



Apalis iMX8X

Errata Document



Document Revision History

Date	Doc. Rev.	Notes
2021-09-11	Rev. 1.0	Added Errata #1: POWER_ENABLE_MOCI indeterminate due to backfeeding
2021-08-30	Rev. 1.1	Errata #2: added to the document

Overview

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Errata #1: HAR-8349 – POWER_ENABLE_MOCI indeterminate due to backfeeding

Affected Version: **Apalis iMX8DXP V1.0**
Apalis iMX8DXP V1.1
Apalis iMX8QXP V1.0
Apalis iMX8QXP V1.1

Fixed in: No fix planned

1.1 Customer Impact

Depending on the carrier board and the amount of backfeeding, the POWER_ENABLE_MOCI might not go low enough to turn off the peripheral voltage rails in the shutdown state.

1.2 Description

The POWER_ENABLE_MOCI signal is intended to be used for switching the peripheral voltage rails on the carrier board, like the 5V_SW and 3.3V_SW on the Ixora. Depending on the amount of backfeeding over the interface signals from the carrier board to the Apalis iMX8X module, the POWER_ENABLE_MOCI signal can remain between 1.0V and 1.4V in module shutdown. Depending on the carrier board circuit, this can be too high for turning off the peripheral voltage rails.

For example, on the Ixora V1.2, a different buck converter for the 5V_SW is used than on the previous versions. The threshold voltage for the enable signal is lower on the new buck converter. Depending on the backfeeding level, the 5V_SW buck converter does not get disabled in the shutdown state. The Ixora V1.0 and V1.1 are not affected by this issue since they have been using a different buck converter with a higher threshold.

1.3 Workaround

Add a circuit to the carrier board for increasing the POWER_ENABLE_MOCI threshold voltage to between 2.0V and 2.5V. This could be achieved by adding a comparator or similar circuit. Such a solution is implemented in the V1.3 revision of the Ixora.

A simple voltage divider added to the POWER_ENABLE_MOCI signal can shift the voltage levels. Important: make sure that the minimum input voltage for enabling the buck converter is still guaranteed. With the AOZ2260 buck converter (which is used on Ixora V1.2), a 10k/10k voltage divider can be a suitable option. For patching such a divider, replace R15 with a 10k 0603 resistor and add another 10k resistor from the PMIC_EN_5V signal to the ground.

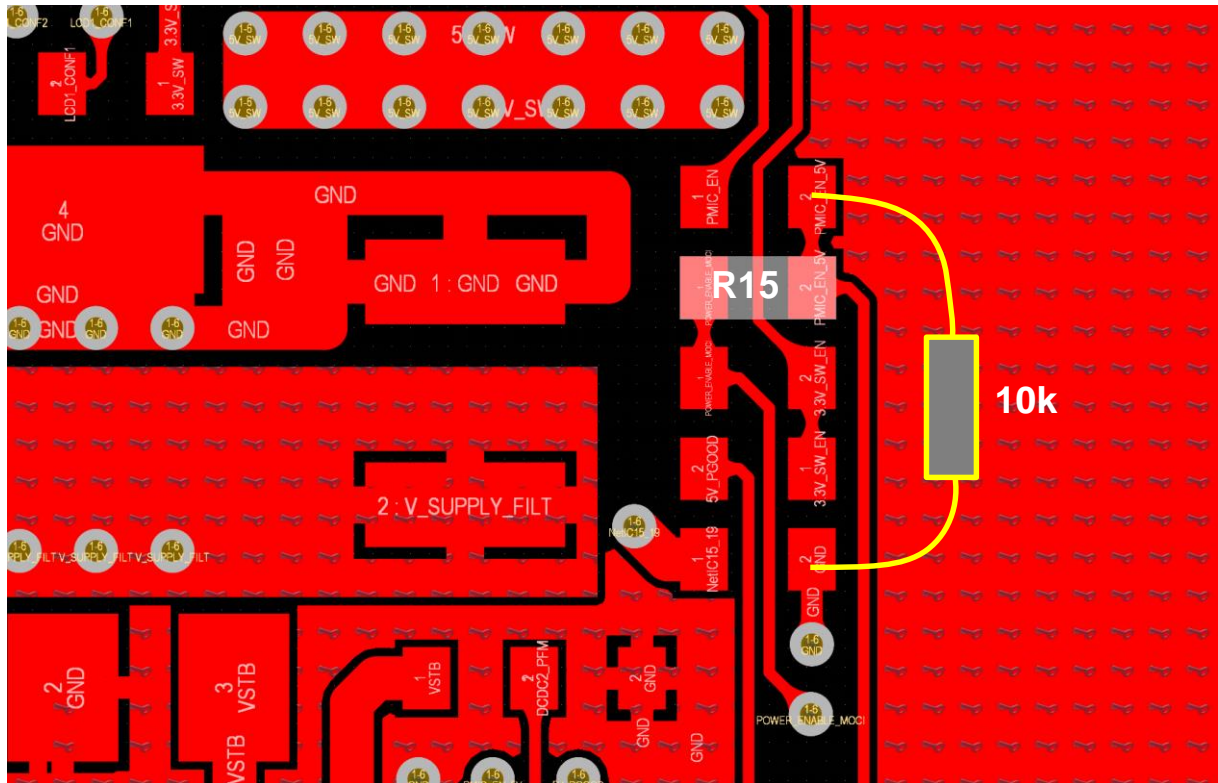


Figure 1 Possible voltage divider workaround on Ixora V1.2

Errata #2: HAR-8447 – Triggering Recovery Mode on the Apalis iMX8X takes long or the SoM does not go into Recovery Mode

Affected Version: **Apalis iMX8DXP V1.0**
Apalis iMX8DXP V1.1
Apalis iMX8QXP V1.0
Apalis iMX8QXP V1.1

Fixed in: No fix planned

2.1 Customer Impact

Triggering Recovery Mode on the SoM takes long, or the SoM does not go into Recovery Mode.

2.2 Description

In some cases, the recovery button of carrier boards needs to be pressed for 6-10s after powering up the SoM to get it into Recovery Mode. In other cases, the SoM does not go into recovery mode at all, even after the 6-10s period has elapsed.

The issue is caused by the combination of the NXP i.MX8X SoC's boot ROM code and the behavior of the USB interface of the host computer the USB OTG port of the carrier board is connected to. On the SoC side, at power-up, a boot monitor timer is initialized. During USB enumeration in serial download mode, the host side may enumerate multiple times until enumeration succeeds. The enumeration retries take time and result in a delayed entry into Recovery Mode.

In some other cases, the maximum number of enumeration retries may get exceeded, which results in an enumeration failure. Under corner conditions, the ROM code may not be able to refresh the boot monitor timer due to the behavior of the USB host, causing a device system reset.

2.3 Workaround

In general, changing to a different host is the most effective way to avoid the issues. NXP may potentially fix this issue in the future.

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