PCN# 20230205000

Resolution of First Article Inspection Issues

MitySOM-AM62 Modules

Date: February 5, 2023

To: Purchasing Agents & Design Engineers

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 Alex Block.

Sincerely,

Critical Link, LLC

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(CT016, Revision 4)
www.criticallink.com

PCN Number: 20230205000

PCN Date: February 5, 2023

Title: Resolution of issues encountered on FAI units.

Contact: Alex Block

Phone: (315) 425-4045

EOL Date: Feb-2023, Rev -1 variants only

Overview

Changes to MitySOM-AM62 System on Modules are identified in the following sections. These changes should only effect early adopters of the module.

1 Change +3.3V output signal to +3.3V Enable Signal

1.1 Description of Change

The revision 1 variant of the SOM provides a +3.3V output from an on-board load switch on Pin 21 of the edge connector that was intended to provide a sequenced voltage output or voltage output enable for the carrier cards in order to meet the AM62x processor power rail sequencing requirements. This is shown in Figure 1. The local +3.3V IO output is used on multiple IO rails on the AM62x. The signal presented to the external pin has been changed to be the load switch enable signal instead of the load switch output, as shown in Figure 2.
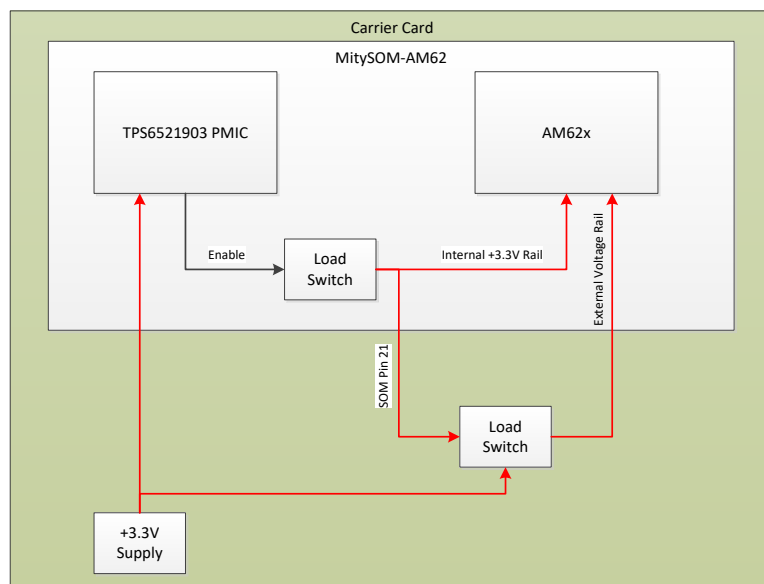

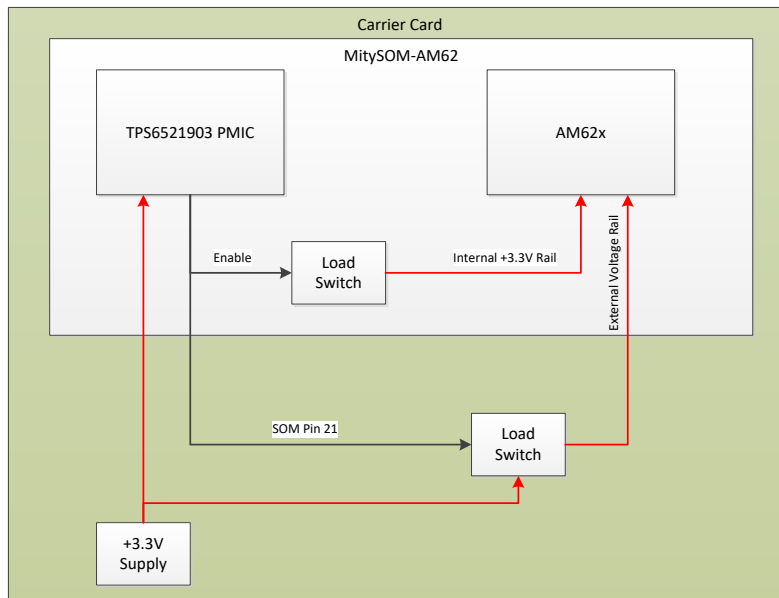**Figure 1 MitySOM-AM62 Pin 21 configuration, Revision -1 Variants**

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Figure 2 MitySOM-AM62 Pin 21 configuration, Revision -2 variants

1.2 Reason for Change

During module power down testing (via command from the module software), a leakage path was identified from the external +3.3V supply rails passed to one of the AM62x IO supplies back to the local +3.3V IO power domain via the AM62x processor. This leakage would cause the output voltage to be held higher than a typical shutdown voltage threshold, and the result was the external +3.3V load switch circuit (in this case, on the Development Kit board) would not power down as expected. To ensure a proper power down sequence, using the enable signal from the PMIC directly routed to the external power switch ensured proper shutdown.

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

With this change, it should be possible for the MitySOM-AM62 to properly shut down all external supplies connected to the processor (given the carrier card honors the enable signal presented on Pin 21). However, Pin 21 may no longer be used as a sequenced supply. Any carrier card requiring external +3.3V IO voltages connected to the AM62x bank pins of the MitySOM-AM62 will require an external load switch circuit as shown. See the MitySOM-AM62 development kit schematics for an example circuit to accomplish this.

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

There is no impact to Quality or Reliability.

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2 Provide Pullup Resistor on VD_SEL interface pin

2.1 Description of Change

The MitySOM-AM62 SOM provides access to the TPS6521903 PMIC VD_SEL interface pin via SOM edge connector pin 176. On revision -1 boards, this pin is not pulled up on the SOM module to the input +3.3VIN. On revision -2 boards and higher, a 4.7K Ohm pullup resistor will be used to pull this signal to the SOM +3.3VIN input voltage rail.

2.2 Reason for Change

The VD_SEL input pin is generally attached to a GPIO output pin of the MitySOM-AM62 on the carrier card in order to support transitioning from +3.3V to +1.8V on the MMC1 micro-SD card bus interface. The lower voltage allows the micro-SD card bus to run at higher data rates. During the boot sequence, however, the GPIO output pins are not generally asserted until after the processor boot firmware has been loaded. This results in the voltage select pin to be floating. To ensure that, during the boot sequence, the VD_SEL is in a known state, a 4.7K pullup resistor to the +3.3V input rail is needed. While this could be solved on the carrier card, the anticipated use case was common enough that it was decided to include the pullup on the SOM and avoid potential issues with future carrier card designs.

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

The VD_SEL input should now be connected to an IO control that is +3.3V tolerant. No external pullup resistor is required on carrier cards using -2 variants of the SOM.

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

There is no impact to Quality or Reliability.

3 Provide Pullup Resistor on PMIC GPO1 interface pin

3.1 Description of Change

The MitySOM-AM62 SOM provides access to the TPS6521903 PMIC General Purpose Output 1 (GPO1) interface pin via SOM edge connector pin 68. This pin is an open-drain output. On revision -1 boards, this pin is not pulled up on the SOM module. On revision -2 boards and higher, a 4.7K Ohm pullup resistor will be used to pull this signal to the SOM +3.3VIN input voltage rail.

3.2 Reason for Change

To ensure that the GPO1 signal (which is open-drain) is asserted properly, a pullup resistor is needed. While this could be solved on the carrier card, the anticipated use case was common enough that it was decided to include the pullup on the SOM and avoid potential issues with future carrier card designs.

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

Designers using the GPO1 signal should assume it followed +3.3V CMOS logic output levels. With revision -2 boards, no external pullup resistor on the carrier card is needed to the pin to operate correctly.

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

There is no impact to Quality or Reliability.

4 Products Affected

Details regarding the full revision history are located in the MitySOM-AM62 Revision History section on the Critical Link support site.

https://support.criticallink.com/redmine/projects/mitysom_am62x/wiki/Errata_and_Module_Product_Change_Notifications

Table 1 Products Affected

Model Number	Starting PCA	Replacement PCA
6254-TX-DAD-RI	80-001614RC-1	80-001614RC-2
6254-TX-XXD-RI	80-001633RC-1	80-001633RC-2

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5 Document Revision History

Date	Version	Change Description
05-Feb-2023	1.0	Initial Version