Freescale Semiconductor
Engineering Bulletin

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i.MX 6Dual/6Quad Applications Processor Silicon Revision 1.2 to 1.3 Comparison

Contents

1 Introduction

This document provides information on changes in the i.MX 6Dual/6Quad Application Processor between silicon revisions 1.2 and 1.3.

2 Changes between revisions 1.2 and 1.3

Table 1 lists the changes between i.MX 6Quad/6Dual revision 1.2 and i.MX 6Quad/6Dual revision 1.3. Where an erratum was fixed, the relevant erratum number has been provided along with a high-level description.

Table 1. Changes between Revisions 1.2 and 1.3

Issue Number	Description	Software Impact of Change	Silicon Revision Fix	Documented in Silicon Errata Revision 3
—	Updated contents of Chip Silicon Version register (USB_ANALOG_DIGPROG): • 0x00000013 for silicon revision 1.2 • 0x00000015 for silicon revision 1.3	U-boot reads the ROM revision contents to determine the silicon revision. The ROM revision number may not match the silicon revision number (e.g. ROM revision 1.5 means silicon revision 1.3).	Updated in 1.3	n/a
—	Updated value of the SI_REV[3:0] fuses: • “0” for silicon revision 1.2 • “2” for silicon revision 1.3	Customer’s software using this value may need to be updated. Freescale BSPs do not read SI_REV[3:0].	Updated in 1.3	n/a
—	4byte offset increase in ROM_API_TABLE_BASE_ADDR and HAB_API table address.	Customers using u-boot plug-in mode or secure boot will need to install a software patch. Refer to Section 3.2, “U-boot plug-in mode or secure boot.	Updated in 1.3	n/a
ERR006282	ROM code uses non-reset PFDs to generate clocks, which may lead to random boot failures.	The workarounds documented in the errata are not required for revision 1.3. Customers who want to support the alternate boot method on both revision 1.2 and revision 1.3 will need to install an updated software patch. Refer to Section 3.3, “Tiny bootloader.	Fixed in 1.3	Yes
ERR007117	ROM: When booting from NAND flash, enfc_clk_root clock is not gated off when doing the clock source switch.	The workarounds documented in the errata are not required for revision 1.3. Customers who want to support the alternate boot method on both revision 1.2 and revision 1.3 will need to install an updated software patch. Refer to Section 3.3, “Tiny bootloader.	Fixed in 1.3	Yes
ERR007220	ROM: NAND boot may fail due to incorrect Hamming checking implementation in the ROM code.	The workarounds documented in the errata is not required for revision 1.3.	Fixed in 1.3	Yes

3 Software changes from revision 1.2 to 1.3

The i.MX 6Quad/6Dual ROM code has been updated between revisions 1.2 and 1.3. The ROM code update addressed the silicon errata listed in Table 1. Read below for details on software patches that may need to be applied to your system software when moving from revision 1.2 designs to revision 1.3 designs.

3.1 Chip revision support

To ensure that the new chip revision can be read back from the chip, the following patch should be applied.

1. ENGR00286181 ARM: i.MX6: add more chip revision support.
   http://git.freescale.com/git/cgit.cgi/imx/linux-2.6-imx.git/commit/?h=imx_3.0.35_4.1.0&id=21464af587382ec1841d5fd346eaf359827c6142

3.2 U-boot plug-in mode or secure boot

The ROM code of i.MX 6Quad/6Dual revision 1.3 changed the ROM_API_TABLE_BASE_ADDR and HAB_API table address (4byte offset increase).

If using u-boot plug-in mode or secure boot, the following two patches must be applied to your u-boot.

1. ENGR00285890 imx6:plugin: update the ROM_API_TABLE_BASE_ADDR for plug-in code
   http://git.freescale.com/git/cgit.cgi/imx/uboot-imx.git/commit/?h=imx_v2009.08_3.0.35_4.1.0&id=a929825706b5e1508b29d8ae2a2afb2fcbb2de19
   Note: The plug-in mode patch is board dependent, which means you must apply similar fixes onto your plug-in mode code by referring to the details in the above patch.
2. ENGR00287268 mx6: fix the secure boot issue on the new tapout chip.
   http://git.freescale.com/git/cgit.cgi/imx/uboot-imx.git/commit/?h=imx_v2009.08_3.0.35_4.1.0&id=424cb1a79e9f5ae4ede9350dfb5e10dc9680e90b
   Note: The secure boot patch is SoC dependent, so the patch can be applied directly.

The Freescale external uboot-imx.git has the patches to correct the ROM_API_TABLE_BASE_ADDR and HAB_API table address. The patches have been tested with the Freescale development systems and BSP.

The 2 patches have been pushed to imx_v2009.08_3.0.35_4.1.0 branches of Freescale external uboot-imx.git.

3.3 Tiny bootloader

If you are using the tiny bootloader patch that uses SPI/I2C, parallel NOR or SATA as the alternate boot source (workaround for ERR007117 and ERR006282 on silicon revision 1.2), you should apply the following patch.

1. ERR006282_PATCH_L3.0.35_1.1.2.1: This patch release provides a workaround to address erratum ERR007117 and ERR006282 and applies to i.MX 6Quad/6Dual silicon revisions 1.2 and 1.3. It applies to Linux BSP releases L3.0.35_1.1.0 and L3.0.35_4.1.0.
   Available under the section “Updates and Patches” at:
   http://www.freescale.com/webapp/sps/site/prod_summary.jsp?code=i.MX6Q&fpsp=1&tab=Design_Tools_Tab.

4 Revision history

Table 2. Revision history

Revision Number	Date	Substantive Change
A	04/2014	Initial creation

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