



*This Technical Advisory describes an issue which affects product functionality, reliability or safety*

# Intel Technical Advisory

TA-915-7

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## BIOS may cause Non-Maskable Interrupts (NMI) during boot

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### Products Affected

- MFSYS25
- MFS5000SI
- MFS5000SIB
- S5000PSLR
- S5000XVNR
- S5000PALR
- SR2500ALLXR
- SR2500ALBRPR
- SR1550ALR
- SR1550ALSR
- SR1550ALSASR
- S5000VSAR
- SR2520SAXSR
- SR2520SAXR
- SR2520SAFR
- S5000VCLR
- SR1530HCLR
- SR1530HCLSR
- SR1530CLR
- T5000PAL
- NSC2U
- TIGH2U
- S5000PHB
- TIGW1U
- NSW1U
- SSR212MC2

### Description

An issue has been discovered by an Intel customer implementing Intel® Xeon® Processors 5400 Series E-0 stepping and BIOS R0091 or Intel® Modular Server BIOS R0047. Approximately one out of three boots will exhibit an NMI with one or more of the following characteristics:

- Immediately following POST, the following error may be seen: "NMI detected. System Halted", followed by a system hang.
- No POST, no video (system hang).
- System hang with the following POST Code LED indicators: MSB off | off | green | amber LSB
- In some instances uncorrectable memory errors may be falsely reported in the System Event Log (SEL) and DIMM's C1 and D1 may be taken offline.

## Root Cause

Some combinations of processor and memory speeds created a timing issue that resulted in application processors (APs) being out of synchronization. When BIOS code is executed on APs that are out of synchronization an NMI is generated.

## Corrective Action / Resolution

During Power-on self-test (POST) several milliseconds of delay were added after commands that request all APs to run the same code. This ensures all APs are synchronized before continuing BIOS execution.

Intel® Modular Server UFU 2.6 (which includes BIOS R0048.1) will be available in late November 2008 and includes fixes for all known issues. Intel® Modular Server BIOS R0050 is planned for release in Q1'09 and will be communicated via the normal release process.

Production BIOS 94 planned for release on November 11<sup>th</sup>, 2008 is now expected no later than November 13<sup>th</sup>, 2008 for the products listed below. BIOS 94 will include the following changes:

- Fixed Midplane2 beep sound during POST for S5000PAL/S5000XAL.
- Recent Intel® RAID cards ctrl+G fails in S5000PSL/S5000XVN PCI slot 4.
- System won't POST with some Gigabit LAN adapters installed in x8 slots.
- Fixed BIOS89 failure on Platform Compatibility Test (PCT) for S5000PSL and S5000PAL.
- Fixed certain video cards stop Windows\* XP Professional 32bit Service Pack 2 (SP2) from shutting down in S5000XVN.
- Fixed Issue with BIOS91 and the Intel® Xeon® Processors 5400 Series E-0.
- Fixed Intel® Xeon® Processor E5405 processor power down issue.
- Fix NMI and SEL log policy for Fatal and Non Fatal Memory Errors.

### OTHER:

- Added workaround for the board signal integrity issue requiring a manufacturing change for some products. Note this workaround may be used on both older and newer motherboards.
- Add Qimonda\* AMB patch to MRC 1.32 in efforts to reduce M1Err(s).
- Improve remote console performance at 9600 baud rate.
- Update to LSI\* SATA SW RAID OpRom v A.07.05151334I.

The table below recommends specific BIOS releases to be used with different platform/processor configurations:

Platform	Intel® Xeon® processors 5100, 5200, 5300 series	Intel® Xeon® processor 5400 series, C-0 stepping	Intel® Xeon® processor 5400 series, E-0 stepping
S5000PSLR S5000PALR SR2500ALLXR SR2500ALBRPR SR1550ALR SR1550ALSR SR1550ALSASR S5000VSAR SR2520SAXSR SR2520SAXR SR2520SAFR S5000VCLR SR1530HCLR SR1530HCLSR SR1530CLR T5000PAL NSC2U TIGH2U S5000PHB TIGW1U	BIOS R91, R91.6 or R94	BIOS R91, R91.6 or R94	BIOS R91.6 or R94

NSW1U SSR212MC2			
S5000XVN	BIOS R91 or R91.6	BIOS R91 or R91.6	BIOS R91.6
MFSYS25 MFS5000SI MFS5000SIB	UFU P2.3.1 or P2.3.5 BIOS R43 or R48.1	UFU P2.3.1 or P2.3.5 BIOS R43 or R48.1	UFU P2.3.5 BIOS R48.1

**ATTENTION:** Customers using Intel® Workstation S5000XVN Should **not** use BIOS 94 but should remain on BIOS 91.6 until a replacement BIOS is available in December 2008.

Intel will also review the BIOS evaluation process to determine how this type of issue can be found during validation.

## Recommended Customer Action

Customers using the following processors can continue using BIOS R0091/Intel® Modular Server BIOS R0047:

- Intel® Xeon® processors 5100, 5200, 5300 series, any stepping, with the products listed above or
- Intel® Xeon® processor 5400 series, C-0 stepping, with the products listed above.

Customers using Intel® Xeon® processor 5400 series, E-0 stepping, must upgrade to BIOS R0091.6/Intel® Modular Server BIOS R0048.1 or later.

Versions of BIOS before R0091/Intel® Modular Server R0047 can be upgraded to BIOS R0091.6/Intel® Modular Server R0048.1 using any supported Intel® Xeon® processor 5000 sequence.

Intel recommends customers perform a shortened validation run with BIOS R0091.6 for the Intel Workstation S5000XVN/Intel® Modular Server BIOS R0048.1 and perform a normal validation run with BIOS R0094/Intel® Modular Server BIOS R50 when available.

Please contact your Intel Sales Representative if you require more specific information about this issue.

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