



PRODUCT BULLETIN

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ISSUE DATE: 01-Aug-2012
NOTIFICATION: 15253
TITLE: ERRATA: E500V2 HANG FOR MPC8548/7/3/5, MPC8568, MPC8533/44, MPC8572, MPC8536, P2020/10, MPC8569, P102X, P1010
EFFECTIVE DATE: 02-Aug-2012

DEVICE(S)

MPN
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DS783PBGAPQ38VTD
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SCWP2020C

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AFFECTED CHANGE CATEGORIES

- DEVICE SPECIFICATION / ERRATA

DESCRIPTION OF CHANGE

It is possible for the CCB bus arbiter to get into an invalid state and hang the system. A very specific sequence of streamed IO snoops and retries from a congested memory system must occur just prior to a PCI/PCIe/SRIO write reaching the core for the hang to occur.

This will occur if the e500 V2 core has initiated a guarded load to PCI/PCIe/SRIO near the time that PCI/PCIe/SRIO does a write to cacheable, coherent memory, and that write is behind (or is one of) multiple full cache line writes from an IO device that hit modified in the e500's L1 data cache.

To prevent this behavior :

- Set SPR976[40:41] to b'10. The SPR register, SPR976, is the same for all affected devices.

Setting these bits will force the core to process all snoops of the IO device full cache line

writes to DDR differently and will avoid the hang condition. No performance impact is experienced in using this setting. This workaround must be applied to each core of a multiple core device.

For more information please refer to the errata of the affected device and referenced as CPU: A005125.

REASON FOR CHANGE

The system could hang as a result of no further forward progress being made to and from the e500 V2 coherency module (ECM). The watchdog timer (if set) would then trigger the system to reboot. To prevent this behavior the software workaround described in the Description of Change must be implemented.

ANTICIPATED IMPACT OF PRODUCT CHANGE(FORM, FIT, FUNCTION, OR RELIABILITY)

Although the sequence of events that can trigger the e500 V2 system hang is rare, we recommend implementing the software workaround.

NOTE:

THE CHANGE(S) SPECIFIED IN THIS NOTIFICATION WILL BE IMPLEMENTED ON THE EFFECTIVE DATE LISTED ABOVE. To request further data or inquire about the notification, please enter a [Service Request](#)

For sample inquiries - please go to www.freescale.com

QUAL DATA AVAILABILITY DATE: 19-Jun-2012

QUALIFICATION STATUS: COMPLETED

QUALIFICATION PLAN:

N/A

RELIABILITY DATA SUMMARY:

N/A

ELECTRICAL CHARACTERISTIC SUMMARY:

N/A

CHANGED PART IDENTIFICATION:

N/A

SAMPLE AVAILABILITY DATE: 19-Jun-2012

ATTACHMENT(S):

External attachment(s) FOR this notification can be viewed AT:

[15253_e500v2_Hang_writeup.pdf](#)
