i.MX 8M Mini/Nano SOM Product Change Notification

Hardware Documentation

Beacon EmbeddedWorks

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Revision History

REV	EDITOR	DESCRIPTION	APPROVAL	DATE
A	JMC, NK	-Initial release	JMC,NK,BSB	05/25/22

Table of Contents

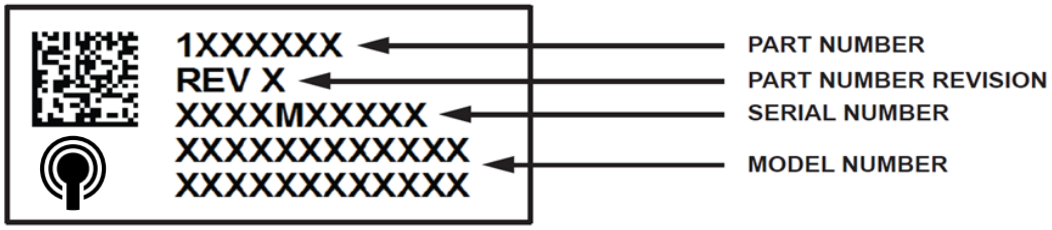
1. i.MX 8M Mini/Nano SOM PCN Introduction

1.1 Purpose of Document

The purpose of this document is to provide a single repository for explaining design changes to a specific product family. The changes described in this document relate to the i.MX 8M Mini/Nano SOM product family.

1.2 Determining What Build You Have

To determine whether your i.MX 8M Mini/Nano SOM is affected by a PCN, locate the sticker on your System on Module (SOM) and compare the model number with the “Affected Models” table for each PCN. In some instances, a PCN may call out the “unique serial number” or “part number” to better identify the affected SOM. The figure below shows the location of each number on the sticker.



NOTE: Please see Beacon EmbeddedWorks’ *WP 293 Model Number Explanation and Decoder*[1] for additional information about these numbers and their relationship to one another.

1.3 Current Standard Models in Production

The table below lists the most current revisions of standard i.MX 8M Mini/Nano SOMs. It also specifies the PCN that details the changes prompting the model revision.

Model Number & Rev	PCN Detailing Revision
SOMIMX8MMQ-11-1BE4SMIR-A	PCN 636: Hardware Changes
SOMIMX8MMQ-11-1BD0SMIR-A	N/A: Initial Production Release Model
SOMIMX8MMQ-11-2AE4SMCR-A	PCN 636: Hardware Changes
SOMIMX8MNS-11-29C0DMCR-A	PCN 636: Hardware Changes

[1] http://support.beaconembedded.com/DesktopModules/Bring2mind/DMX/Download.aspx?portalid=0&EntryId=1378

2. PCN 636: Hardware Changes

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PCN Classification:

- ☐ *A - Recall*
- ☐ *B - Customer Action Required*
- ☒ *C - Product Upgrade*
- ☐ *D - Change of Production Line*

2.1 Products Affected

This PCN describes the hardware changes that were made to the i.MX 8M Mini/Nano SOMs. The "New Model Number & Rev" listed below indicate the first SOMs that will be manufactured with the change described in section 2.2 below.

Affected Model Number & Rev (Part Number)	New Model Number & Rev (Part Number)
SOMIMX8MMQ-10-1BE4SMIR-A (1031100)	SOMIMX8MMQ-11-1BE4SMIR-A (1031663)
SOMIMX8MMQ-10-2AE4SMCR-A (1031102)	SOMIMX8MMQ-11-2AE4SMCR-A (1031577)
SOMIMX8MNS-10-29C0DMCR-A (1031104)	SOMIMX8MNS-11-29C0DMCR-A (1031623)

2.2 Description of Change

2.2.1 Ethernet Transceiver Change

The Ethernet transceiver chip on these affected assemblies has changed from the Qualcomm device (part number AR8031-AL1B, Reference Designator U8) to the Microchip Technology device (part number KSZ9131RNXC/KSZ9131RNXI, Reference Designator U15). This change was required due to the impending obsolescence of the Qualcomm device.

The following signals were removed from J2: J2.47 – ENET_PPS; J2.51 – ENET_CLK_25M; J2.68 – LED_LINK10_100. These signals are no longer supported and should be treated as Reserved for Future Use (RFU).

The following signals changed from 2.5V signals to 1.8V signals: J2.67 – LED_ACT; J2.70 – LED_LINK. These signals require an external 3.3V to drive an LED.

In addition to the LED voltage change, the Ethernet magnetics are different between the Qualcomm and Microchip devices. Please refer to the Microchip KSZ9131RNX Datasheet for supported magnetic options. Customers may also refer to the Beacon i.MX 8M Mini/Nano Baseboard reference design.

NOTE: Beacon EmbeddedWorks recommends purchasing sample units of the new model and testing them with your software and manufacturing flow to verify compatibility in your application.

2.2.2 Printed Circuit Board Change

The PCB for these assemblies has been modified to accommodate the Ethernet transceiver device replacement and the changes to the supporting circuitry. The replacement Microchip device has a different pinout versus the original Qualcomm device.

2.2.3 Software Change

The Beacon Linux BSP needs to be updated to support the new Ethernet transceiver. The new version of the BSP, version 2.0.0, supports both the Qualcomm and Microchip Ethernet transceivers. U-Boot pre-programmed into the eMMC has been updated to version 2.0.0.

2.3 Contact

For additional information, please post a question to the Beacon EmbeddedWorks Technical Discussion Group (TDG) forum.[2]

[2] http://support.beaconembedded.com/TDGForum.aspx

