## Document Revision History

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<tr>
<th>Date</th>
<th>Doc. Rev.</th>
<th>Notes</th>
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<tr>
<td>21-Apr-2021</td>
<td>Rev. 0.90</td>
<td>Initial Release</td>
</tr>
<tr>
<td>15-Jun-2021</td>
<td>Rev. 1.0</td>
<td>Removed former errata #4 and moved it over to the errata documents of the affected Verdin carrier boards (in accordance with the 1.3 version of the Verdin Family Specification)</td>
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<tr>
<td>13-Sep-2021</td>
<td>Rev. 1.1</td>
<td>Errata #4: Added</td>
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<td></td>
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<td>Errata #5: Added</td>
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Overview

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Errata #1: HAR-6336 – RX and TX signals swapped for Bluetooth audio I2S interface

Affected Version: Verdin iMX8M Plus V1.0 (featuring a Wi-Fi/Bluetooth solution)
Fixed in: Verdin iMX8M Plus V1.1

Customer Impact

The Bluetooth audio feature cannot be used. The rest of the Bluetooth and Wi-Fi features are not affected by this issue.

Description

The RX and TX signals of the I2S audio interface between the i.MX 8M Plus SoC and the Wi-Fi module are swapped.

Table 1-1 Wrong Audio Signal Pins between AW-CM276NF and i.MX 8M Plus

<table>
<thead>
<tr>
<th>AW-CM276NF Pin Name</th>
<th>Wi-Fi module signal direction</th>
<th>i.MX 8MP Ball Name</th>
<th>i.MX 8MP Function</th>
<th>SoC module signal direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPIO[6]/PCM_CLK</td>
<td>I</td>
<td>SAI5_RXD2</td>
<td>SAI5_TX_BCLK</td>
<td>O</td>
</tr>
<tr>
<td>GPIO[7]/PCM_SYNC</td>
<td>I</td>
<td>SAI2_RXFS</td>
<td>SAI5_TX_SYNC</td>
<td>O</td>
</tr>
<tr>
<td>GPIO[5]/PCM_DOUT</td>
<td>O</td>
<td>SAI5_RXD3</td>
<td>SAI5_TX_DATA0</td>
<td>O</td>
</tr>
<tr>
<td>GPIO[4]/PCM_DIN</td>
<td>I</td>
<td>SAI5_RXD0</td>
<td>SAI5_RX_DATA0</td>
<td>I</td>
</tr>
</tbody>
</table>

In the next revision of the module PCB, the connection will be corrected. In the Verdin iMX8M Plus datasheet, the corrected connection is shown.

Table 1-2 Correct Audio Signal Pins between AW-CM276NF and i.MX 8M Plus

<table>
<thead>
<tr>
<th>AW-CM276NF Pin Name</th>
<th>Wi-Fi module signal direction</th>
<th>i.MX 8MP Ball Name</th>
<th>i.MX 8MP Function</th>
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<td>SAI2_RXFS</td>
<td>SAI5_TX_SYNC</td>
<td>O</td>
</tr>
<tr>
<td>GPIO[4]/PCM_DIN</td>
<td>I</td>
<td>SAI5_RXD3</td>
<td>SAI5_TX_DATA0</td>
<td>O</td>
</tr>
<tr>
<td>GPIO[5]/PCM_DOUT</td>
<td>O</td>
<td>SAI5_RXD0</td>
<td>SAI5_RX_DATA0</td>
<td>I</td>
</tr>
</tbody>
</table>

Workaround

There is no workaround for making the Bluetooth audio feature of the Wi-Fi module available.
Errata #2: HAR-6503 – Automatic role switching doesn’t work on the USB 2.0 OTG interface

Affected Version: Verdin iMX8M Plus V1.0
Fixed in: Verdin iMX8M Plus V1.1

Customer Impact

The USB OTG port cannot dynamically switch between host and client function, depending on the OTG cable that is plugged in. The Toradex BSP sets the USB_1 port permanently to the client mode. It is also possible to set the USB_1 port permanently to host mode.

Description

NXP has renamed the USB1_ID pin to USB1_DNU (do not use). With that, they have removed the USB ID function from this pin and recommend using any free GPIO as an ID signal. The USB ID signal is intended for the USB OTG receptacle to distinguish whether a type A (module acts as a USB client) or type B (module acts as a USB host) cable is plugged in.

On the Verdin iMX8M Plus, the SoC pin USB1_ID is available on the module edge connector pin 161 as USB_1_ID. It is intended to be used as the USB ID for a USB OTG implementation on the carrier board. Unfortunately, the SoC pin USB1_ID does not serve any GPIO functionality. With the degradation to USB1_DNU, the pin cannot be used anymore.

Without the USB_1_ID signal, the USB OTG port can only be set permanently to host or client mode by changing the device tree settings. The recovery mode is not affected by this restriction. In the recovery mode, the USB_1 port is always set to client mode, independently of the state of the ID pin.

Workaround

In the device tree, it is possible to set the USB_1 port permanently to host mode. By default, the port is set to client mode.

If the dynamic role switching between host and client modes is required, any free GPIO can be used. This solution requires further changes in the device tree. Please note that this breaks compatibility with other modules in the Verdin family. In the case of custom carrier boards employing this workaround, it is highly recommended to add an assembly option for using the Verdin standard pin 161 as a USB ID for keeping compatibility with other Verdin modules.
Errata #3: HAR-6498 – CSI_1_MCLK Clock Output Limited

Affected Version: Verdin iMX8M Plus V1.0
Fixed in: not scheduled

Customer Impact

The optional master clock output of the CSI_1 interface (CSI_1_MCLK) is not usable.

Description

The Verdin pinout contains an optional master clock output for the CSI_1 interface. Most of the CSI camera modules supported by Toradex feature an on-board crystal/oscillator and thus do not require this clock for functioning correctly.

The SAI3_MCLK SoC pin is used for providing the optional Verdin camera interface master clock CSI_1_MCLK output. This signal is available on the module edge connector pin 91. The SoC pin can provide clock signals from the SAI3 and SAI5 audio interfaces. Therefore, a dummy audio driver with a dummy audio stream would be required for enabling the clock output. The current Toradex BSP does not support the CSI_1_MCLK option.

The i.MX 8M Plus SoC features two general-purpose clock outputs that can be used independently from the audio interfaces. Those clock signals are only available as alternate functions of other signal pins. Therefore, the clock signals are not compatible with other Verdin modules.

Table 3-1 General purpose clock outputs (alternate functions, not compatible with other Verdin modules)

<table>
<thead>
<tr>
<th>X1 Pin#</th>
<th>Verdin Std Function</th>
<th>i.MX 8MP Ball Name</th>
<th>i.MX 8MP Function</th>
<th>I/O</th>
<th>Standard Use Case for this Pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>185</td>
<td>USB_2_EN</td>
<td>GPIO1_IO14</td>
<td>CCM_CLKO1</td>
<td></td>
<td>This pin enables the external USB voltage supply for the USB_2 interface.</td>
</tr>
<tr>
<td>116</td>
<td>MSP_13</td>
<td>ECSPI2_MISO</td>
<td></td>
<td></td>
<td>On modules with Wi-Fi/Bluetooth, this pin is used as WLAN_WKUP_HOST.</td>
</tr>
<tr>
<td>187</td>
<td>USB_2_OC#</td>
<td>GPIO1_IO15</td>
<td>CCM_CLKO2</td>
<td></td>
<td>USB overcurrent, this pin can signal an overcurrent condition in the USB supply of the USB_2 interface.</td>
</tr>
<tr>
<td>128</td>
<td>MSP_18</td>
<td>ECSPI2_SS0</td>
<td></td>
<td></td>
<td>On modules with Wi-Fi/Bluetooth, this pin is used as BT_WKUP_HOST.</td>
</tr>
</tbody>
</table>

Workaround

Instead of using the CSI_1_MCLK, use an external crystal or oscillator for the camera.

If one of the general purposes clock outputs is used, adding an assembly option for using the CSI_1_MCLK pin is highly recommended. This ensures compatibility with existing and future versions of the Verdin iMX8M Plus and other Verdin modules.
Errata #4: HAR-8341 – Stitching Capacitor Influences Bluetooth Config Strapping

Affected Version: Verdin iMX8M Plus Quad 4GB WB IT V1.0B
Fixed in: Verdin iMX8M Plus Quad 4GB WB IT V1.0C

Customer Impact

The Bluetooth solution is not accessible by the system as the host interface strapping signal of the Bluetooth solution is unintentionally influenced by a stitching capacitor on the SoM. This leaves the Bluetooth solution in the UART interface mode instead of SDIO.

Description

The signal used for strapping the HCI (Host Controller Interface) configuration of the Bluetooth solution at the time of powering up the SoM is also available on the Module-specific pin MSP_8 (#104) of the SoM edge connector. Module-specific pins feature stitching capacitors for providing current return paths for cases when those pins are being used for accommodating high-speed signals.

The Verdin iMX8M Plus V1.0B configurations equipped with a Wi-Fi/Bluetooth solution feature one such capacitor (C210) on the MSP_8 signal. During powering up the system, the stitching capacitor delays the transition of the related signal to the intended state and thus results in a wrong configuration being strapped. Instead of SDIO mode, the host interface of the Bluetooth solution gets configured to UART mode. As a result, the Bluetooth solution is not accessible by the system.

Workaround

Remove the stitching capacitor C210 from the SoM. This makes the Bluetooth interface work in case the SoM is connected to a Dahlia V1.1A carrier board.

If the SoM is connected to a Verdin Development Board V1.1A, then other stitching capacitors need to be removed from the carrier board as well. For more information, please refer to HAR-8342 in the Verdin Development Board errata. The issue will be resolved in future HW versions of these products.
Errata #5: HAR-8444 – Operating temperature range limitation

Affected Version: Verdin iMX8M Plus Quad 4GB WB IT V1.0C
Fixed in: Verdin iMX8M Plus Quad 4GB WB IT V1.0D

Customer Impact

The 0058 Verdin iMX8M Plus Quad 4GB WB IT V1.0C does not support the full industrial temperature range and is only usable between 0°C and +70°C.

Description

The 0058 Verdin iMX8M Plus Quad 4GB WB IT V1.0C is a special development version that features a Consumer temperature range SoC part. As a consequence, the product version does not support the full industrial temperature range and is only usable between 0°C and +70°C.

Workaround

There is no workaround to this limitation. If full industrial temperature range support is required, consider using the 0058 Verdin iMX8M Plus Quad 4GB WB IT V1.0D instead.
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