

intel® Technical Advisory

TA-245-1

5200 NE Elam Young Parkway
Hillsboro, OR 97124

January 22, 2000

Some C440GX+ based servers may experience a system hang when add-in cards are installed in PCI slots 5 or 6

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Products Affected

BOXC440GX, BC440GX

Description

Intel's Server Products Division (SPD) test labs have reproduced a system hang on some C440GX+ based servers by installing PCI cards requiring a high I/O bandwidth, such as a SCSI RAID controller, into PCI slots 5 or 6. The hang has been seen to occur after POST while either booting an Operating System or while performing data transactions on the secondary PCI bus using a system stress program.

The issue is not OS dependent, nor is it related to any specific add-in card.

Root Cause

A manufacturing process variation may have affected operation of the 21150BC Bridge chip's internal clamp circuits when exposed to fast edge rates. This process variation may have contributed to a marginal condition between the 440GX chipset and the 21150BC Bridge chip on some C440GX+ server boards.

There is no issue when add-in cards are only installed in PCI slots 1 – 4.

Corrective Action

The Intel SPD Engineering team has developed a software fix for this issue and has incorporated it into a new System BIOS, version 6.0. Compensation circuits on the 440GX will be enabled through a buffer strength setting in the BIOS to reduce the effect of the edge rates to the 21150BC bridge chip. System BIOS 6.0 will be installed on all C440GX+ server boards in our factory, posted to IBL, and will be made available on Intel's Support web site at <http://support.intel.com>.

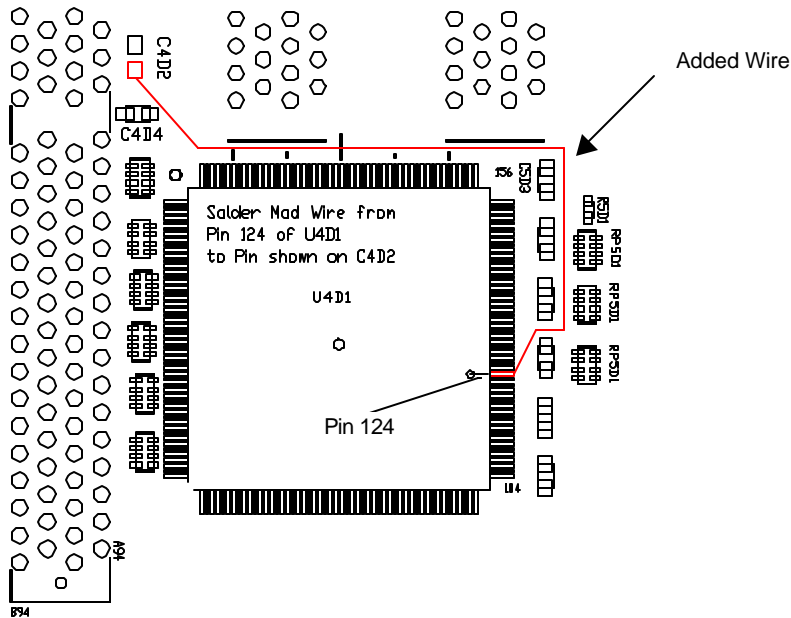
In addition, hardware changes will be made to the server board design to further decrease the possibility of failures. Intel manufacturing will be implementing a change, for all new shipments, by routing a 5volt signal to pin 124 of the 21150BC bridge chip.

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- OEM C440GX+ server boards with BIOS 6.0 and the hardware change will be labeled with a PBA # of 726134-415.
- Boxed C440GX+ server boards with BIOS 6.0 and the hardware change will be labeled with AA# 727281-005.

PBA numbers or AA numbers will be found on a white sticker on the edge of the server board near the ISA slot.

Intel Recommendations

Anyone encountering this issue on any of their existing C440GX+ based servers should upgrade their system BIOS to version 6.0 or later.

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

Server Products Division (SPD)
Enterprise Server Group (ESG)
Communication Products Group (CPG)
Communication and Internet Server Division (CISD)
Intel Corporation