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Iris Carrier Board

Errata Document

Document Revision History

Date	Doc. Rev.	Notes
30-Oct-2015	Rev. 0.9	Initial Release
15-Oct-2020	Rev. 1.0	Minor cosmetic improvements Errata #2 – HAR-8720 – A (not-to-be-assembled) capacitor is assembled on the Iris V2.0A board
11-Oct-2021	Rev. 1.1	Update disclaimer Several cosmetic updates throughout the whole document Errata #3 - HAR-8292 – USB Power Switching is Backfeeding Errata #4 - HAR-8293 – USB_C_DET Signal is Backfeeding Errata #5 - HAR-8294 – RS232 is Backfeeding
13-Jun-2022	Rev. 1.2	Errata #6 - HAR-8868 – HSYNC and VSYNC swapped at LVDS bridge Minor changes

Overview

Errata #1: HAR-8709 – Abnormal RTC current consumption on some Iris V1.1A products due to a broken capacitor

Affected Version: **Iris V1.1A** shipped before October 30th,2015

Fixed in: **Iris V1.1A** shipped after October 30th, 2015

1.1 Customer impact

The RTC circuit of a small percentage of Iris V1.1A carrier boards shipped before October 30th, 2015, has an abnormal current consumption. This causes the RTC battery to be depleted faster than expected.

1.2 Description

The issue affects about 4% of the Iris V1.1A carrier boards shipped before October 30th, 2015, and is caused by a broken capacitor (C55). It is possible to check the RTC circuit current consumption by measuring the voltage across a shunt resistor connected in series with the power supply used to provide 3.3V on the battery holder positive pin. The normal RTC standby supply current should be around 1uA.

1.3 Workaround

Customers who received products before October 30th, 2015, and use the RTC circuit should measure the current consumption of already received products. If an abnormal current consumption is detected, contact the Toradex RMA department to get the board fixed or replaced. Our testing process has been adjusted to find the mentioned problem and rework the affected products.

Errata #2: HAR-8710 – A (not-to-be-assembled) capacitor is assembled on the Iris V2.0A board

Affected Version: **Iris V2.0A** shipped before October 2020
Affected customers: customers using a combination of Iris V2.0A and Colibri SoMs having FFC connectors on the bottom.

Part Number	Product Name	Affected Product
01352000	Iris V2.0A	0030xxxx Colibri T30 1GB IT
01352000	Iris V2.0A	0023xxxx Colibri T30 1GB
01352000	Iris V2.0A	0022xxxx Colibri T20 512MB IT
01352000	Iris V2.0A	0021xxxx Colibri T20 512MB
01352000	Iris V2.0A	0020xxxx Colibri T20 256MB
01352000	Iris V2.0A	0024xxxx Colibri T20 256MB IT
01352000	Iris V2.0A	0016xxxx Colibri iMX6S 256MB IT
01352000	Iris V2.0A	0014xxxx Colibri iMX6S 256MB
01352000	Iris V2.0A	0017xxxx Colibri iMX6DL 512MB IT
01352000	Iris V2.0A	0015xxxx Colibri iMX6DL 512MB

Fixed in: **Iris V2.0A** shipped after October 2020

2.1 Customer impact

An assembly issue affecting an early production lot of the Iris V2.0A is causing a violation of a keep-out zone defined for Colibri SoMs featuring an FFC connector on the bottom. These SoMs may not be appropriately inserted into the module connector of the affected carrier boards, potentially resulting in connection or reliability issues.

2.2 Description

An early production lot of the Iris V2.0A is affected by an assembly issue. The assembled capacitor C133 (Figure 1) violates a keep-out zone defined for Colibri SoMs featuring an FFC connector on the bottom. These SoMs may not be appropriately inserted into the module connector of the affected carrier boards, potentially resulting in connection or reliability issues.

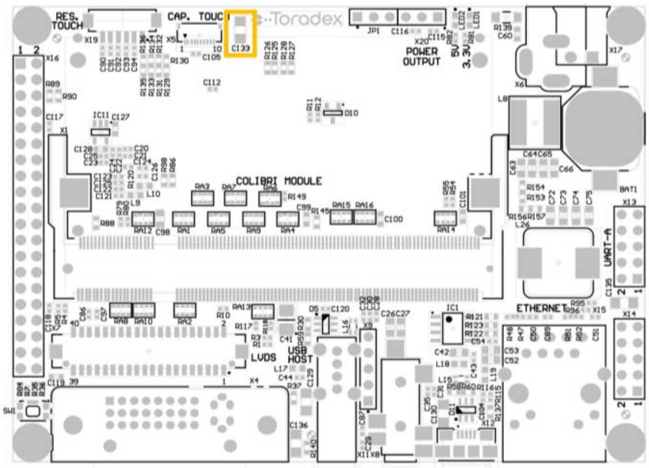

Figure 1: Incorrectly assembled C133 highlighted

2.3 Workaround

Removal of the capacitor C133 fully resolves the issue. The modification does not impact carrier board functionality. C133 is not assembled on later production lots of the Iris V2.0A.

Errata #3: HAR-8292 – USB Power Switching is Backfeeding

Affected Version: **Iris V2.0A**

Fixed in: **Iris V2.0B**

3.1 Customer impact

The carried board does not power down properly when removing all of the other power sources while having a single USB cable connected to the USB client port. The power rails continuously enable and disable, causing the blinking of the related power LEDs.

3.2 Description

If only the USB client cable is plugged in while all other power sources are removed, the USB power switching IC1 gets enabled and disabled periodically. The enable input of the power switch IC is active low. If the power rails are removed, the USB_P_EN signal goes slowly down, which at one point enables the USB power switch. This unintentionally powers the board from the USB source through the 5V buck converter and turns on the 3.3V buck regulator. Since the 3.3V rail is up, the USB_P_EN signal also goes high and disables the USB power switch. This cycle repeats continuously and makes the power LEDs blink.

3.3 Workaround

Remove the resistor R156 and assemble the resistor R157 instead. This prevents the cycle from starting since the USB power switch, and the buck converters remain powered down. The backfeeding protection circuit inside the USB power switch (IC1) works and disables the switch regardless of the USB_P_EN signal level.

Errata #4: HAR-8293 – USB_C_DET Signal is Backfeeding

Affected Version: **Iris V2.0A**

Fixed in: **Iris V2.0B**

4.1 Customer impact

With a single USB cable connected to the USB client port of the carrier board, there is a residual voltage of around 0.85V at the 3.3V rail of the SoM. Besides the residual voltage, no negative impact has been detected/reported. As the resistor R115 (560Ohm) limits the backfeeding current, no damage to the related module IO pin is expected.

4.2 Description

If the USB client cable is plugged in while all other power sources are removed, the voltage divider circuit (R115/R116) on the USB_C_DET signal is backfeeding the module. For example, in combination with the Colibri iMX6 module, a residual voltage of around 0.85V can be measured at the 3.3V rail.

4.3 Workaround

Increase the resistor value of the divider. Change the value of R115 from 560R to 5.6k. Change the value of R116 from 1k to 10k. According to tests done with the Colibri iMX6, this reduces the residual voltage from 0.85V to 0.18V.

Errata #5: HAR-8294 – RS232 is Backfeeding

Affected Version: **Iris V2.0A**

Fixed in: **Iris V2.0B**

5.1 Customer impact

With a single RS232 cable connected to the carrier board, there is a residual voltage of around 0.7V at the 3.3V rail. Besides the residual voltage, no negative impact has been detected/reported. No damage to the related module IO pins is expected.

5.2 Description

The RS232 port of the host computer is backfeeding to the Iris carrier board and the SoM through the RS232 transceiver. For example, in combination with the Colibri iMX6 module, a residual voltage of around 0.7V can be measured at the 3.3V rail while only the RS232 cable is connected to the carrier board.

5.3 Workaround

Consider replacing the RS232 transceiver (IC4 and IC6 on the Iris) with a footprint-compatible part. Some alternative transceivers not prone to backfeeding are TI TRS3243EIDBR, TI MAX3243IDB, and ST ST3243EBTR.

Errata #6: HAR-8868 – HSYNC and VSYNC swapped at LVDS bridge

Affected Version: **Iris V2.0A**
Iris V2.0B

Fixed in: **TBD**

6.1 Customer impact

LVDS displays connected to the LVDS connector (X7) of the carrier board may not function (not show any picture and remain black) in case they require the HSYNC and VSYNC signals for synchronization. LVDS displays not requiring those signals are not impacted.

6.2 Description

Most LVDS displays don't rely on the HSYNC and VSYNC signals for synchronization. They use the data enable signal DE (LCD_BIAS) instead. However, there are some LVDS displays that require the HSYNC and VSYNC signals for proper operation. Unfortunately, it is oftentimes not clearly indicated in the displays' datasheets whether the HSYNC and VSYNC signals are required.

In the Iris V2.0, the HSYNC and VSYNC input signals of the TH63LVD827 bridge are swapped (the LCD_LCLK_A0 signal should be connected to the HSYNC input, and the LCD_FCLK_RD signal should be connected to the VSYNC input). As the LVDS link is transparent between the LVDS bridges (on the carrier board's and the display's side), the HSYNC and VSYNC signals are also swapped on the display's side.

6.3 Workaround

Use a display that does not require the HSYNC and VSYNC signals for synchronization. Check with your display manufacturer/supplier on the synchronization method used by the display.