evergreen 586 Upgrade

This document describes CMOS settings that address system instability, timing issues, and systems that begin to boot up, but stop with error messages. The settings that achieve stability may vary according to the system and BIOS version. If you need definitions of terms used in this section, please check the Glossary Document on our Web Page (<http://www.everttech.com>).

Here is a brief explanation of some BIOS settings and general recommendations for how to adjust them for optimal performance. Read the entire document before making any changes. Many of these settings may be referenced by different labels in different BIOS. We have chosen the most commonly used nomenclature for use in this document. See the Glossary document on the Evergreen web site for more detailed definitions.



WARNING: Do not change your CMOS settings unless you are very clear about what you are doing. The system set-up routine accesses and alters the information in the CMOS memory.

Autoconfigure: If you have a setting in your BIOS that allows you to “Enabled” or “Disabled” the auto configure then set it to “Disabled”. This is not “Autoconfigure with power on defaults” it will actually have a setting you can change to “Disabled”. This setting is usually available in the Advanced Chipset Features section of the BIOS.

Boot Up CPU Speed, System Speed: Usual settings are HIGH and LOW. HIGH is recommended. If you encounter booting problems, try selecting LOW.

External Cache Memory: Set this to Enabled if you have external cache memory. If set to Disabled when the system DOES have external cache memory, system performance may decrease significantly. If set to Enabled when the system DOES NOT have external cache memory, the system may fail to run. It may be necessary to set it to ENABLED make the internal cache work, e.g. Phoenix BIOS

Internal Cache Memory: Enabled for 486 (8K internal cache) and 586 (16K internal cache) CPUs. Generally, if you disable the internal cache on a 486 system, the external cache is also disabled, and performance is unacceptably slow.

Adapter ROM shadowing, System shadowing, etc: Disabling these settings may allow the system to run normally, and will not generally affect performance much in Windows, though the system may start up more slowly. Some systems may not work reliably with shadowing enabled, and with the corresponding “cacheable” regions disabled. On these systems it may be necessary to enable/disable “system” and “video ROM shadowing” and “system and video BIOS cacheable” together

Fast Gate A20 Option: Using this option makes access to this memory region faster than the normal method. This is beneficial to Windows based operating systems.

Fast Decode: setting this to “disable” may improve stability. It only enhances speed on 386 systems, but is often found in 486 BIOSes, particularly on 3/486 boards.

System, Video BIOS Area Cacheable: Selecting Yes for this option may increase performance. However, cacheable system and video BIOS can cause compatibility problems. . Some systems may not work reliably with shadowing enabled, and with the corresponding “cacheable” regions disabled.

On these systems it may be necessary to enable/disable “system” and “video ROM shadowing” and “system and video BIOS cacheable” together. Enabling system and video BIOS cacheable has been seen to correct memory parity errors on some systems.

AT BUS Clock Selection: Set this to a divisor that produces ~8MHZ. the following chart lists recommended settings.

Processor bus speed (MHz)	Recommended Divisor
16, 20	2
25 or 2-50	3
33, 2-66, or 4-100	4
40 or 2-80	5
50 or 2-100	6

NOTE: Some systems calculate the bus speed differently, and require a divisor which is half or twice as great as those listed above.

Memory Re-mapping, Relocation: disabling this option may improve stability. Enabling this option provides a memory benefit only for DOS-based programs.

Memory (DRAM) Read Wait State: In some BIOS versions, Memory Read Wait State and Memory Write Wait State are combined as “DRAM Wait State.” In that case, the number of read and write wait states is necessarily equal. You should set these to slow or the highest number available

Memory (DRAM) Write Wait State: Similar to Memory Read Wait State.

Cache Read Option: Takes simple integer values, or sequences (such as 2-1-1-1 [fastest], 3-1-1-1, or 3-2-2-2[slowest]). The lower the wait states or sequence values, the better the performance. If wait states/burst sequence values are set too low, memory errors and unreliable system operation may result.

Cache Write Option: Also called SRAM Write Wait State. Set this number as high as it will go.

If the above steps work you may be able to change some of the settings to a lower or faster value. Do this one at a time and record any changes you make so you can get back to where you started from. A combination of memory and cache settings will arrive at a stable and faster system. For more detailed information on speeding up the system look at the Getting More Performance document.

VESA Local Bus wait states: it may be necessary to increase any settings associated with the Local Bus. This may also be handled by jumpers on the motherboard.

Cache Memory Size Jumpers: Resetting these jumpers to the next lowest size (e.g. from 256K to 128K), without removing any cache chips, has been seen to increase stability on some systems.

If you need further assistance please contact Evergreen Technical Support