PCN# 20150727000

DDR Power Current Sinking
and BSEL1 Series Resistor on:

MitySOM-5CSX & MitySOM-5CSE

Date: July 27, 2015

To: Purchasing Agents

Dear Customer,

This is an initial announcement of a change to a product that is currently offered by Critical Link. The details of this change are on the following pages.

For questions regarding this notice, contact the Hardware Manager Bill Halpin (bill.halpin@critiallink.com).

Sincerely,

Critical Link, LLC

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PCN Number: 20150727000

PCN Date: July 27th, 2015

Title: DDR Power Current Sinking and BSEL1 Series Resistor on MitySOM-5CSx

Contact: Bill Halpin

Phone: (315) 425-4045

Ship Date: 09/01/2015

Overview

Changes to MitySOM-5CSx are identified in the following sections.

1 Reduced Switching Speed on the DDR Power Supplies

1.1 Description of Change

The switching supplies used to generate the voltage rails for the DDR memory run at a slightly reduced frequency. The initial design ran the DDR power supplies at a nominal frequency of 2.25MHz. This has been reduced to a nominal frequency of 1.9MHz by changing the value of a single resistor.

1.2 Reason for Change

Some modules experienced a start-up issue where the MitySOM would be stuck in reset. If this condition occurs, the only remedy is to power off the unit and wait for about one minute before powering the unit back on. This issue was tracked to a limit in the current sinking capacity of the DDR memory termination rail's power supply. Reducing the switching frequency slightly has a large impact on the current sinking capability of the power supply. With this change, there is more margin in the design and the modules no longer experience the reset issue.

1.3 Anticipated Impact on Form, Fit, Function (positive / negative)

There is no impact to form or fit. The anticipated impact to function is only for modules that exhibit the reset issue. All modules are expected to boot reliably.

1.4 Anticipated Impact on Quality or Reliability (positive / negative)

This change is not anticipated to impact quality or reliability with the exception of higher manufacturing yield.

2 Reduced BSEL1 Resistor Value

2.1 Description of Change

Altera has updated the pin connection guidelines, suggesting a lower pull-down resistor on the BSEL and CSEL mode selection inputs when pulled low. The BSEL1 resistor resides on the MitySOM and has been reduced from 10K to a value of 2.0K.

2.2 Reason for Change

This change is purely a preventative measure in accordance with Altera's recommendations. Critical Link is not aware of any MitySOM-5CSx experiencing a boot issue where the BSEL1 state was incorrectly registered.

There are many potential reasons for boot failure. For additional details to debug an issue booting, consult Altera's documentation:

CV_5400a - Booting and Configuration Introduction
https://www.altera.com/content/dam/altera-www/global/en_US/pdfs/literature/hb/cyclone-v/cv_5400a.pdf

Using the DS-5 debugger, the registered BSEL value can be verified. The BOOTSEL value is available in the *bootsel* field of the *bootinfo* register in the *romcodegrp* group under the *system manager*.

2.3 Anticipated Impact on Form, Fit, Function (positive / negative)

There is no impact to form or fit. Also, because this issue has not been experienced, there is no anticipated impact to function. The typical state of the BSEL1 connection on the edge connector is low to select the SD card as the boot media. This state is used on most customer designs as well as the default mode in the 5CSx Dev Kit.

2.4 Anticipated Impact on Quality or Reliability (positive / negative)

Critical Link anticipates that this change will avoid exposure to this issue due to future process variation. There is no anticipated impact to quality or reliability.

3 Products Affected

Details regarding the full revision history can be located in the MitySOM-5CSx Revision History section on the Critical Link support site.
https://support.criticallink.com/redmine/projects/mityarm-5cs/wiki

Table 1: Products Affected

Model Number	Starting PCA	Replacement PCA
5CSE-L2-3Y8-RC	80-000705RC-2	80-000705RC-3
5CSE-S2-3Y8-RI	80-000729RI-2	80-000729RI-3
5CSE-H4-3YA-RC	80-000713RC-2	80-000713RC-3
5CSE-H4-3YA-RI	80-000713RI-2	80-000713RI-3
5CSX-H5-4YA-RC	80-000714RC-2	80-000714RC-3
5CSX-H5-4YA-RI	80-000714RI-2	80-000714RI-3
5CSX-H6-42A-RC	80-000642RC-2	80-000642RC-3
5CSX-H6-42A-RI	80-000642RI-2	80-000642RI-3
5CSX-H6-4YA-RC	80-000772RC-2	80-000772RC-3
5CSX-H6-4YA-RI	80-000772RI-2	80-000772RI-3
5CSE-H6-53B-RC	80-000646RC-2	80-000646RC-3

See MitySOM-5CSx Design Guide for migration options across the MitySOM-5CSx family.

4 Document Revision History

Date	Version	Change Description
10-16-2015	1.0	Initial Version