HWRGEFBTPALUG

Hardware Rework Guide for EdgeFast Bluetooth Protocol Abstraction Layer

Rev. 12 — 10 September 2024 User manual

Document information

Information	Content
Keywords	Hardware Rework, EdgeFast, Bluetooth, PAL, Protocol, Abstraction, Layer
Abstract	This document is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on various boards.

1 Hardware Rework Guide for MIMXRT1060-EVKB and AW-AM510MA

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1060-EVKB board and AW-AM510MA. The AW-AM510MA user guide is available here.

The hardware rework has three parts:

- HCI UART rework
- I2S2 rework
- M.2 SDIO rework

1.1 Hardware rework

- **HCI UART rework**
  1. Remove R293 and R354, connect R293 pin2 with R354 Pin1.
  2. Remove R241 and R163, connect R93 pin1 with R241 Pin2.
  3. Solder R96, R93, R87, R79, R70, and R345.
  4. Remove R193.

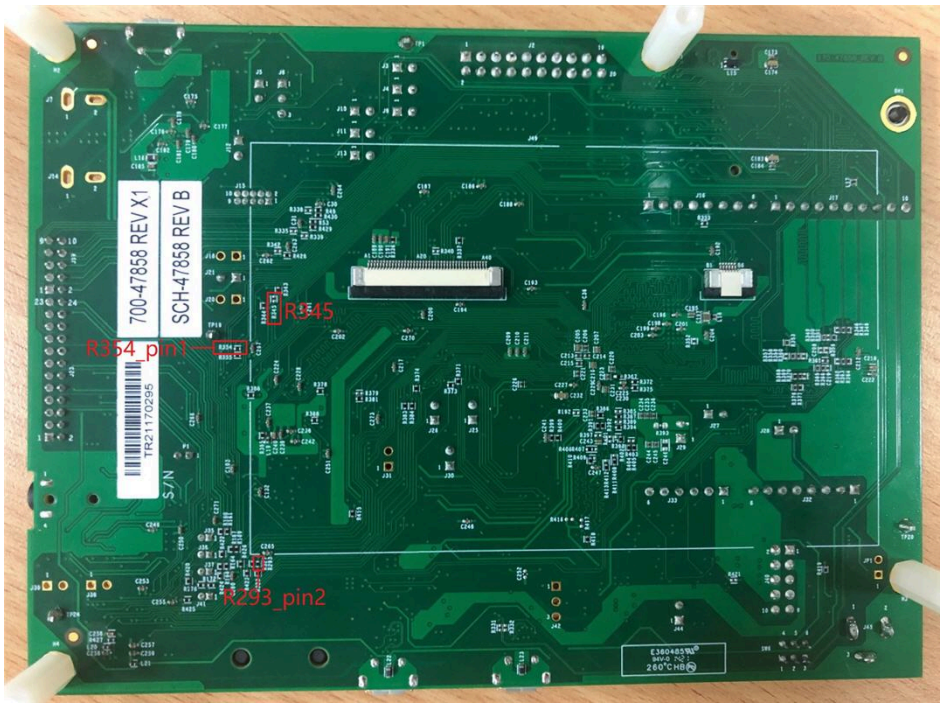


Figure 1. MIMXRT1060-EVKB (Back)

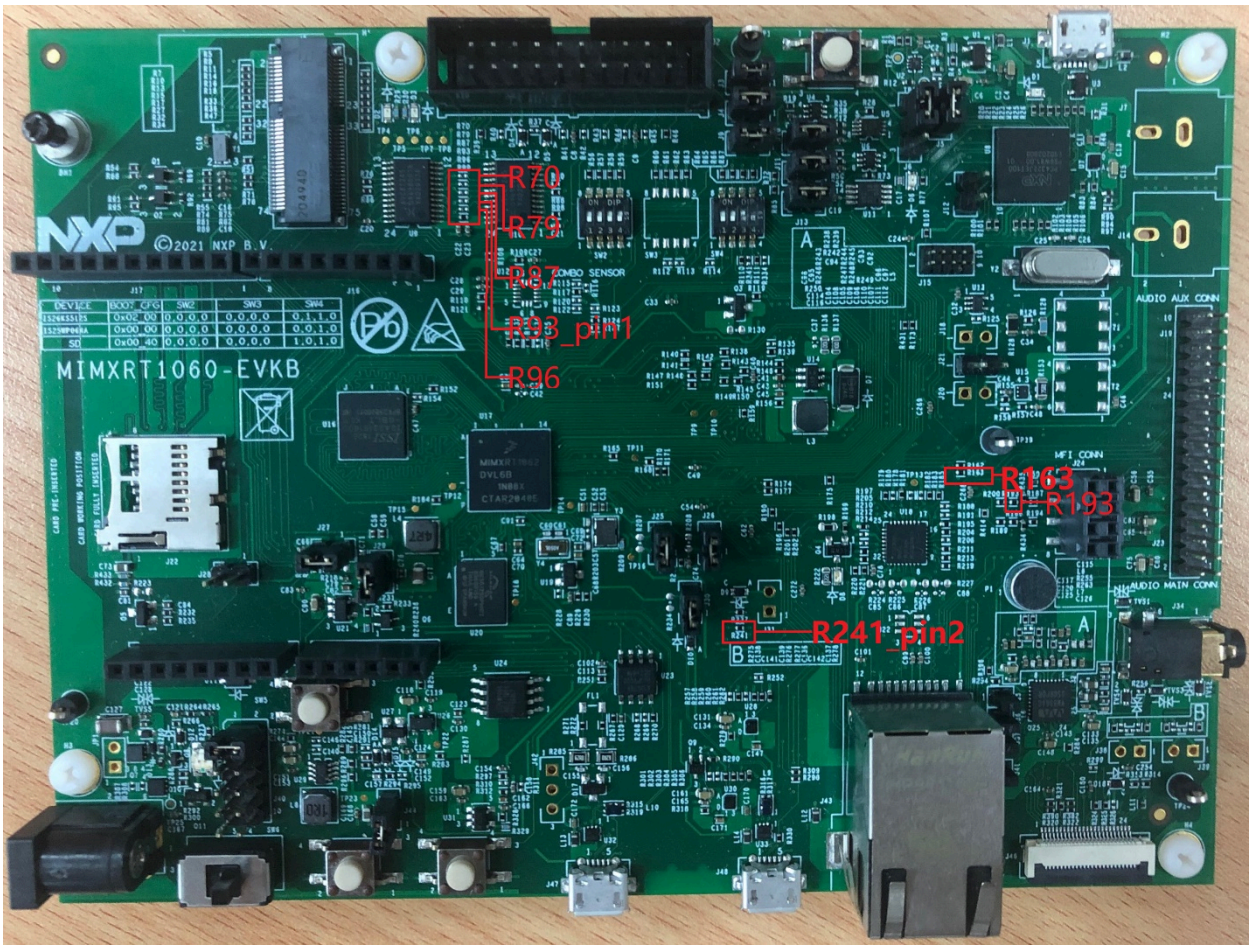


Figure 2. MIMXRT1060-EVKB (Front)

- **I2S2 rework**
  1. Open jumpers: J35, J36, J37, and J41.
  2. Connect J35 (Pin2) with J19 (Pin3) and solder R341.
  3. Connect J36 (Pin2) with J19 (Pin9) and solder R334
  4. Connect J41 (Pin2) with TP11.
  5. Connect J37 (Pin2) with J16 (Pin5).
  6. Connect R428 with R254 (Pin2), remove R254, R173, and R175.
  7. Remove R86, R76, and R381.

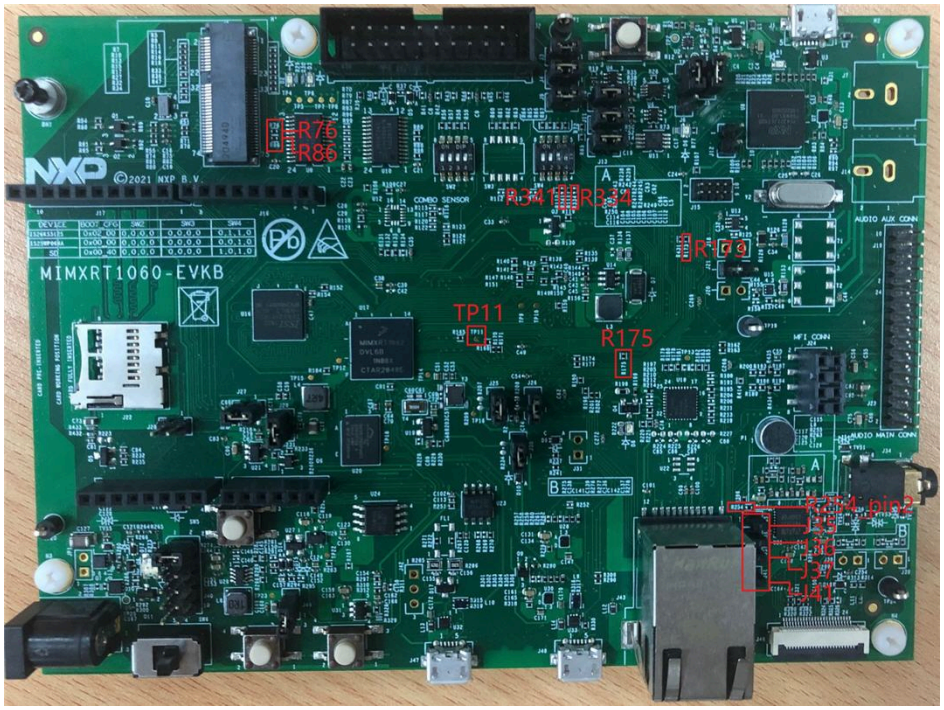


Figure 3. MIMXRT1060-EVKB (Front)

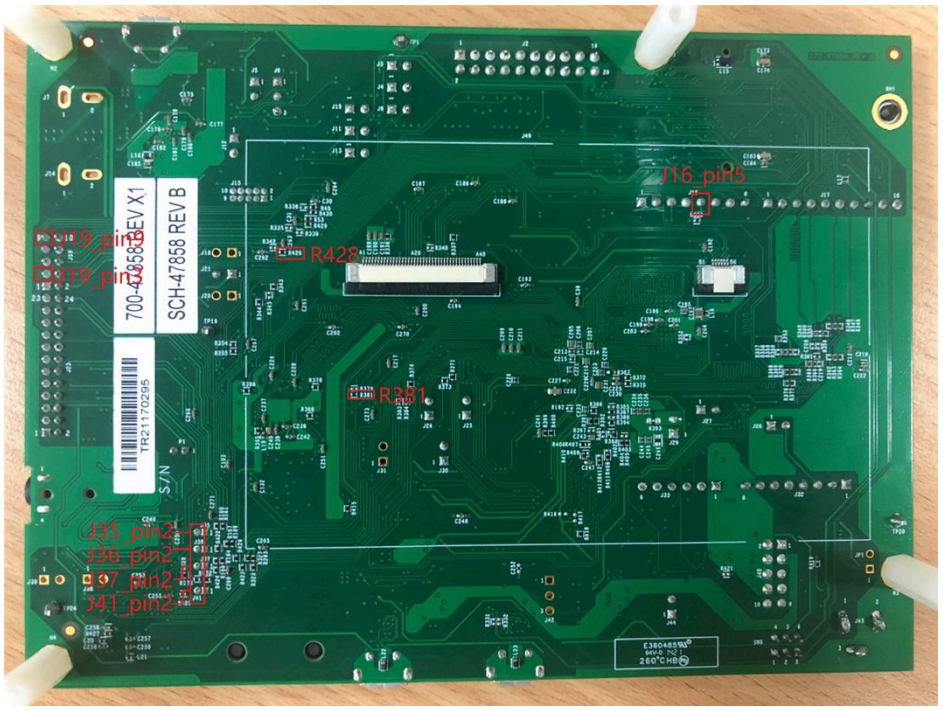


Figure 4. MIMXRT1060-EVKB (Back)

- **M.2 SDIO rework**
  1. Solder R368, R376, R347, R349, R365, and R363.
  2. Remove R364, R366, R351, R348, R377, and R369.

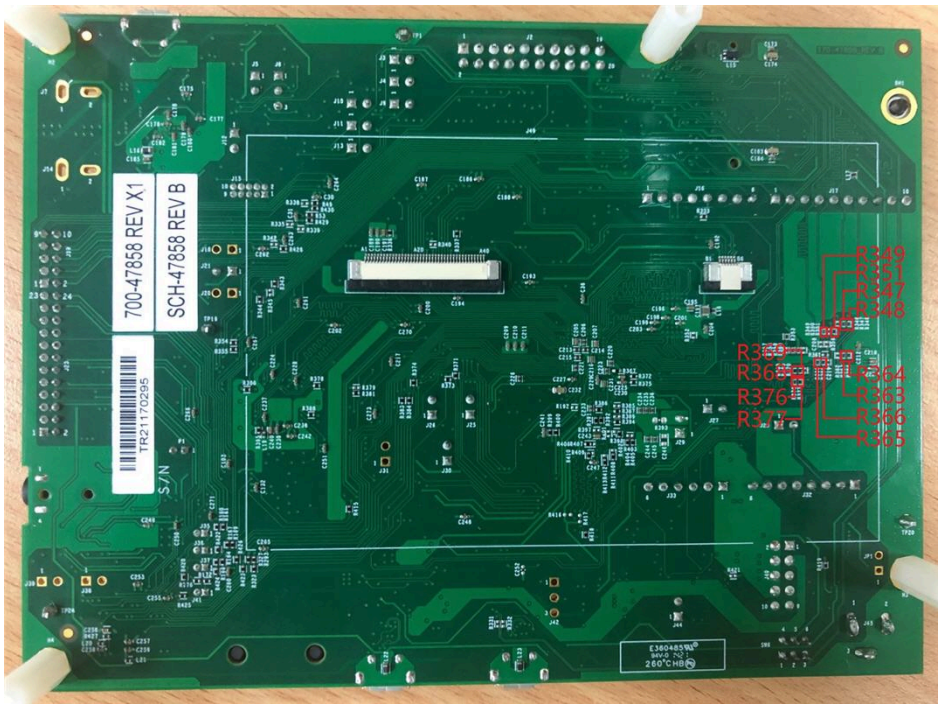


Figure 5. MIMXRT1060-EVKB (Back)

2 Hardware Rework Guide for MIMXRT1060-EVKB and AW-CM358MA

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1060-EVKB board and AW-CM358MA. The AW-CM358MA user guide is available here.

The hardware rework has three parts:

- HCI UART rework
- I2S2 rework
- M.2 SDIO rework

2.1 Hardware rework

- **HCI UART rework**
  1. Remove R293 and R354, connect R293 pin2 with R354 Pin1.
  2. Remove R241 and R163, connect R93 pin1 with R241 Pin2.
  3. Solder R96, R93, R87, R79, R70, and R345.
  4. Remove R193.

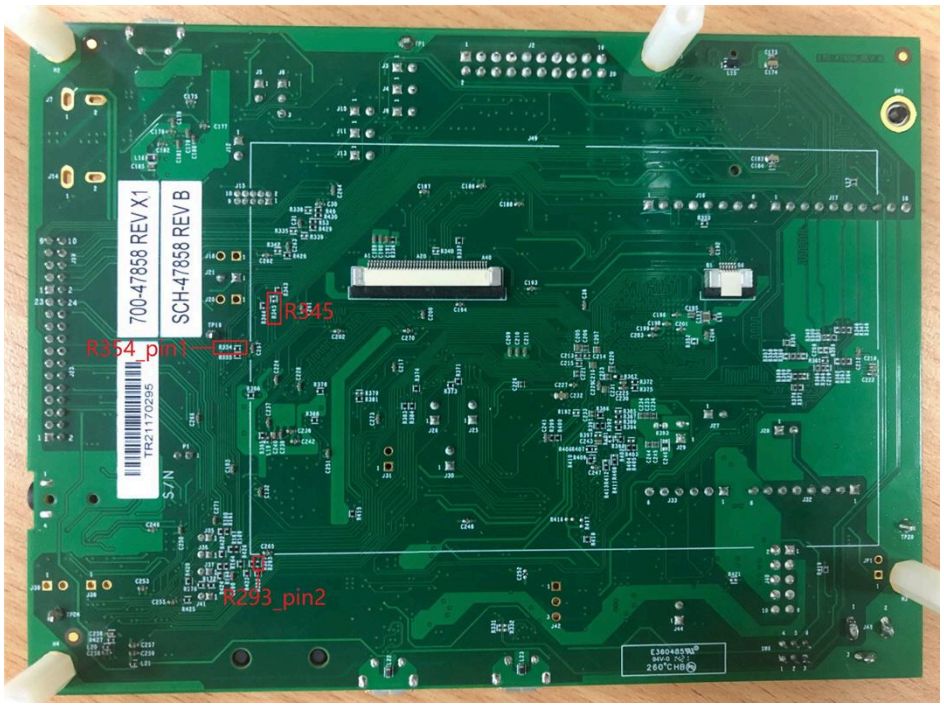


Figure 6. MIMXRT1060-EVKB (Back)

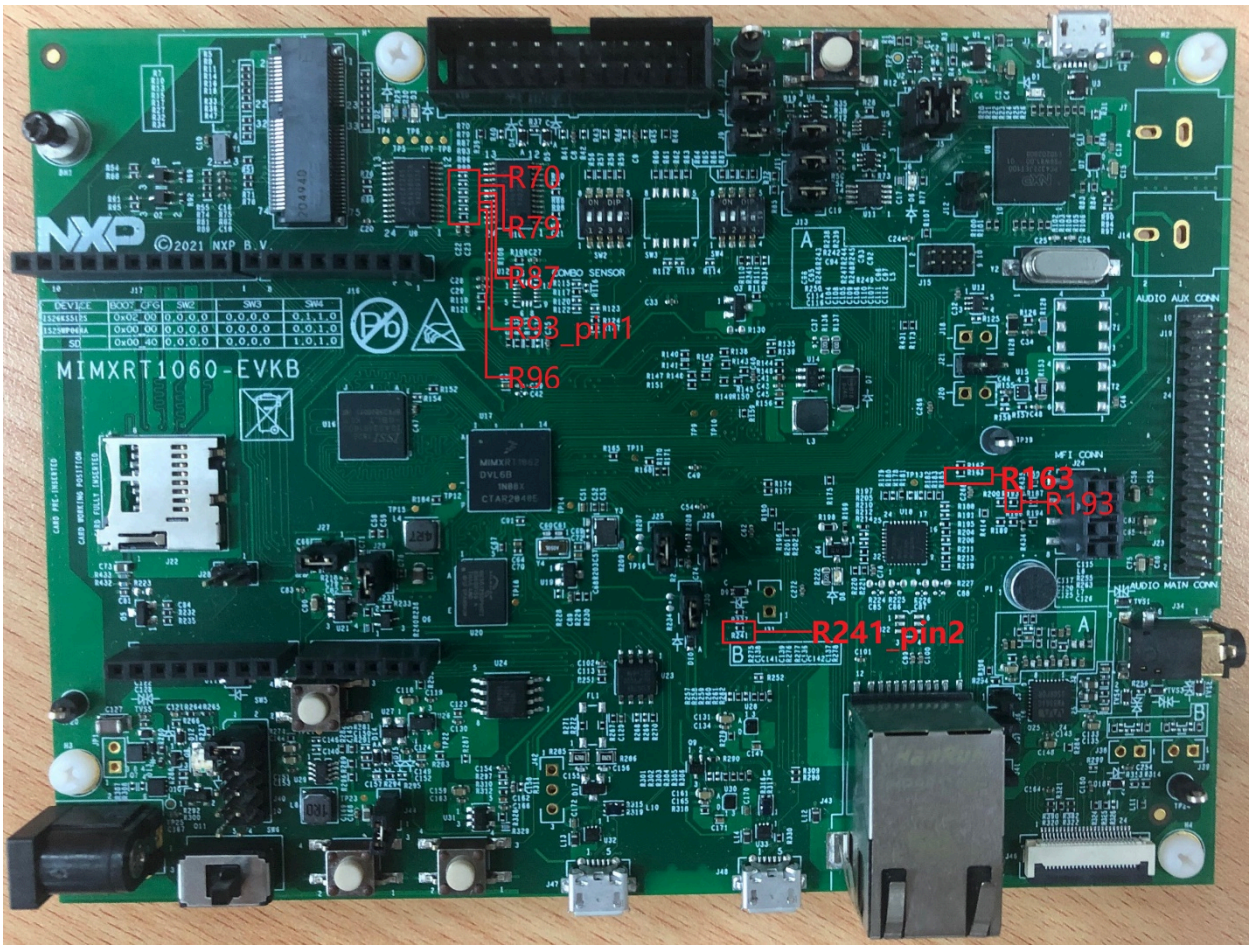


Figure 7. MIMXRT1060-EVKB (Front)

- **I2S2 rework**
  1. Open jumpers: J35, J36, J37, and J41.
  2. Connect J35 (Pin2) with J19 (Pin3) and solder R341.
  3. Connect J36 (Pin2) with J19 (Pin9) and solder R334.
  4. Connect J41 (Pin2) with TP11.
  5. Connect J37 (Pin2) with J16 (Pin5).
  6. Connect R428 with R254 (Pin2), remove R254, R173, and R175.
  7. Remove R86, R76, and R381.

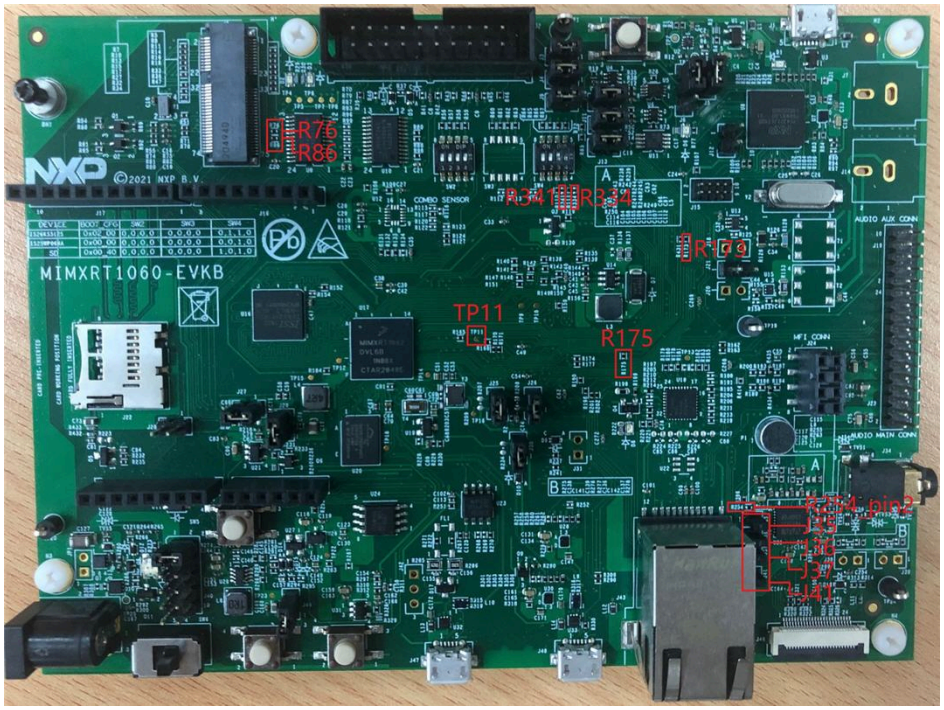


Figure 8. MIMXRT1060-EVKB (Front)

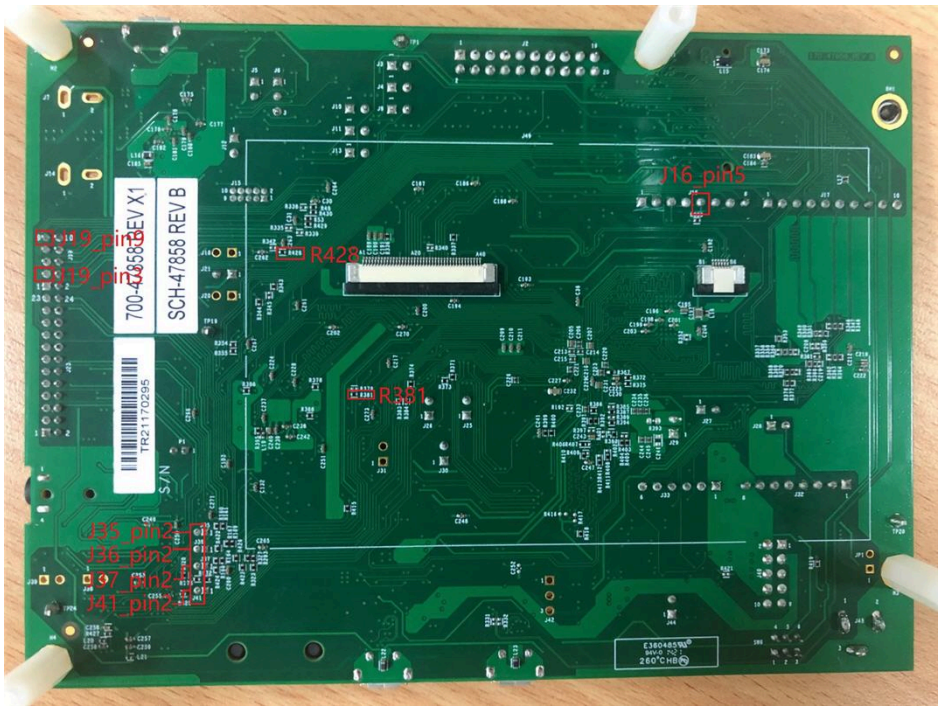


Figure 9. MIMXRT1060-EVKB (Back)

- **M.2 SDIO rework**
  1. Solder R368, R376, R347, R349, R365, and R363.
  2. Remove R364, R366, R351, R348, R377, and R369.

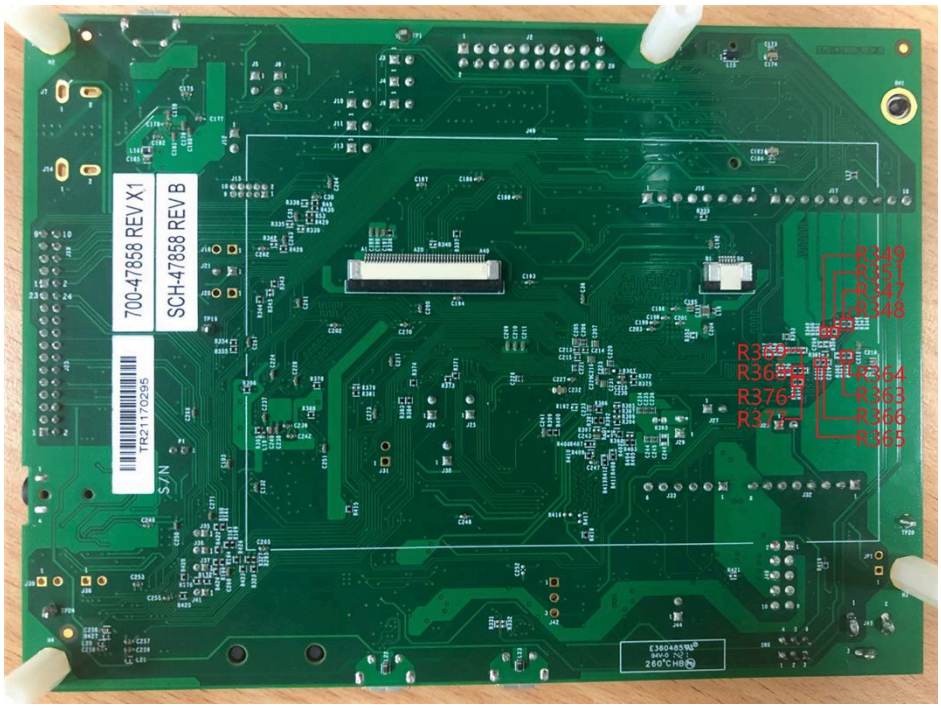


Figure 10. MIMXRT1060-EVKB (Back)

3 Hardware Rework Guide for MIMXRT1060-EVKB and AW-AM457-uSD

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1060-EVKB board and AW-AM457-uSD. The AW-AM457-uSD user guide is available here.

The hardware rework has two parts:

- HCI UART rework
- PCM interface rework

3.1 Hardware rework

- **HCI UART rework**
  Make sure resistors R368/R376/R347/R349/R365/R363/R193/R186 are removed.
  Connect the pins of two boards as the following table.

Table 1. Connect pins

Pin Name	AW-AM457-uSD	i.MXRT1060	PIN NAME	GPIO NAME of RT1060
UART_TXD	J10 (pin 4)	J16 (pin 1)	LPUART3_RXD	GPIO_AD_B1_07
UART_RXD	J10 (pin 2)	J16 (pin 2)	LPUART3_TXD	GPIO_AD_B1_06
UART_RTS	J10 (pin 6)	J33 (pin 3)	LPUART3_CTS	GPIO_AD_B1_04
UART_CTS	J10 (pin 8)	J33 (pin 4)	LPUART3_RTS	GPIO_AD_B1_05
GND	J6 (pin 7)	J32 (pin 7)	GND	GND

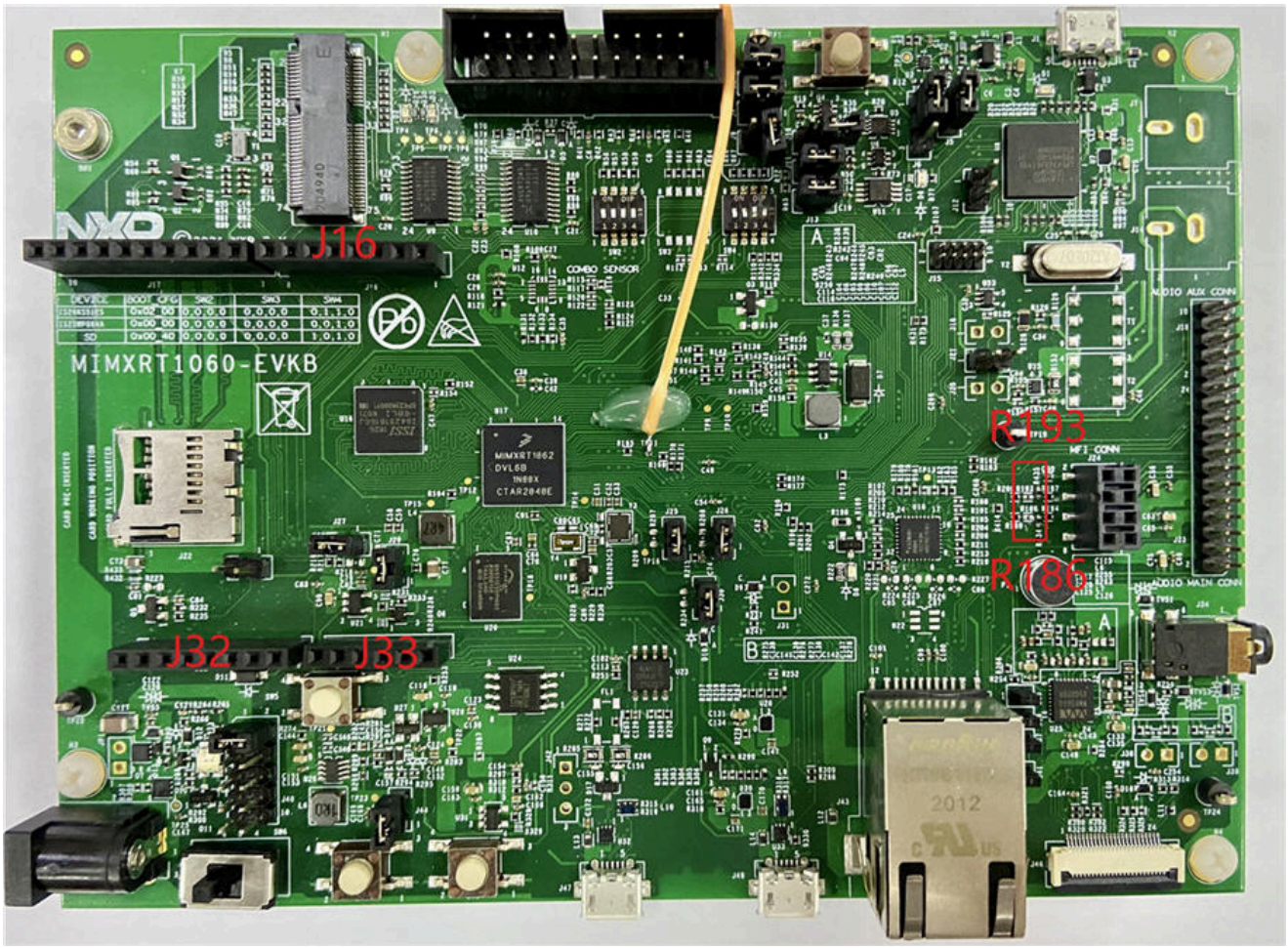


Figure 11. MIMXRT1060-EVKB (Front)

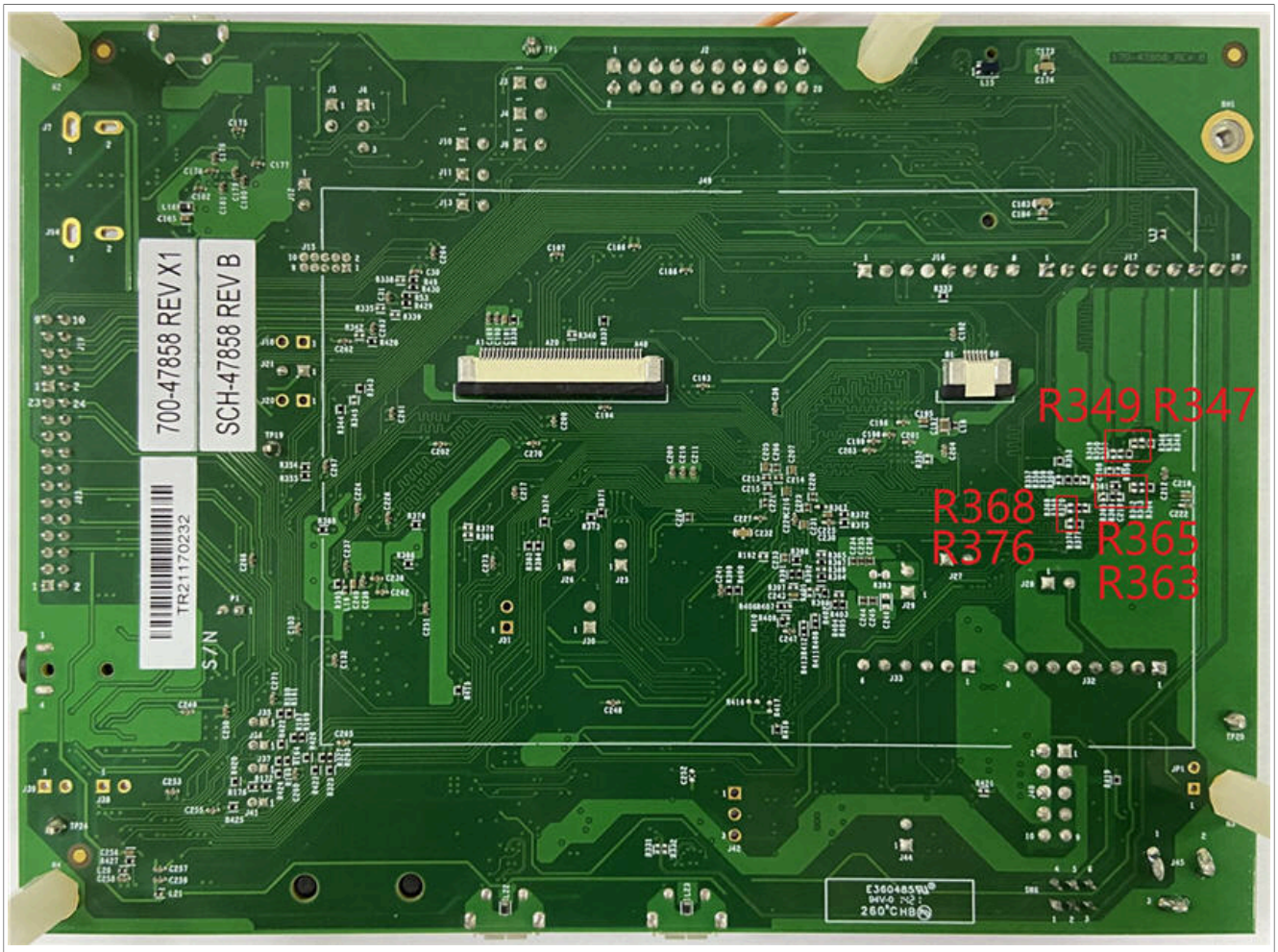


Figure 12. MIMXRT1060-EVKB (Back)

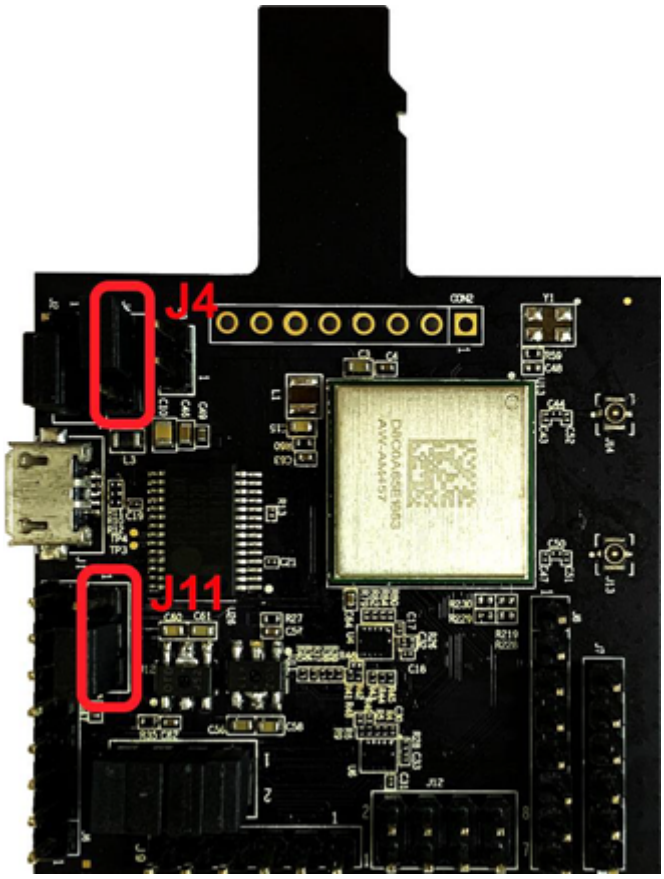


Figure 13. AW-AM457-uSD

Jumper Setting:

– Connect J4[2-3] for VIO 3.3 V supply

– Connect J11[2-3] for VIO_SD 3.3 V supply

- **PCM interface rework**

  Connect the pins of two boards as the following table.

Table 2. Connect pins

PIN NAME	AW-AM457-USD	I.MXRT1060	PIN NAME OF RT1060	GPIO NAME of RT1060
PCM_IN	J9 (pin 1)	J16 (pin 5)	SAI2_TXD	GPIO_AD_B0_09
PCM_OUT	J9 (pin 2)	TP11	SAI2_RXD	GPIO_AD_B0_08
PCM_SYNC	J9 (pin 3)	J2 (pin 9)	SAI2_RX_SYNC	GPIO_AD_B0_07
PCM_CLK	J9 (pin 4)	J10 (pin 2)	SAI2_RX_BCLK	GPIO_AD_B0_06
GND	J9 (pin 6)	J2 (pin 20)	GND	GND

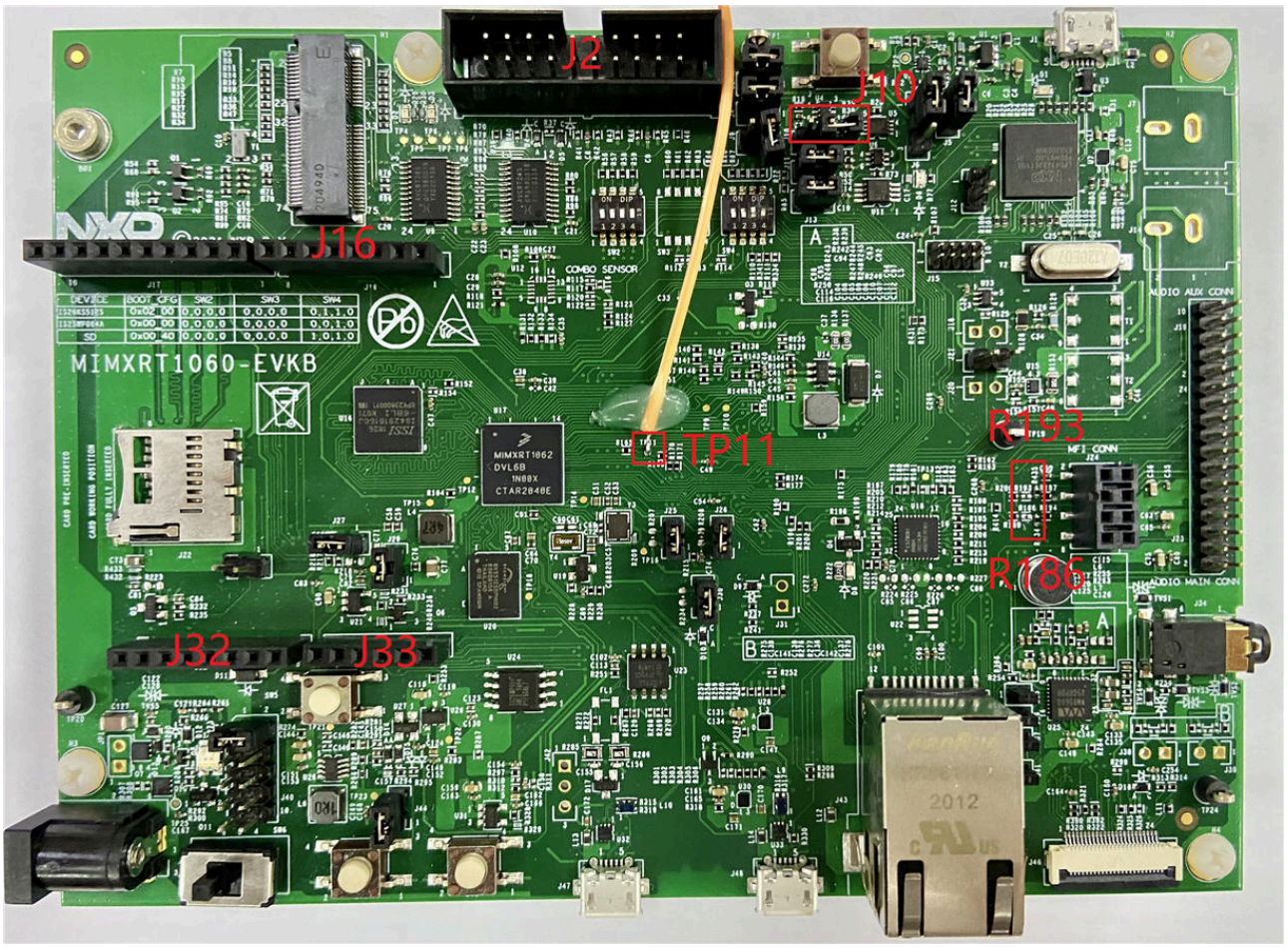


Figure 14. MIMXRT1060-EVKB (Front)

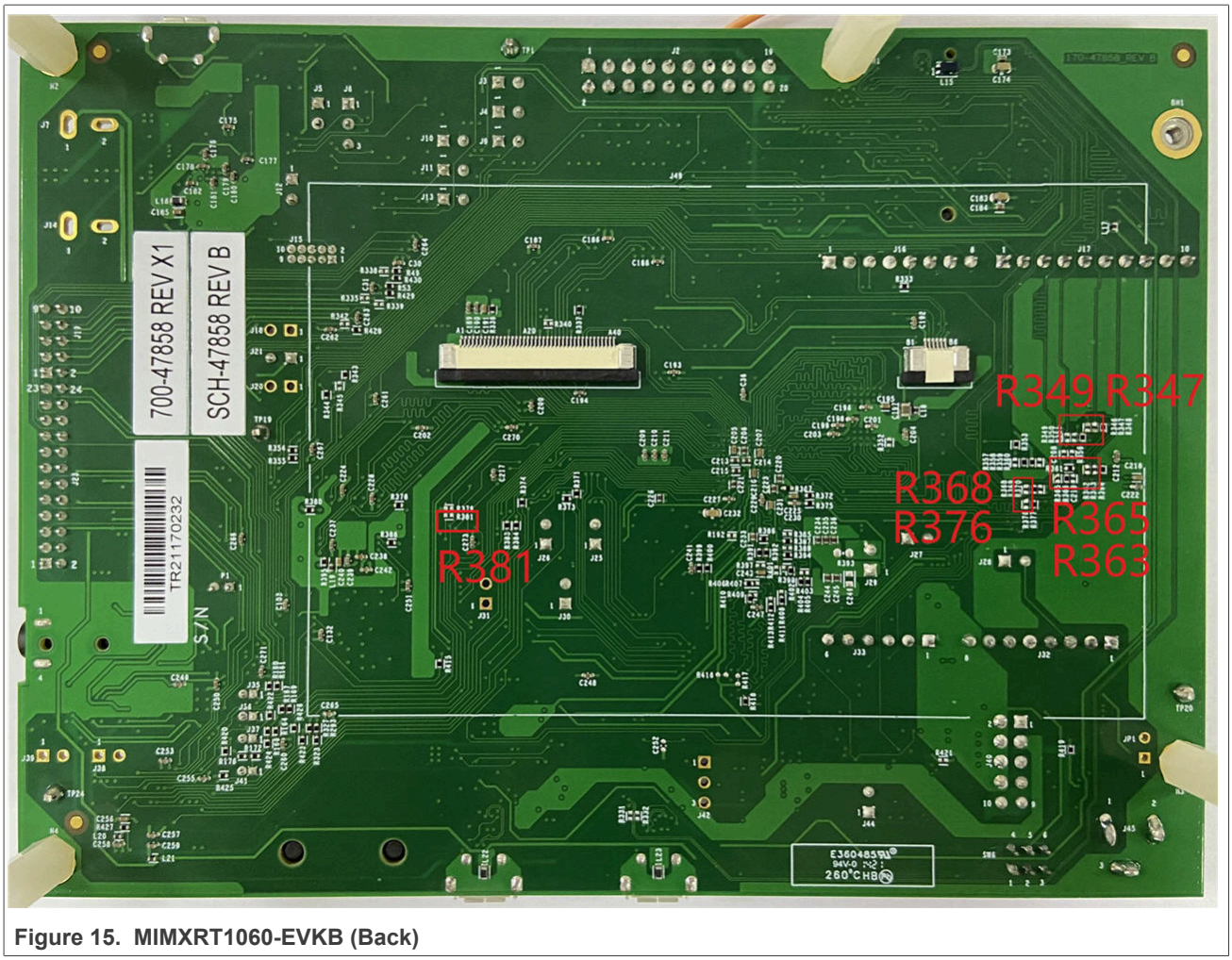


Figure 15. MIMXRT1060-EVKB (Back)

Note:
To support HFP feature, you must remove R381 on MIMXRT1060-EVKB.

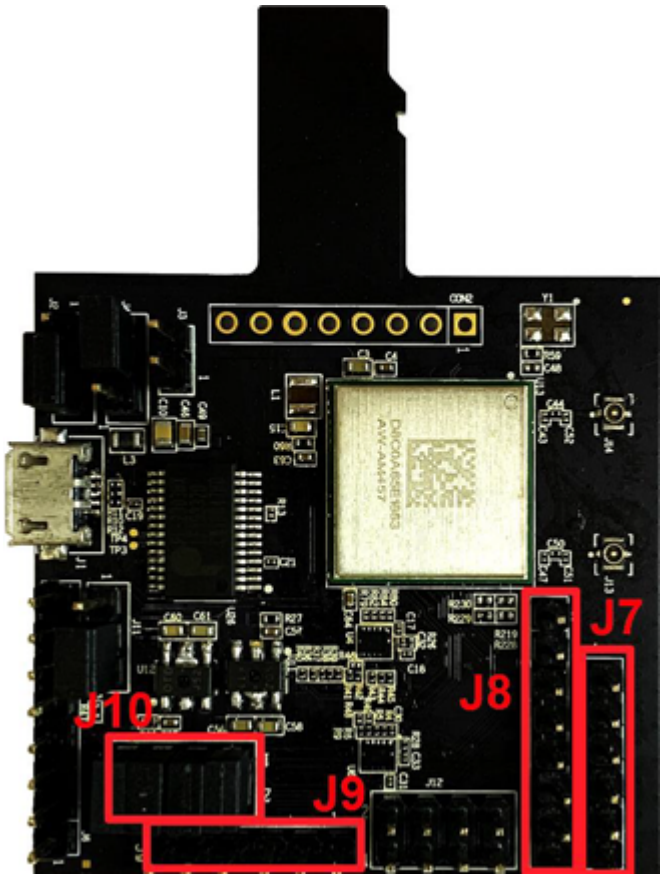


Figure 16. AW-AM457-uSD

4 Hardware Rework Guide for MIMXRT1060-EVKB and AW-CM358-uSD

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1060-EVKB board and AW-CM358-uSD. The AW-CM358-uSD user guide is available here.

The hardware rework has two parts:

- HCI UART rework
- PCM interface rework

4.1 Hardware rework

- **HCI UART rework**
  Connect the pins of two boards as the following table.
  Make sure that the resistors R368/R376/R347/R349/R365/R363/R193/R186 are removed.

Table 3. Connect pins

Pin Name	AW-CM358-USD	i.MXRT1060	PIN NAME	GPIO NAME of RT1060
UART_TXD	J10 (pin 4)	J16 (pin 1)	LPUART3_RXD	GPIO_AD_B1_07
UART_RXD	J10 (pin 2)	J16 (pin 2)	LPUART3_TXD	GPIO_AD_B1_06
UART_RTS	J10 (pin 6)	J33 (pin 3)	LPUART3_CTS	GPIO_AD_B1_04

Table 3. Connect pins*...continued*

Pin Name	AW-CM358-USD	i.MXRT1060	PIN NAME	GPIO NAME of RT1060
UART_CTS	J10 (pin 8)	J33 (pin 4)	LPUART3_RTS	GPIO_AD_B1_05
GND	J6 (pin 7)	J32 (pin 7)	GND	GND

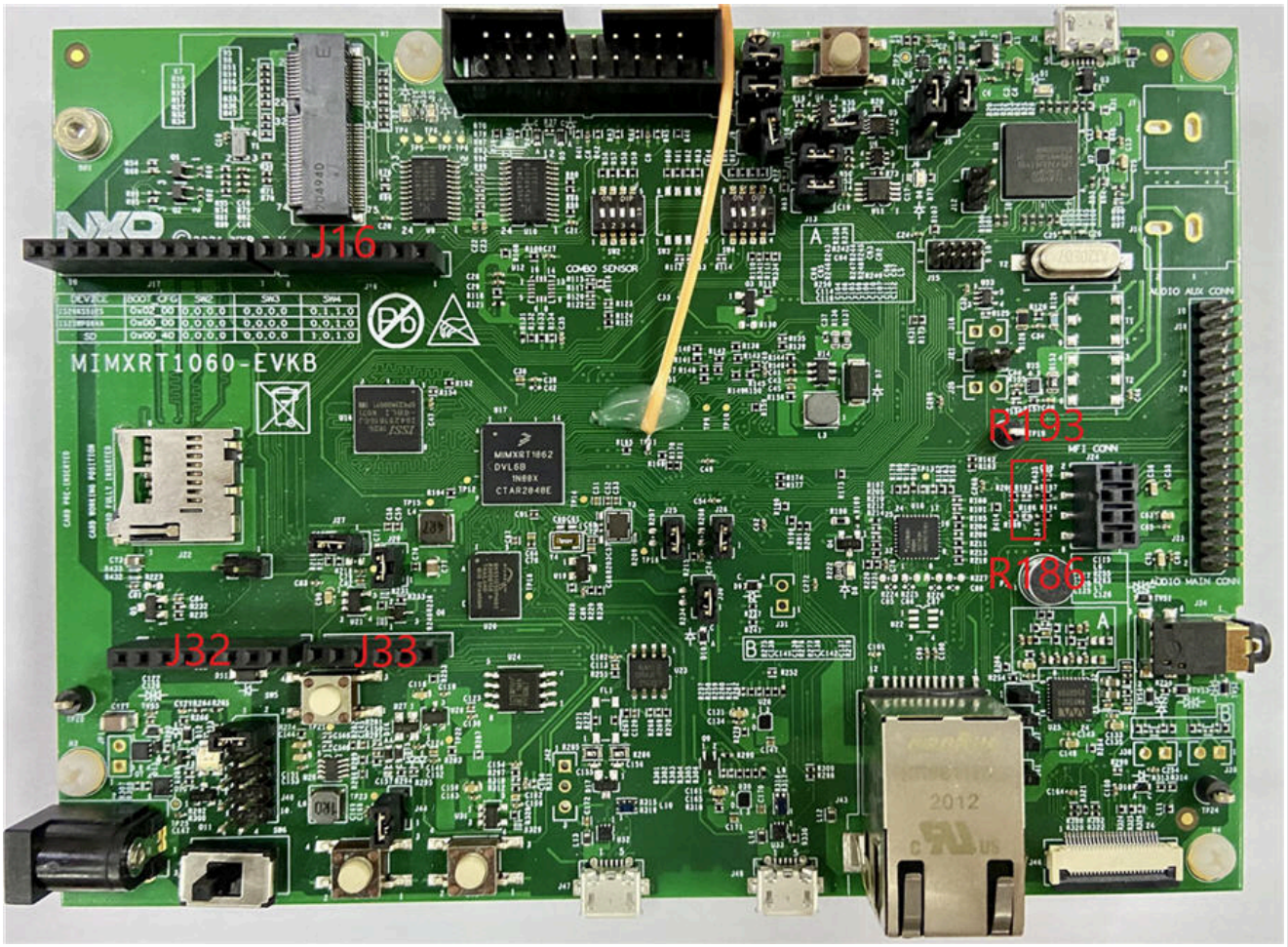


Figure 17. MIMXRT1060-EVKB (Front)

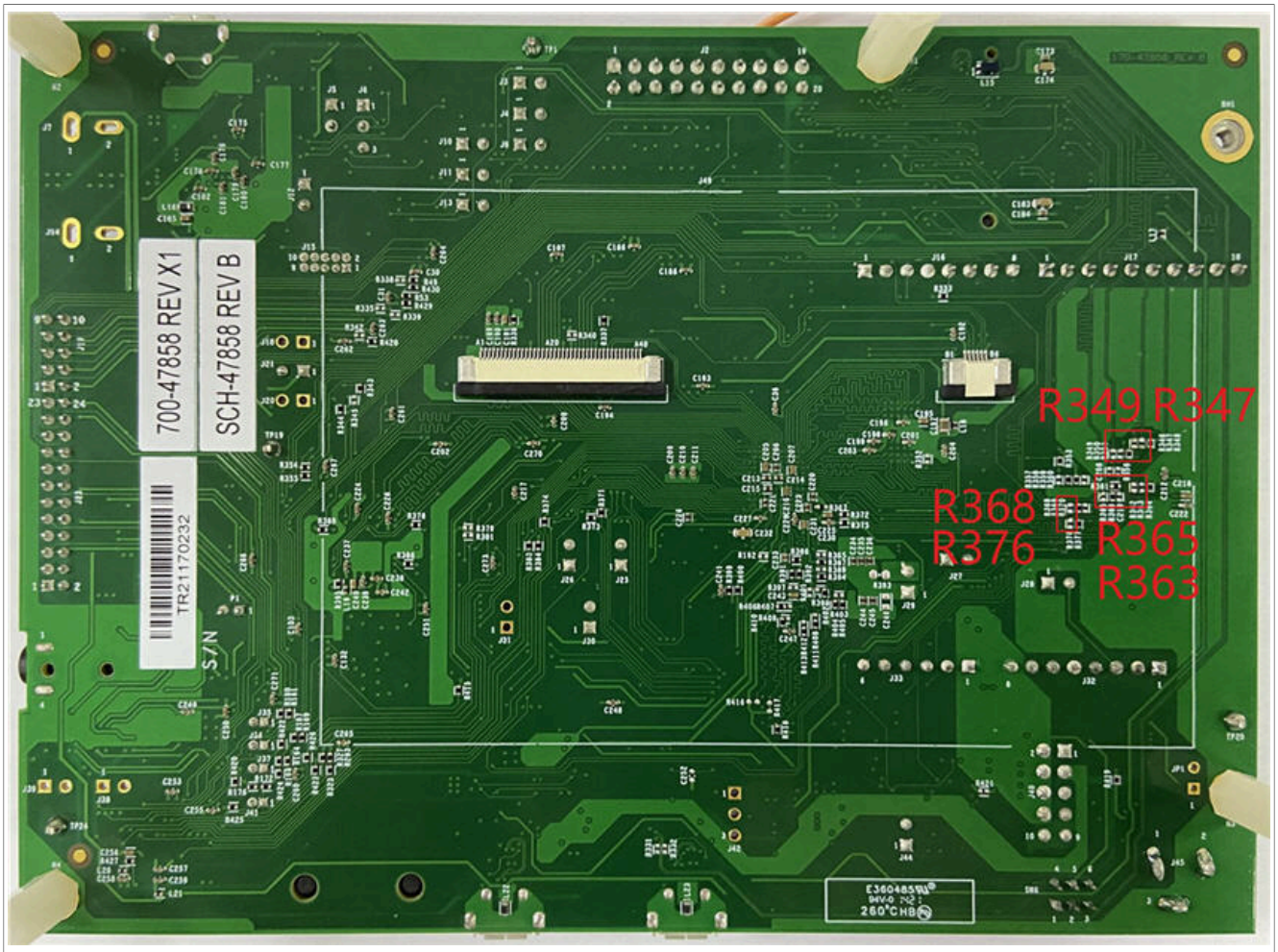


Figure 18. MIMXRT1060-EVKB (Back)

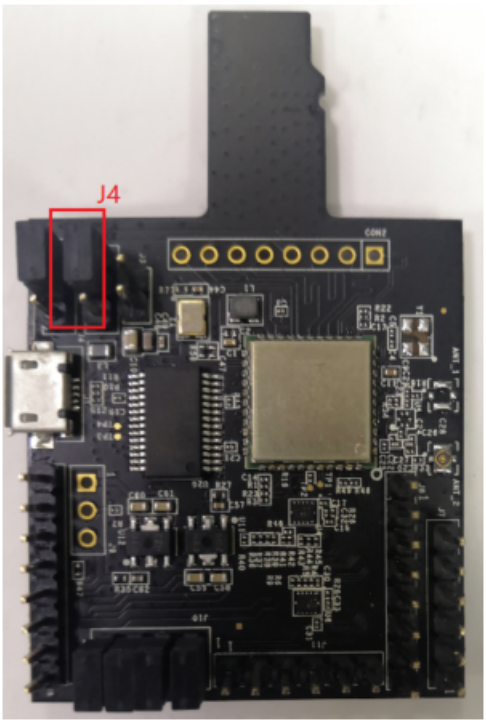


Figure 19. AW-CM358-uSD

Jumper Setting:
Connect J4[1-2] for VIO 1.8 V supply.

- **PCM interface rework**
  Connect the pins of two boards as the following table.

Table 4. Connect pins

PIN NAME	AW-CM358-USD	I.MXRT1060	PIN NAME OF RT1060	GPIO NAME of RT1060
PCM_IN	J11 (pin 1)	J16 (pin 5)	SAI2_TXD	GPIO_AD_B0_09
PCM_OUT	J11 (pin 2)	TP11	SAI2_RXD	GPIO_AD_B0_08
PCM_SYNC	J11 (pin 3)	J2 (pin 9)	SAI2_RX_SYNC	GPIO_AD_B0_07
PCM_CLK	J11 (pin 4)	J10 (pin 2)	SAI2_RX_BCLK	GPIO_AD_B0_06
GND	J11 (pin 6)	J2 (pin 20)	GND	GND

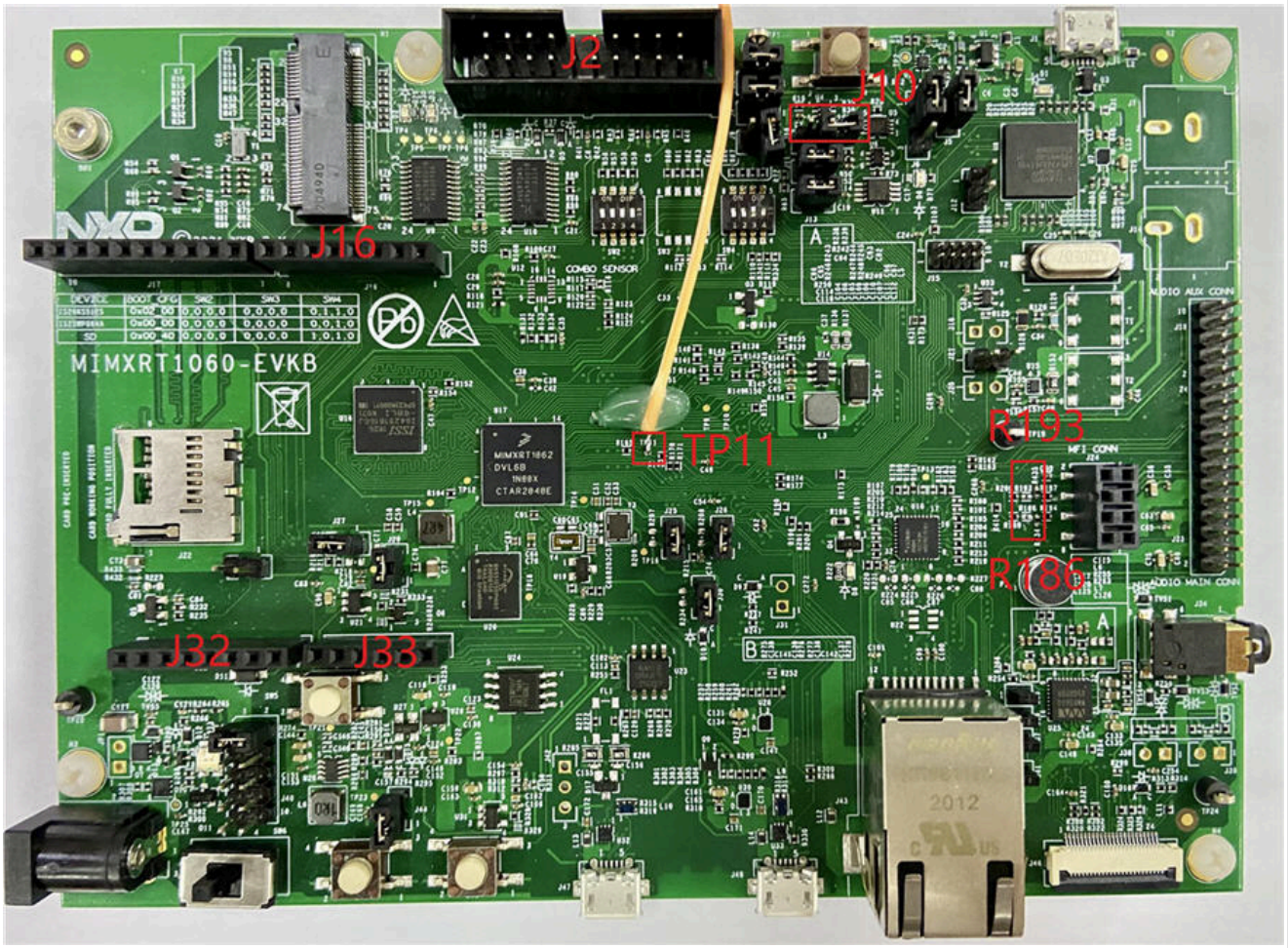


Figure 20. MIMXRT1060-EVKB (Front)

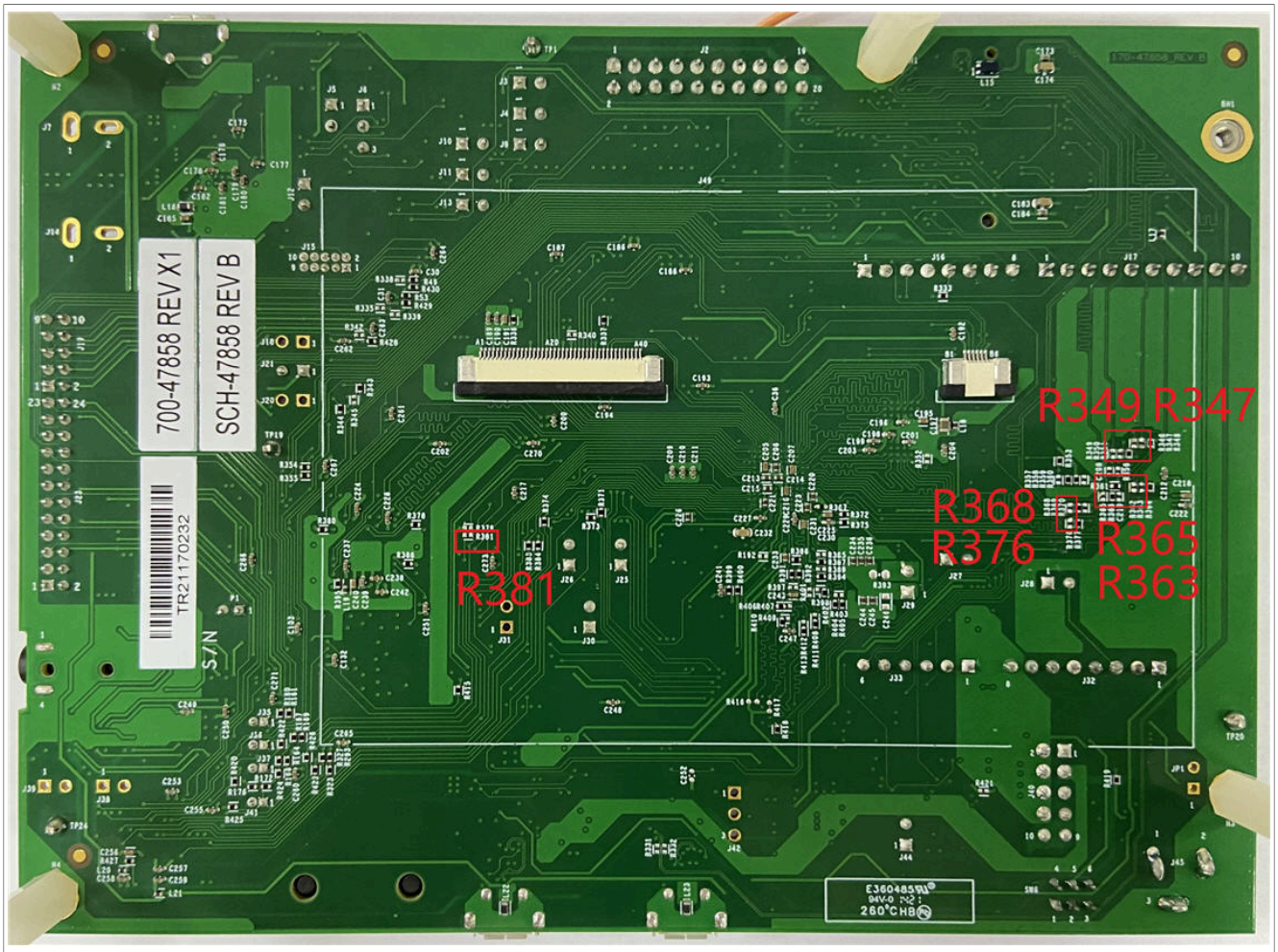


Figure 21. MIMXRT1060-EVKB (Back)

Note:

To support HFP feature, you must remove R381 on MIMXRT1060-EVKB.

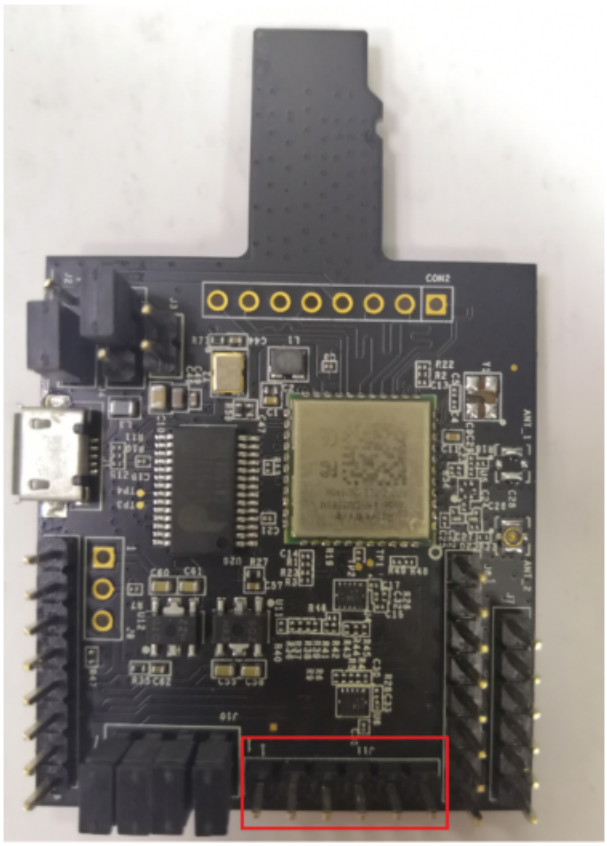


Figure 22. AW-CM358-uSD

5 Hardware Rework Guide for MIMXRT1060-EVKB and Murata uSD-M.2 Adapter

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1060-EVKB board and Murata uSD-M.2 adapter. For details on the Murata uSD-M.2 Adapter, see the Murata uSD-M.2 webpage here.

The hardware rework consists of three parts:

- Murata uSDM
- 2 jumper settings
- HCI UART and PCM interface rework

5.1 Hardware rework

- **Murata uSD-M.2 jumper settings**
  - J12 = 1-2: WLAN-SDIO & BT-PCM = 1.8 V
  - J13 = 1-2: BT-UART & WLAN/BT-CTRL = 3.3 V
  - J1 = 2-3: 3.3 V from uSD connector
- **HCI UART interface rework**
  Connect the TX/RX/RTS/CTS pins of the two boards as show in Table 5using the jumper cables included in the Murata's uSD-M.2 Adapter kit.

Table 5. Connect the TX/RX/RTS/CTS pins

Pin name	uSD-M.2 adapter pin	i.MX RT1060-EVKB pin	Pin name of RT1060-EVKB	GPIO name of RT1060-EVKB
BT_UART_TXD_HOST	J9 (pin 1)	J16 (pin 1)	LPUART3_RXD	GPIO_AD_B1_07
BT_UART_RXD_HOST	J9 (pin 2)	J16 (pin 2)	LPUART3_TXD	GPIO_AD_B1_06
BT_UART_RTS_HOST	J8 (pin 3)	J33 (pin 3)	LPUART3_CTS	GPIO_AD_B1_04
BT_UART_CTS_HOST	J8 (pin 4)	J33 (pin 4)	LPUART3_RTS	GPIO_AD_B1_05
GND	J7 (pin 7)	J32 (pin 7)	GND	GND

- **PCM interface rework**
  Connect the PCM_IN/PCM_OUT/PCM_SYNC/PCM_CLK/GND pins of the two boards as shown in Table 6.

Table 6. Connect the PCM_IN/PCM_OUT/PCM_SYNC/PCM_CLK/GND pins

Pin name	uSD-M.2 adapter pin	i.MXRT1060-EVKB pin	Pin name of RT1060-EVKB	GPIO name of RT1060-EVKB
PCM_IN	J5 (pin1)	J16 (pin5)	SAI2_TXD	GPIO_AD_B0_09
PCM_OUT	J5 (pin3)	TP11	SAI2_RXD	GPIO_AD_B0_08
PCM_SYNC	J5 (pin5)	J2 (pin9)	SAI2_RX_SYNC	GPIO_AD_B0_07
PCM_CLK	J5 (pin7)	J10 (pin2)	SAI2_RX_BCLK	GPIO_AD_B0_06
GND	J5 (pin15)	J2 (pin20)	GND	GND

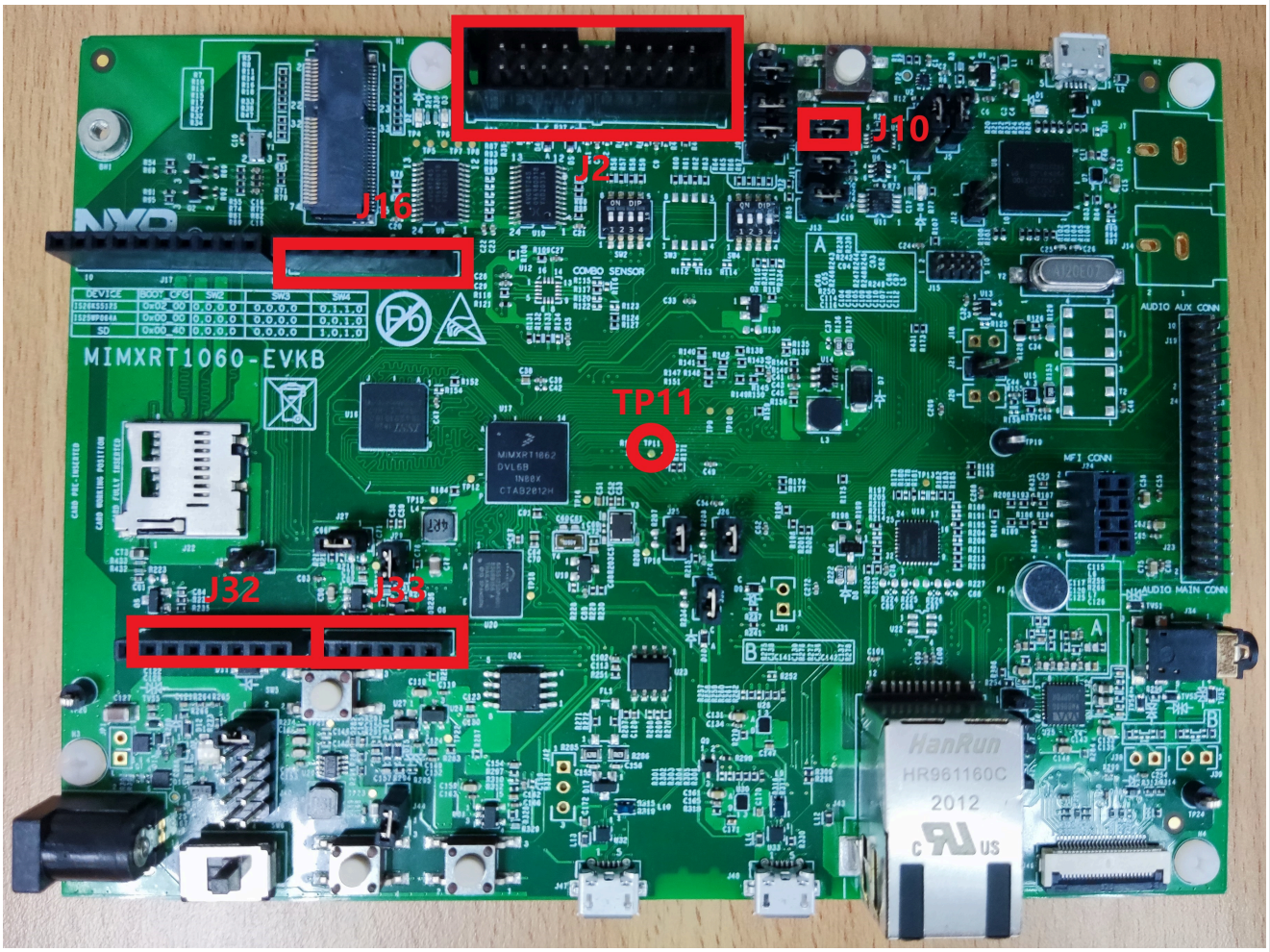


Figure 23. MIMXRT1060-EVKB board

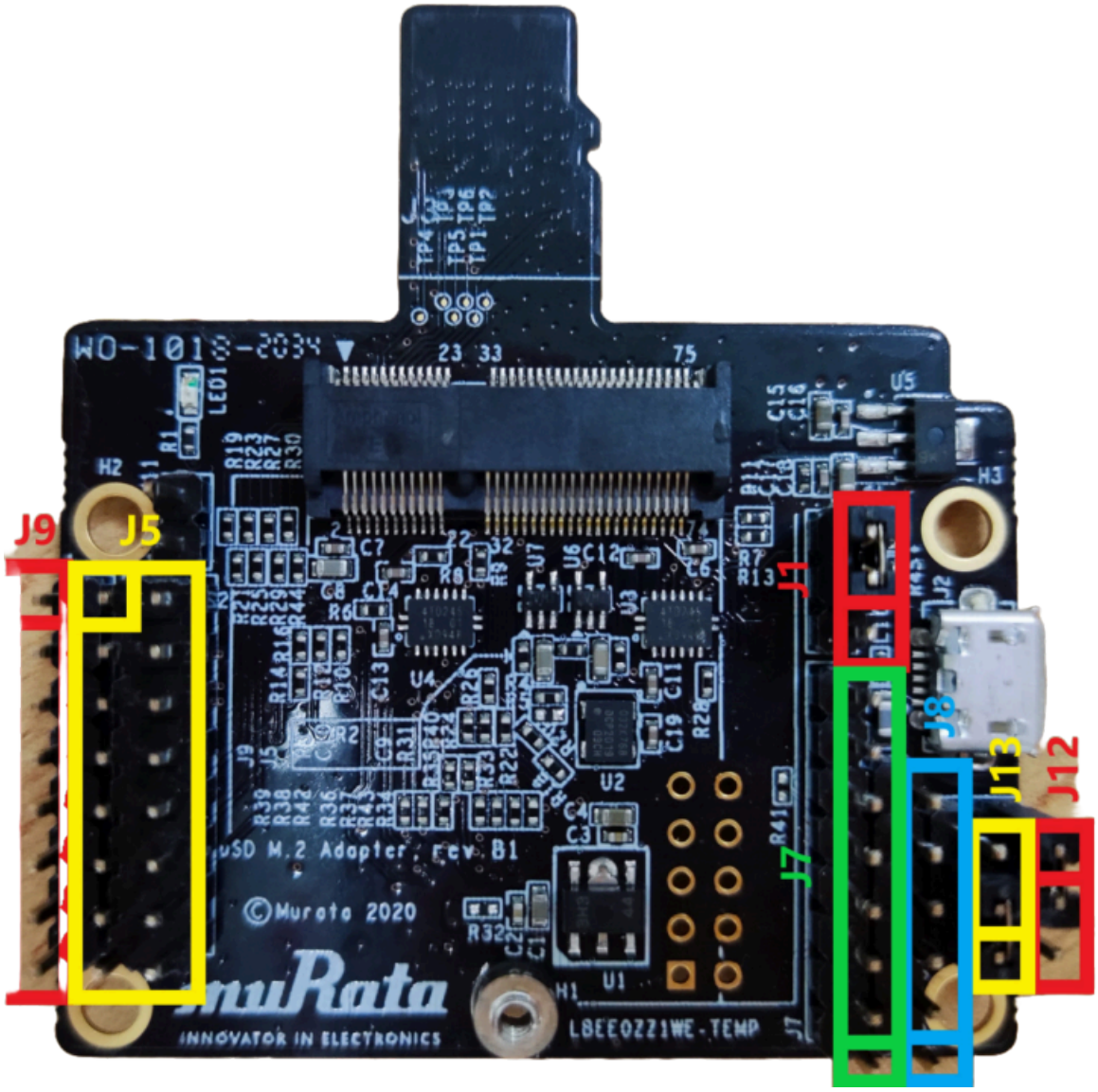


Figure 24. SD-M.2_Adapter

6 Hardware Rework Guide for MIMXRT1060-EVKB and AW-AM510-uSD

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1060-EVKB board and AW-AM510-uSD. The AW-AM510-uSD user guide is available here.

The hardware rework has two parts:

- HCI UART rework
- PCM interface rework

6.1 Hardware rework

- **HCI UART rework**
  Make sure resistors R368/R376/R347/R349/R365/R363/R193/R186 are removed.

Connect the pins of two boards as the following table.

Table 7. Connect pins

Pin Name	AW-AM510-uSD	i.MXRT1060	PIN NAME	GPIO NAME of RT1060
UART_TXD	J10 (pin 4)	J16 (pin 1)	LPUART3_RXD	GPIO_AD_B1_07
UART_RXD	J10 (pin 2)	J16 (pin 2)	LPUART3_TXD	GPIO_AD_B1_06
UART_RTS	J10 (pin 6)	J33 (pin 3)	LPUART3_CTS	GPIO_AD_B1_04
UART_CTS	J10 (pin 8)	J33 (pin 4)	LPUART3_RTS	GPIO_AD_B1_05
GND	J6 (pin 7)	J32 (pin 7)	GND	GND

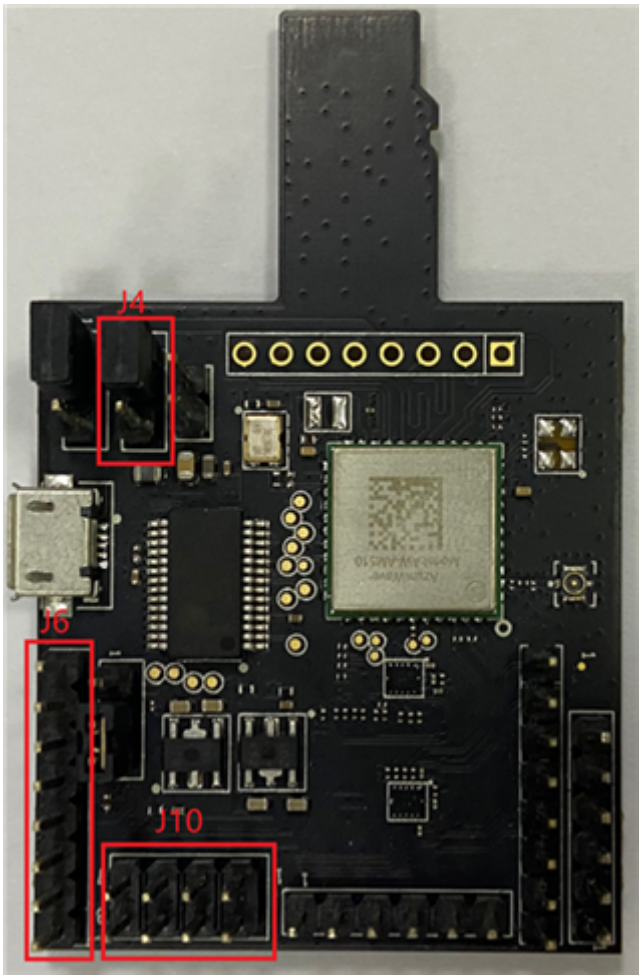


Figure 25. AW-AM510-uSD

Jumper Setting:

– Connect J4[2-3] for VIO 3.3 V supply

- **PCM interface rework**

  Connect the pins of two boards as the following table.

Table 8. Connect pins

PIN NAME	AW-AM510-USD	I.MXRT1060	PIN NAME OF RT1060	GPIO NAME of RT1060
PCM_IN	J11 (pin 1)	J16 (pin 5)	SAI2_TXD	GPIO_AD_B0_09
PCM_OUT	J11 (pin 2)	TP11	SAI2_RXD	GPIO_AD_B0_08

Table 8. Connect pins*...continued*

PIN NAME	AW-AM510-USD	I.MXRT1060	PIN NAME OF RT1060	GPIO NAME of RT1060
PCM_SYNC	J11 (pin 3)	J2 (pin 9)	SAI2_RX_SYNC	GPIO_AD_B0_07
PCM_CLK	J11 (pin 4)	J10 (pin 2)	SAI2_RX_BCLK	GPIO_AD_B0_06
GND	J11 (pin 6)	J2 (pin 20)	GND	GND

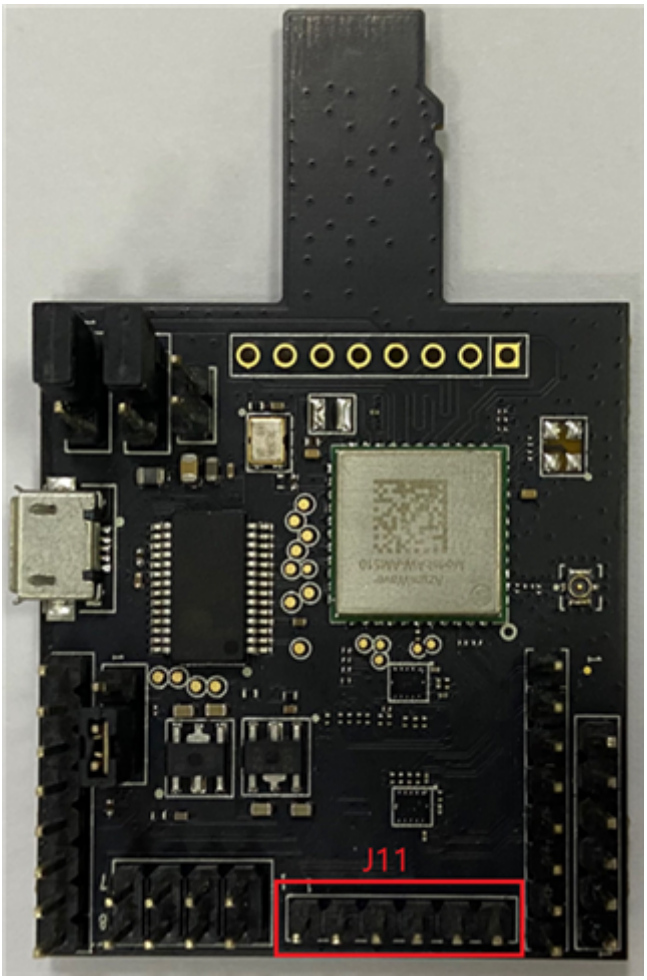


Figure 26. AW-AM510-uSD

7 Hardware Rework Guide for MIMXRT1060-EVK and AW-AM457-uSD

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1060-EVK board and AW-AM457-uSD. The AW-AM457-uSD user guide is available here.

The hardware rework has two parts:

- HCI UART rework
- PCM interface rework

7.1 Hardware rework

- **HCI UART rework**

Connect the pins of two boards as the following table.

Table 9. Connect pins

Pin Name	AW-AM457-uSD	i.MXRT1060	PIN NAME	GPIO NAME of RT1060
UART_TXD	J10 (pin 4)	J22 (pin 1)	LPUART3_RXD	GPIO_AD_B1_07
UART_RXD	J10 (pin 2)	J22 (pin 2)	LPUART3_TXD	GPIO_AD_B1_06
UART_RTS	J10 (pin 6)	J23 (pin 3)	LPUART3_CTS	GPIO_AD_B1_04
UART_CTS	J10 (pin 8)	J23 (pin 4)	LPUART3_RTS	GPIO_AD_B1_05
GND	J6 (pin 7)	J25 (pin 7)	GND	GND

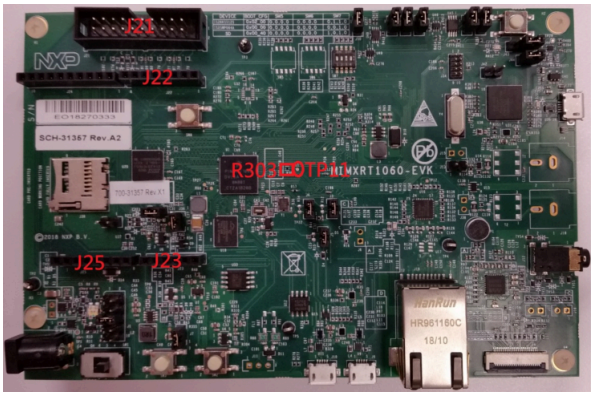


Figure 27. MIMXRT1060-EVK

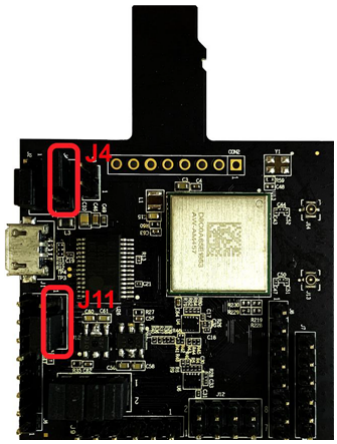


Figure 28. AW-AM457-uSD

Jumper Setting:

– Connect J4[2-3] for VIO 3.3 V supply

– Connect J11[2-3] for VIO_SD 3.3 V supply

- **PCM interface rework**

  Connect the pins of two boards as the following table.

Table 10. Connect pins

PIN NAME	AW-AM457-USD	I.MXRT1060	PIN NAME	GPIO NAME of RT1060
PCM_IN	J9 (pin 1)	J22 (pin 5)	SAI2_TXD	GPIO_AD_B0_09
PCM_OUT	J9 (pin 2)	TP11	SAI2_RXD	GPIO_AD_B0_08
PCM_SYNC	J9 (pin 3)	J21 (pin 9)	SAI2_RX_SYNC	GPIO_AD_B0_07

Table 10. Connect pins...*continued*

PIN NAME	AW-AM457-USD	I.MXRT1060	PIN NAME	GPIO NAME of RT1060
PCM_CLK	J9 (pin 4)	J21 (pin 7)	SAI2_RX_BCLK	GPIO_AD_B0_06
GND	J9 (pin 6)	J21 (pin 20)	GND	GND

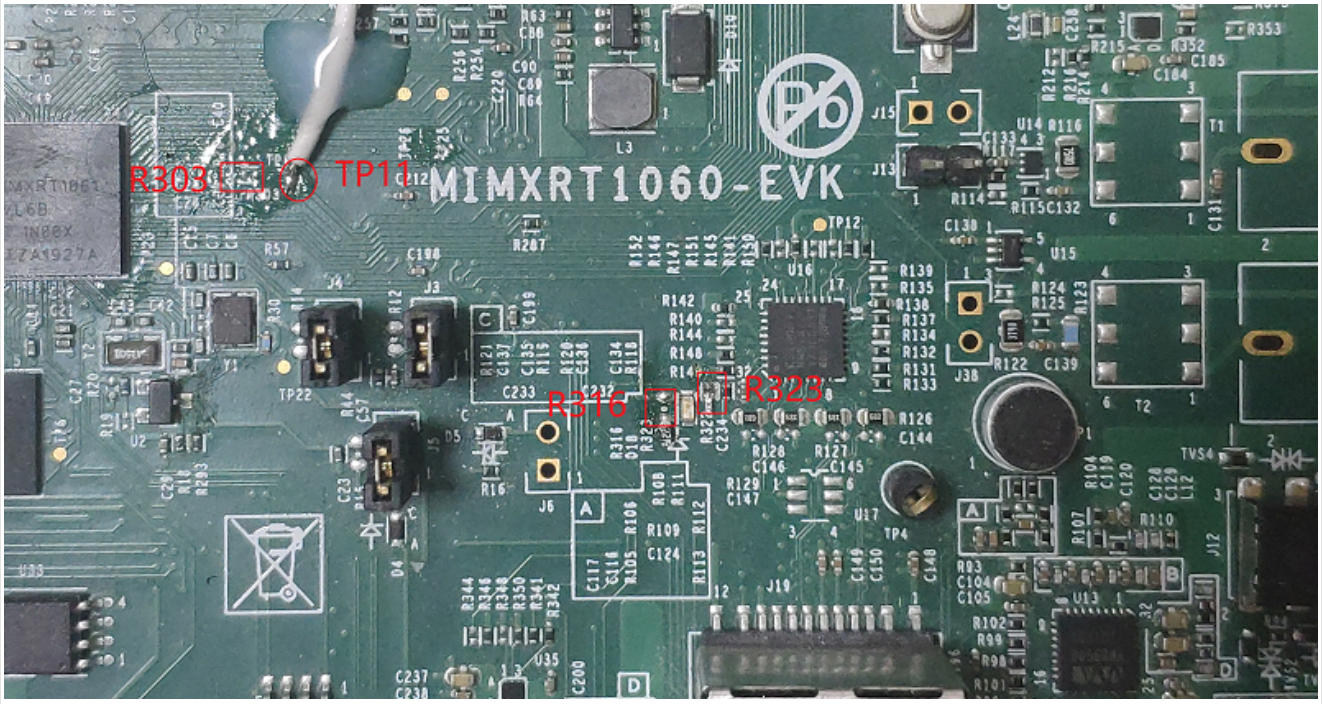


Figure 29. MIMXRT1060-EVK

Note:

To support HFP feature, you must remove R316 and R323 on MIMXRT1060-EVK.
To run HFP feature, you must remove J47 jumper.

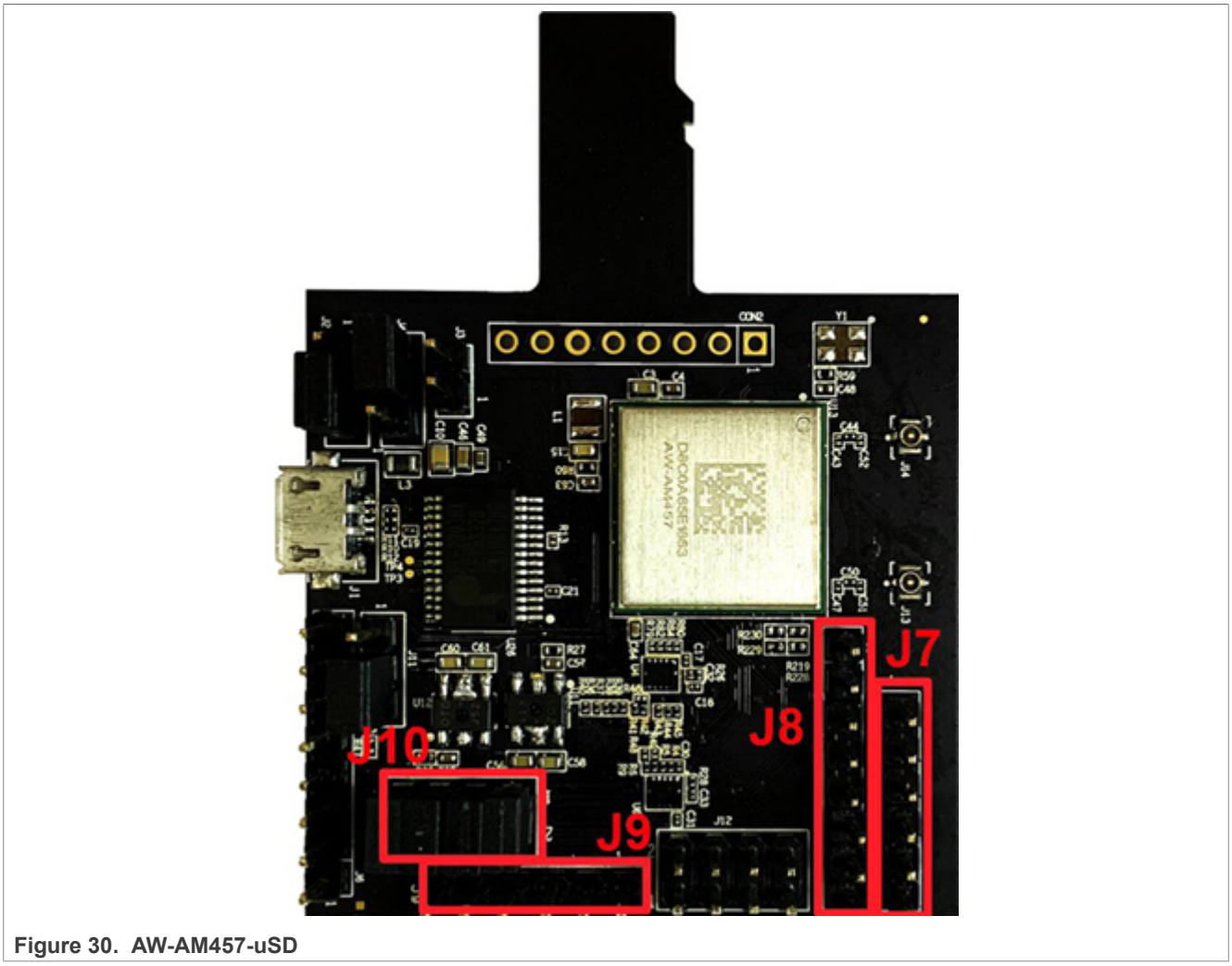


Figure 30. AW-AM457-uSD

8 Hardware Rework Guide for MIMXRT1060-EVK and AW-CM358-uSD

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1060-EVK board and AW-CM358-uSD. The AW-CM358-uSD user guide is available here.

The hardware rework has two parts:

- HCI UART rework
- PCM interface rework

8.1 Hardware rework

1. **HCI UART rework**
   Connect the pins of two boards as the following table.

Table 11. Connect pins

Pin Name	AW-CM358-USD	i.MXRT1060	PIN NAME	GPIO NAME of RT1060
UART_TXD	J10 (pin 4)	J22 (pin 1)	LPUART3_RXD	GPIO_AD_B1_07
UART_RXD	J10 (pin 2)	J22 (pin 2)	LPUART3_TXD	GPIO_AD_B1_06

Table 11. Connect pins*...continued*

Pin Name	AW-CM358-USD	i.MXRT1060	PIN NAME	GPIO NAME of RT1060
UART_CTS	J10 (pin 8)	J23 (pin 4)	LPUART3_RTS	GPIO_AD_B1_05
UART_RTS	J10 (pin 6)	J23 (pin 3)	LPUART3_CTS	GPIO_AD_B1_04
GND	J6 (pin 7)	J25 (pin 7)	GND	GND

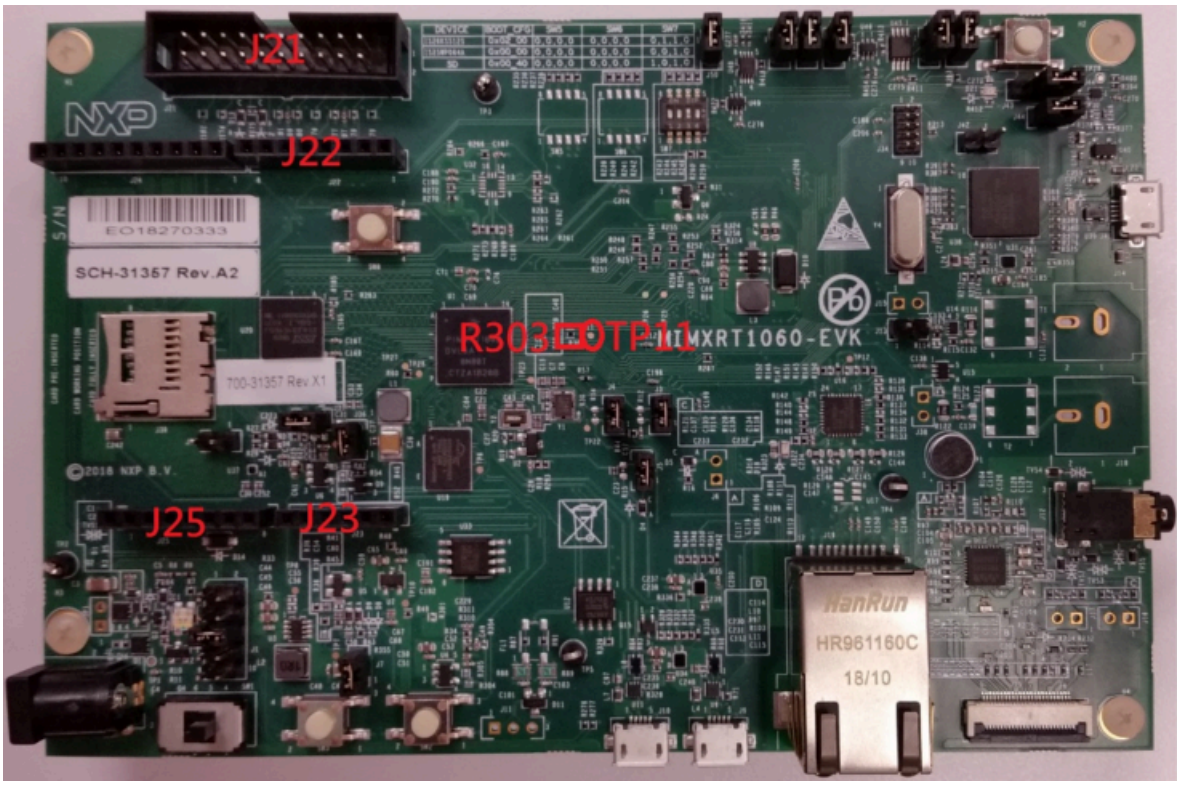


Figure 31. MIMXRT1060-EVK

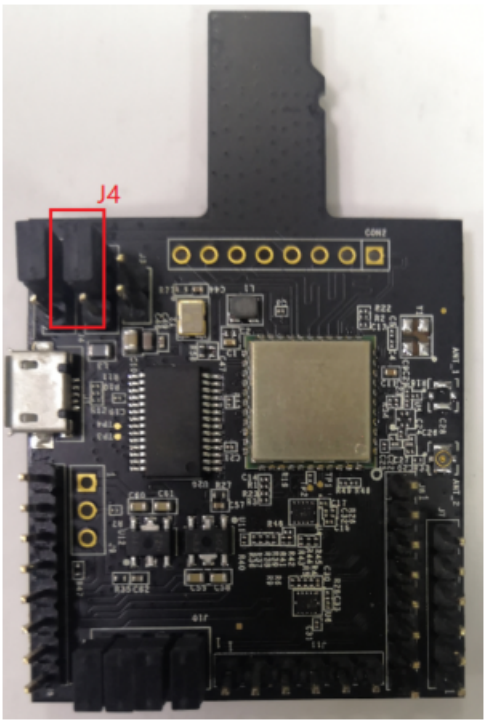


Figure 32. AW-CM358-uSD

Jumper Setting:
Connect J4[1-2] for VIO 1.8 V supply.

2. **PCM interface rework**
   Connect the pins of two boards as the following table.

Table 12. Connect pins

PIN NAME	AW-CM358-USD	I.MXRT1060	PIN NAME	GPIO NAME of RT1060
PCM_IN	J11 (pin 1)	J22 (pin 5)	SAI2_TXD	GPIO_AD_B0_09
PCM_OUT	J11 (pin 2)	TP11	SAI2_RXD	GPIO_AD_B0_08
PCM_SYNC	J11 (pin 3)	J21 (pin 9)	SAI2_RX_SYNC	GPIO_AD_B0_07
PCM_CLK	J11 (pin 4)	J21 (pin 7)	SAI2_RX_BCLK	GPIO_AD_B0_06
GND	J11 (pin 6)	J21 (pin 20)	GND	GND

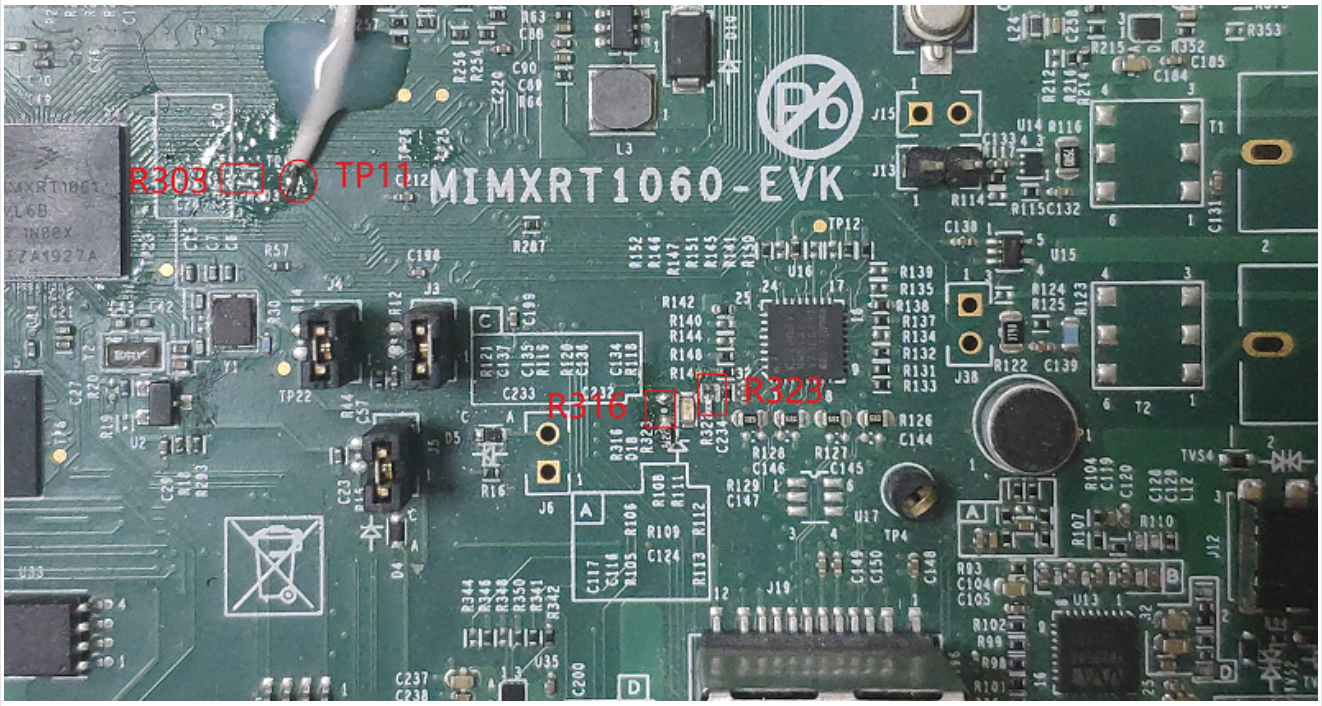


Figure 33. MIMXRT1060-EVK

Note:

To support HFP feature, you must remove R316 and R323 on MIMXRT1060-EVK.
To run HFP feature, you must remove J47 jumper.

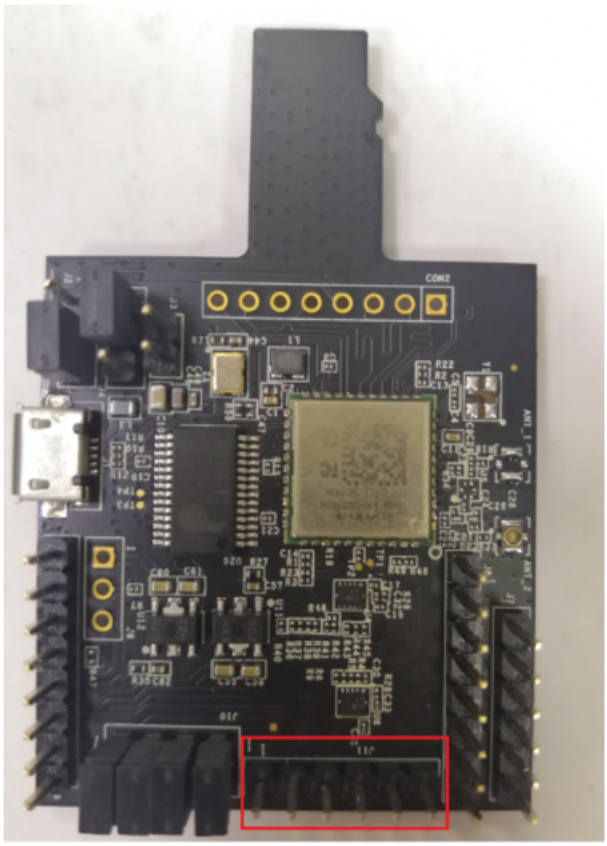


Figure 34. AW-CM358-uSD

9 Hardware Rework Guide for MIMXRT1060-EVK and Murata uSD-M.2 Adapter

This section is a brief hardware rework guidance of the Edgefast Bluetooth PAL on the NXP i.MX MIMXRT1060-EVK board and Murata uSD-M.2 adapter. For details on Murata uSD-M.2 Adapter, see the Murata's uSD-M.2 webpage.The hardware rework consists only of HCI UART rework.

9.1 Hardware rework

- **HCI UART rework**

Connect the TX/RX/RTS/CTS pins of two boards as the following table using jumper cables include in Murata's uSD-M.2 Adapter kit.

Table 13. Connect HCI UART pins

Pin name	uSD-M.2 adapter pin	i.MX RT1060 pin	Pin name of RT1060	GPIO name of RT1060
BT_UART_TXD_HOST	J9 (pin 1)	J22 (pin 1)	LPUART3_RXD	GPIO_AD_B1_07
BT_UART_RXD_HOST	J9 (pin 2)	J22 (pin 2)	LPUART3_TXD	GPIO_AD_B1_06
BT_UART_RTS_HOST	J8 (pin 3)	J23 (pin 3)	LPUART3_CTS	GPIO_AD_B1_04
BT_UART_CTS_HOST	J8 (pin 4)	J23 (pin 4)	LPUART3_RTS	GPIO_AD_B1_05

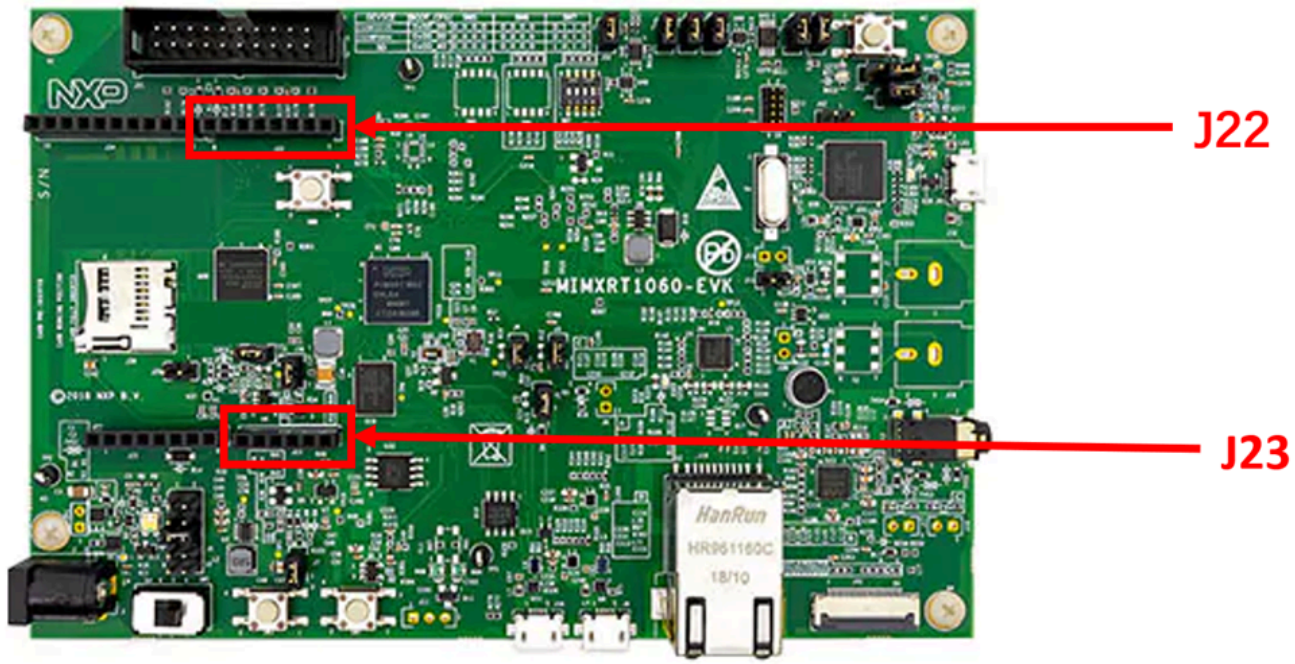


Figure 35. MIMXRT1060-EVK

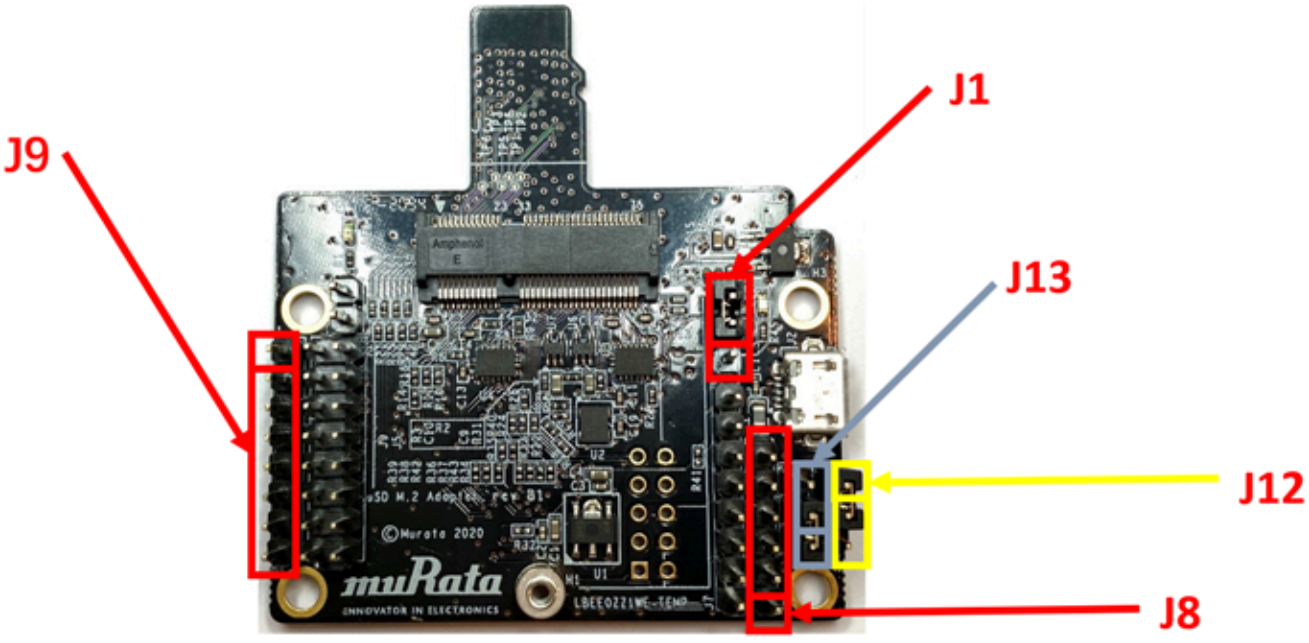


Figure 36. Murata uSD-M.2 adapter

Murata uSD-M.2 jumper settings:

- Both J12 and J13 = 1-2 (WLAN-SDIO = 1.8 V; and BT-UART and WLAN/BT-CTRL = 3.3 V)
- J1 = 2-3 (3.3 V from uSD connector)

PCM interface rework

Connect the PCM_IN/PCM_OUT/PCM_SYNC/PCM_CLK/GND pins of the two boards as shown in Table 14.

Table 14. Connect the PCM_IN/PCM_OUT/PCM_SYNC/PCM_CLK/GND pins

Pin name	uSD-M.2 adapter pin	i.MXRT1060-EVKB pin	Pin name of RT1060-EVKB	GPIO name of RT1060-EVKB
PCM_IN	J5 (pin1)	J16 (pin5)	SAI2_TXD	GPIO_AD_B0_09
PCM_OUT	J5 (pin3)	TP11	SAI2_RXD	GPIO_AD_B0_08
PCM_SYNC	J5 (pin5)	J2 (pin9)	SAI2_RX_SYNC	GPIO_AD_B0_07
PCM_CLK	J5 (pin7)	J10 (pin2)	SAI2_RX_BCLK	GPIO_AD_B0_06
GND	J5 (pin15)	J2 (pin20)	GND	GND

10 Hardware Rework Guide for MIMXRT1060-EVK and AW-AM510-uSD

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1060-EVK board and AW-AM510-uSD. The AW-AM510-uSD user guide is available here. The hardware rework has one part:

- HCI UART rework

10.1 Hardware rework

- **HCI UART rework**
  Connect the pins of two boards as the following table.

Table 15. Connect pins

Pin Name	AW-AM510-uSD	i.MXRT1060	PIN NAME	GPIO NAME of RT1060
UART_TXD	J10 (pin 4)	J22 (pin 1)	LPUART3_RXD	GPIO_AD_B1_07
UART_RXD	J10 (pin 2)	J22 (pin 2)	LPUART3_TXD	GPIO_AD_B1_06
UART_RTS	J10 (pin 6)	J23 (pin 3)	LPUART3_CTS	GPIO_AD_B1_04
UART_CTS	J10 (pin 8)	J23 (pin 4)	LPUART3_RTS	GPIO_AD_B1_05
GND	J6 (pin 7)	J25 (pin 7)	GND	GND

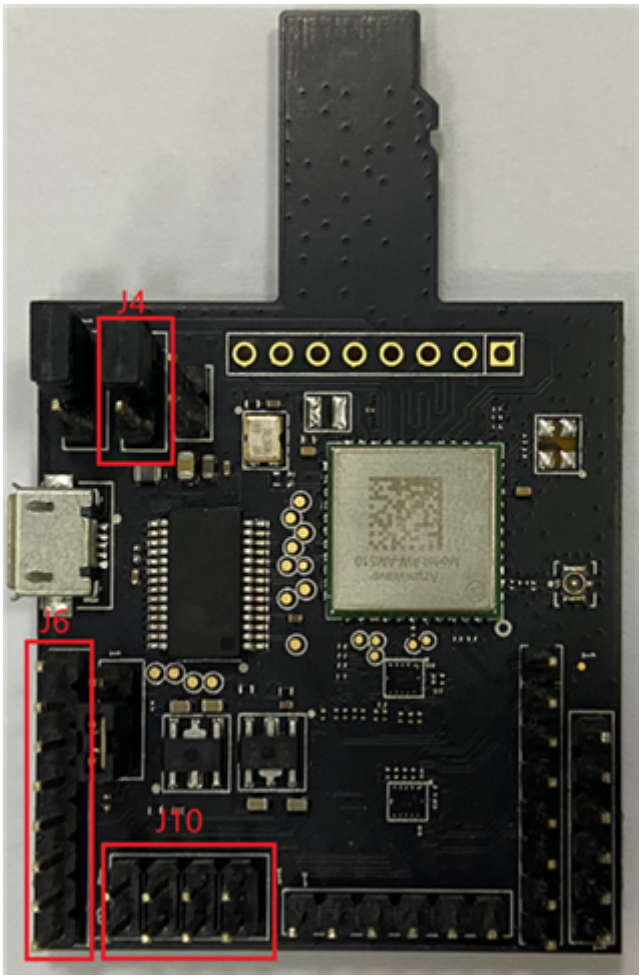


Figure 37. AW-AM510-uSD

Jumper Setting:

– Connect J4[2-3] for VIO 3.3 V supply

- **PCM interface rework**

  Connect the pins of two boards as the following table.

Table 16. Connect pins

PIN NAME	AW-AM510-USD	I.MXRT1060	PIN NAME OF RT1060	GPIO NAME of RT1060
PCM_IN	J11 (pin 1)	J22 (pin 5)	SAI2_TXD	GPIO_AD_B0_09
PCM_OUT	J11 (pin 2)	TP11	SAI2_RXD	GPIO_AD_B0_08
PCM_SYNC	J11 (pin 3)	J21 (pin 9)	SAI2_RX_SYNC	>GPIO_AD_01_07
PCM_CLK	J11 (pin 4)	J21 (pin 7)	SAI2_RX_BCLK	GPIO_AD_B0_06
GND	J11 (pin 6)	J21 (pin 20)	GND	GND

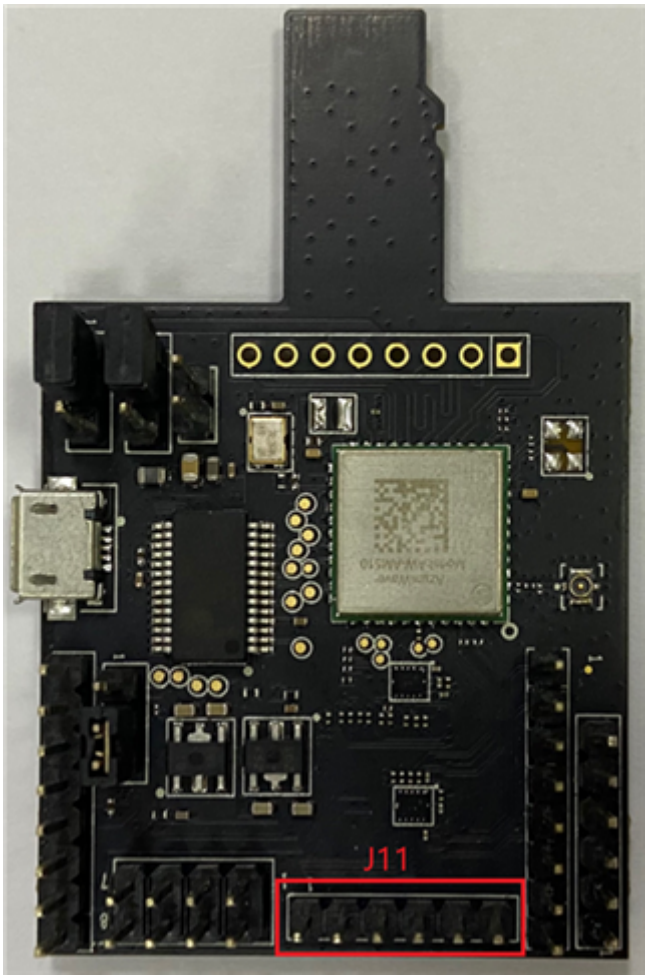


Figure 38. AW-AM510-uSD

11 Hardware Rework Guide for MIMXRT1170-EVK and AW-AM457-uSD

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1170-EVK board and AW-AM457-uSD. The AW-AM457-uSD user guide is available here. The hardware rework has one part:

- HCI UART rework

11.1 Hardware rework

1. HCI UART rework
   Connect the pins of two boards as the following table.

Table 17. Connect pins

Pin Name	AW-AM457-uSD	i.MXRT1170	PIN NAME	GPIONAME of RT1170
UART_TXD	J10 (pin 4)	J25 (pin 13)	LPUART7_RXD	GPIO_AD_01
UART_RXD	J10 (pin 2)	J25 (pin 15)	LPUART7_TXD	GPIO_AD_00
UART_CTS	J10 (pin 8)	J25 (pin 9)	LPUART7_RTS	GPIO_AD_03

Table 17. Connect pins*...continued*

Pin Name	AW-AM457-uSD	i.MXRT1170	PIN NAME	GPIONAME of RT1170
UART_RTS	J10 (pin 6)	J25 (pin 11)	LPUART7_CTS	GPIO_AD_02
GND	J6 (pin 7)	J26 (pin 1)	GND	GND

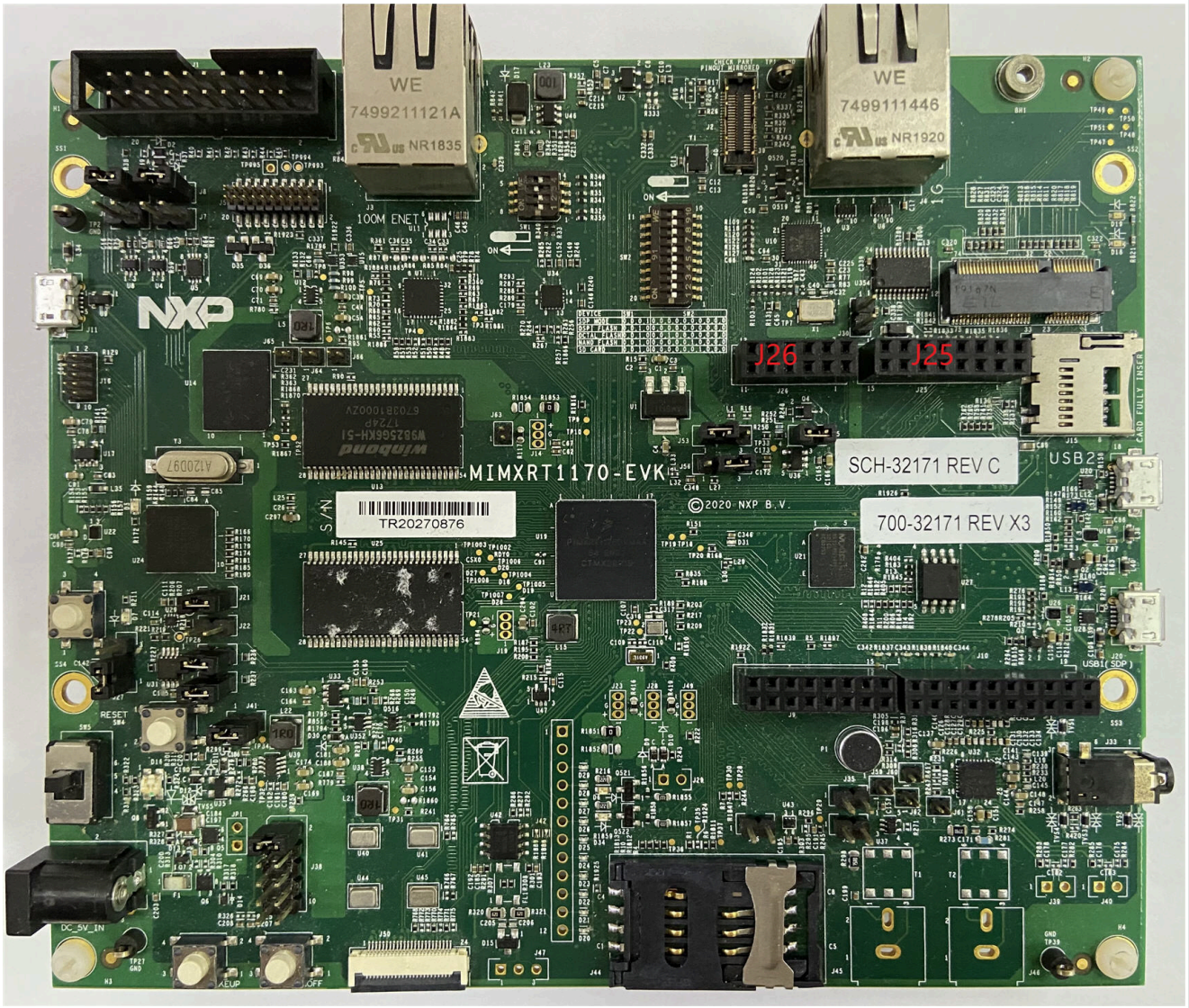


Figure 39. MIMXRT1170-EVK

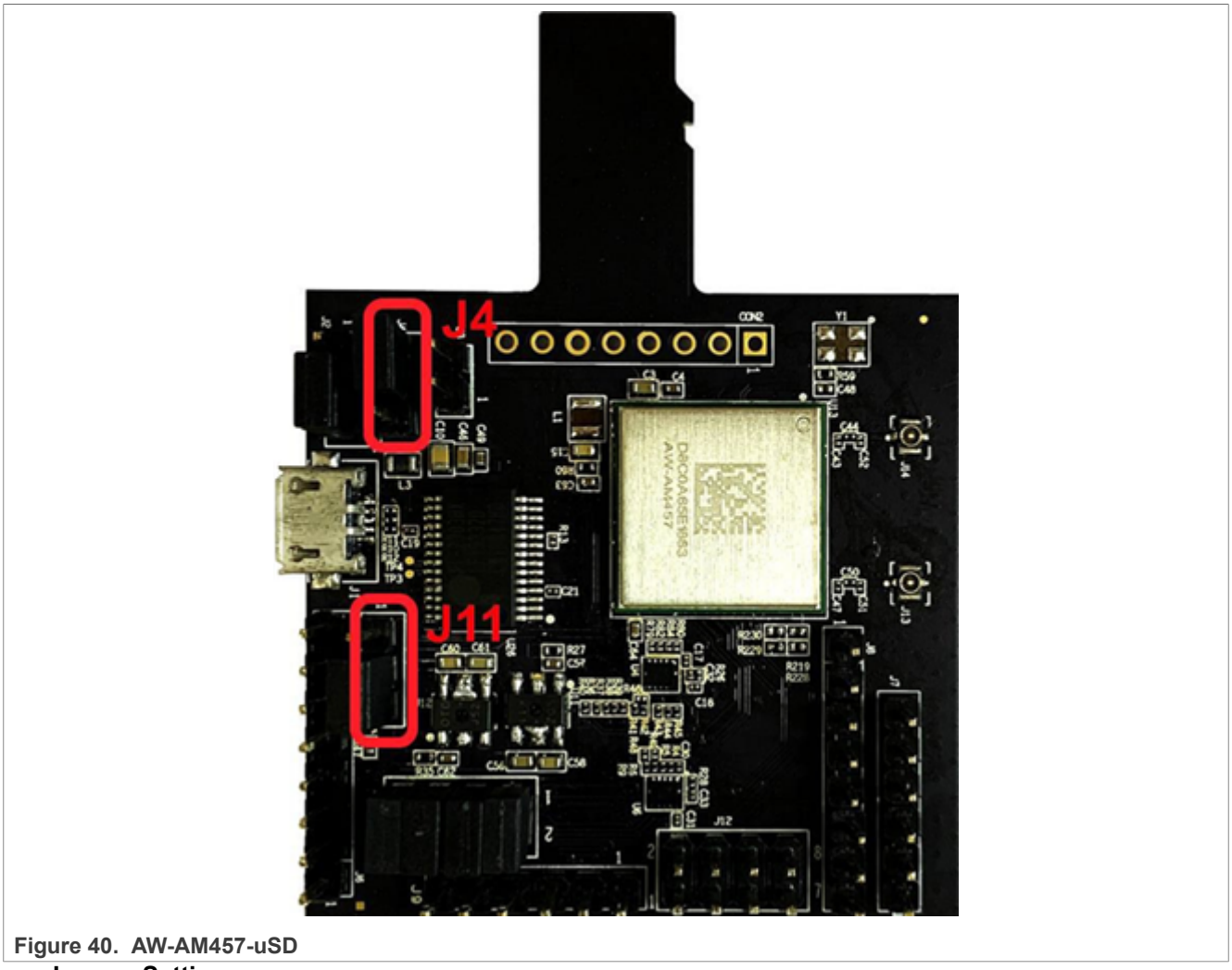


Figure 40. AW-AM457-uSD

Jumper Setting:

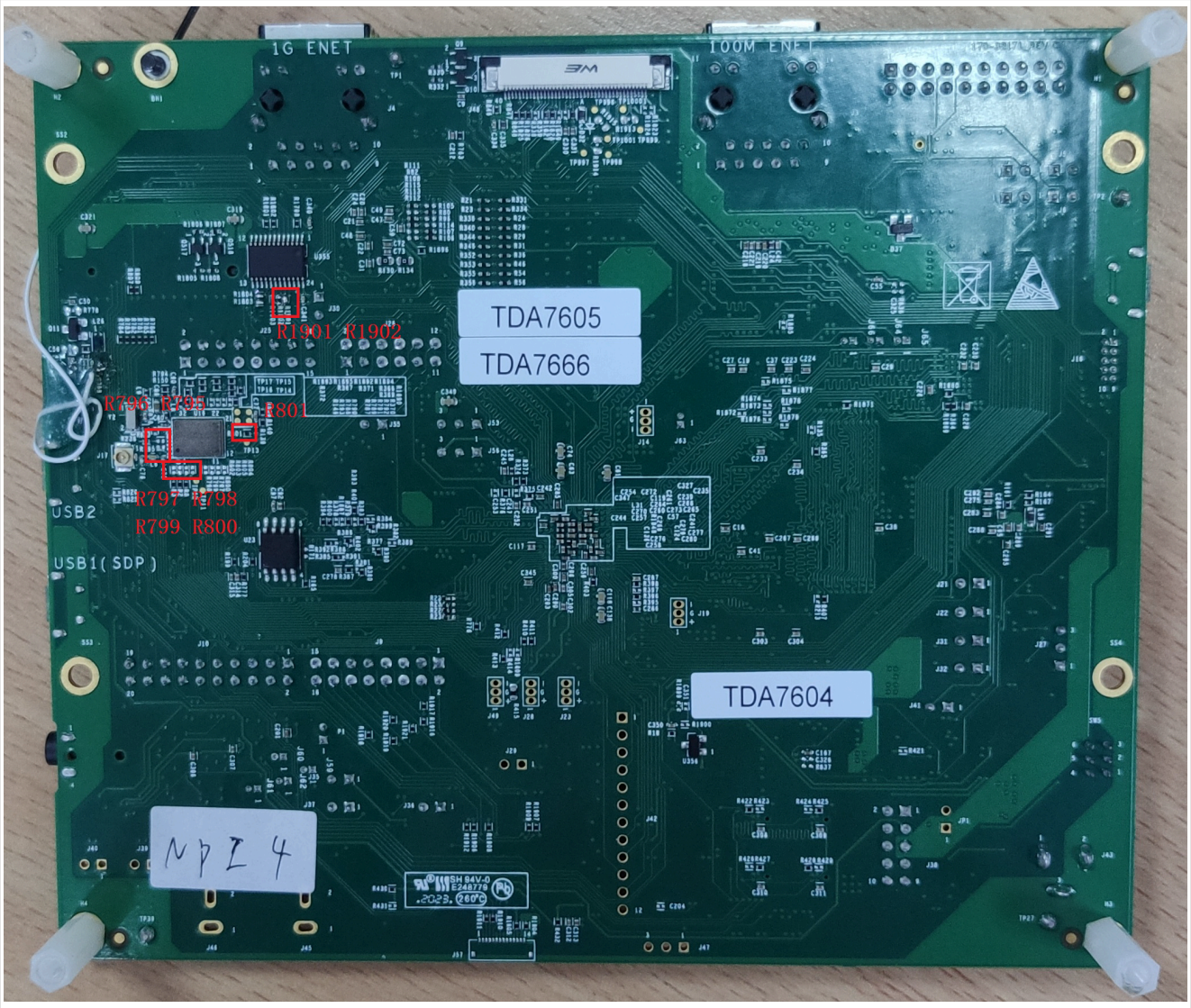
- Connect J4[2-3] for VIO 3.3 V supply
- Connect J11[2-3] for VIO_SD 3.3 V supply

12 Hardware Rework Guide for MIMXRT1170-EVK and AW-CM358MA

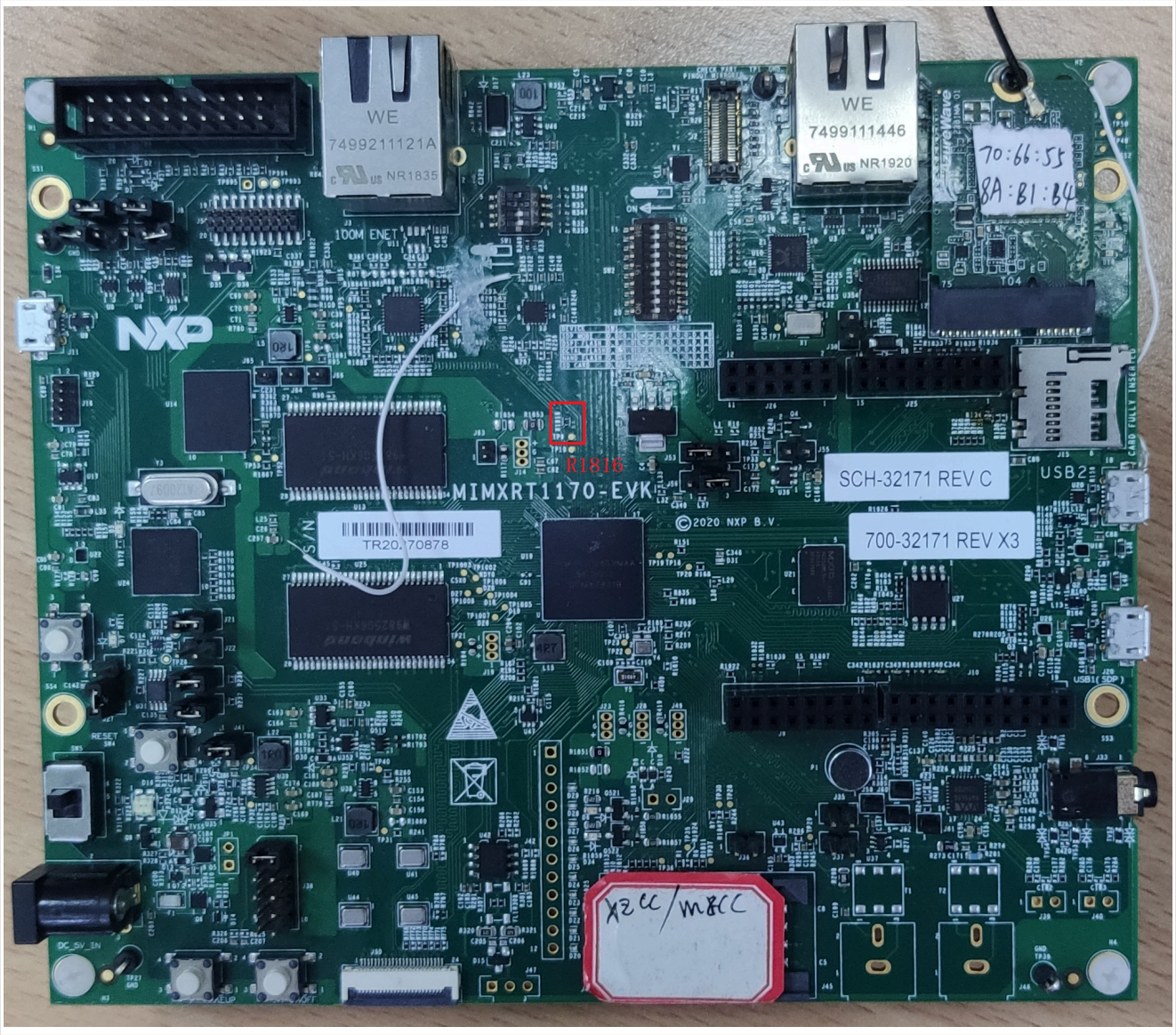
This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1170-EVK board and AW-CM358MA. The User's Guide of AW-CM358MA is available here.

12.1 Hardware rework

- **HCI UART rework**
  1. Solder 0 ohm resistor to R1901 and R1902.
  2. Remove resistors R795, R796, R797, R798, R799, R800, and R801.



3. Remove 0 ohm resistor from R1816.

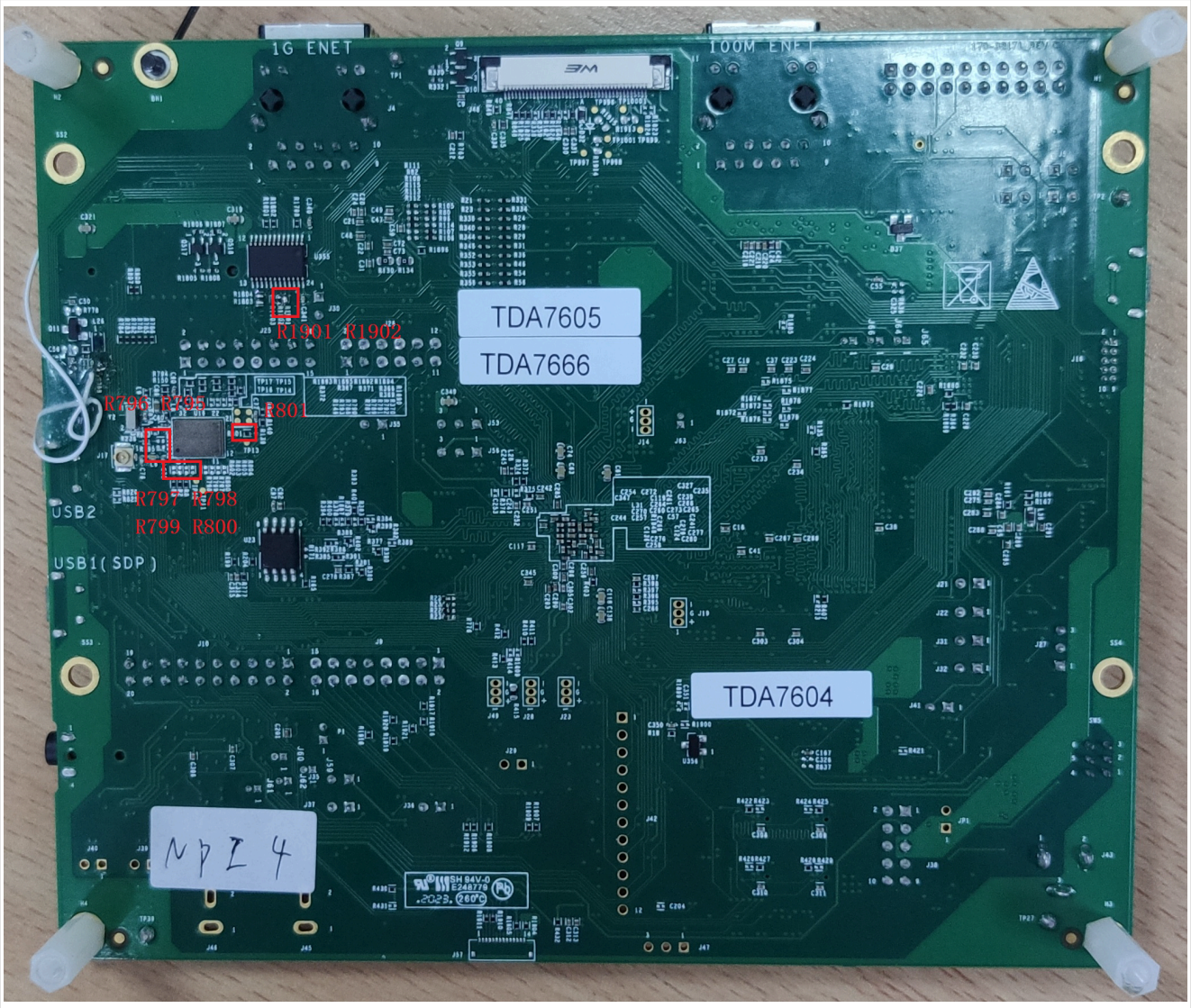


13 Hardware Rework Guide for MIMXRT1170-EVK and AW-AM510MA

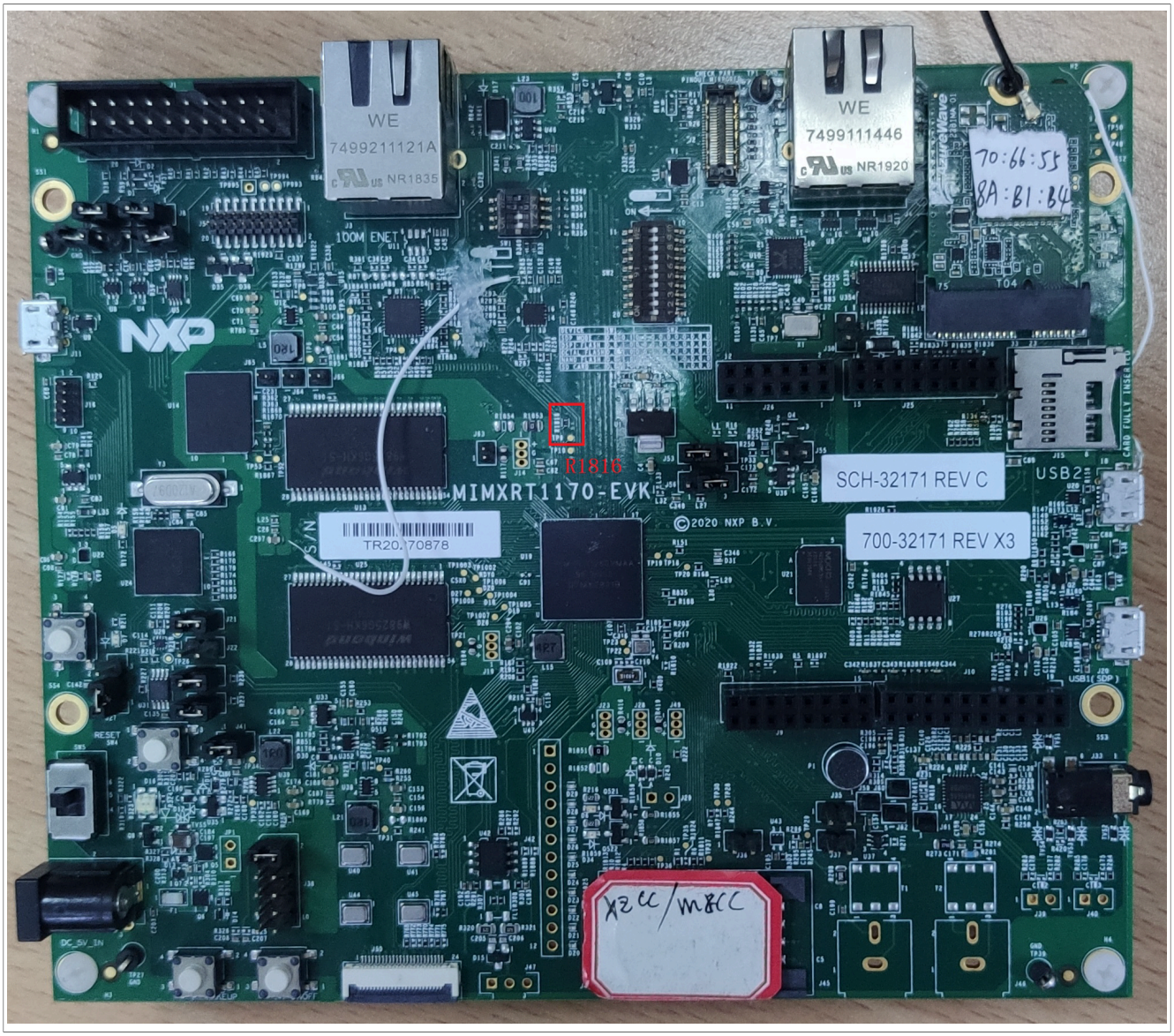
This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1170-EVK board and AW-AM510MA. The User's Guide of AW-AM510MA is available here.

13.1 Hardware rework

- **HCI UART rework**
  1. Solder 0 ohm resistor to R1901 and R1902.
  2. Remove resistors R795, R796, R797, R798, R799, R800, and R801.



3. Remove 0 ohm resistor from R1816.



14 Hardware Rework Guide for MIMXRT1170-EVK and Murata M.2 Module

This section is a brief hardware rework guidance of the Edgefast Bluetooth PAL on the NXP i.MX MIMXRT1170-EVK board and the Murata 1XK or 1ZM solution - direct M.2 connection to Embedded Artists' EAR00385 (1XK) or EAR00364 (1ZM) M.2 modules. The rework is necessary to connect the RADIO_ENABLE (or WL_RTS) signal in addition to two UART signals.

The hardware rework consists of two parts:

- HCI UART rework
- Radio control signal rework (RADIO_ENABLE)

14.1 Hardware rework

1. **HCI UART rework:**

On MIMXRT1170-EVK board, populate R1901 and R1902 with zero Ohm resistors. This connects the BT_UART_RXD and BT_UART_CTS signals respectively to the M.2 connector.

2. **Radio control signal rework (WL_CTS):**
   On MIMXRT1170-EVK board, populate R404 with a zero Ohm resistor. Remove R183 resistor. This connects the WL_RST signal directly to the M.2 connector. This signal resets both wireless cores.

15 Hardware Rework Guide for MIMXRT1170-EVK and Murata uSD-M.2 Adapter

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1170-EVK board and Murata uSD-M.2 adapter. For details on the Murata uSD-M.2 Adapter, see the Murata's uSD-M.2 webpage.

The hardware rework consists only of HCI UART rework.

15.1 Hardware rework

HCI UART rework:

Connect the TX/RX/RTS/CTS pins of two boards as the following table using jumper cables include in the Murata's uSD-M.2 Adapter kit.

Table 18. Connect HCI UART pins

Pin name	uSD-M.2 adapter pin	i.MX RT1170 pin	Pin name	GPIO name of RT1170
BT_UART_TXD_HOST	J9 (pin 1)	J25 (pin 13)	LPUART7_RXD	GPIO_AD_01
BT_UART_RXD_HOST	J9 (pin 2)	J25 (pin 15)	LPUART7_TXD	GPIO_AD_00
BT_UART_CTS_HOST	J8 (pin 4)	J25 (pin 9)	LPUART7_RTS	GPIO_AD_03
BT_UART_RTS_HOST	J8 (pin 3)	J25 (pin 11)	LPUART7_CTS	GPIO_AD_02

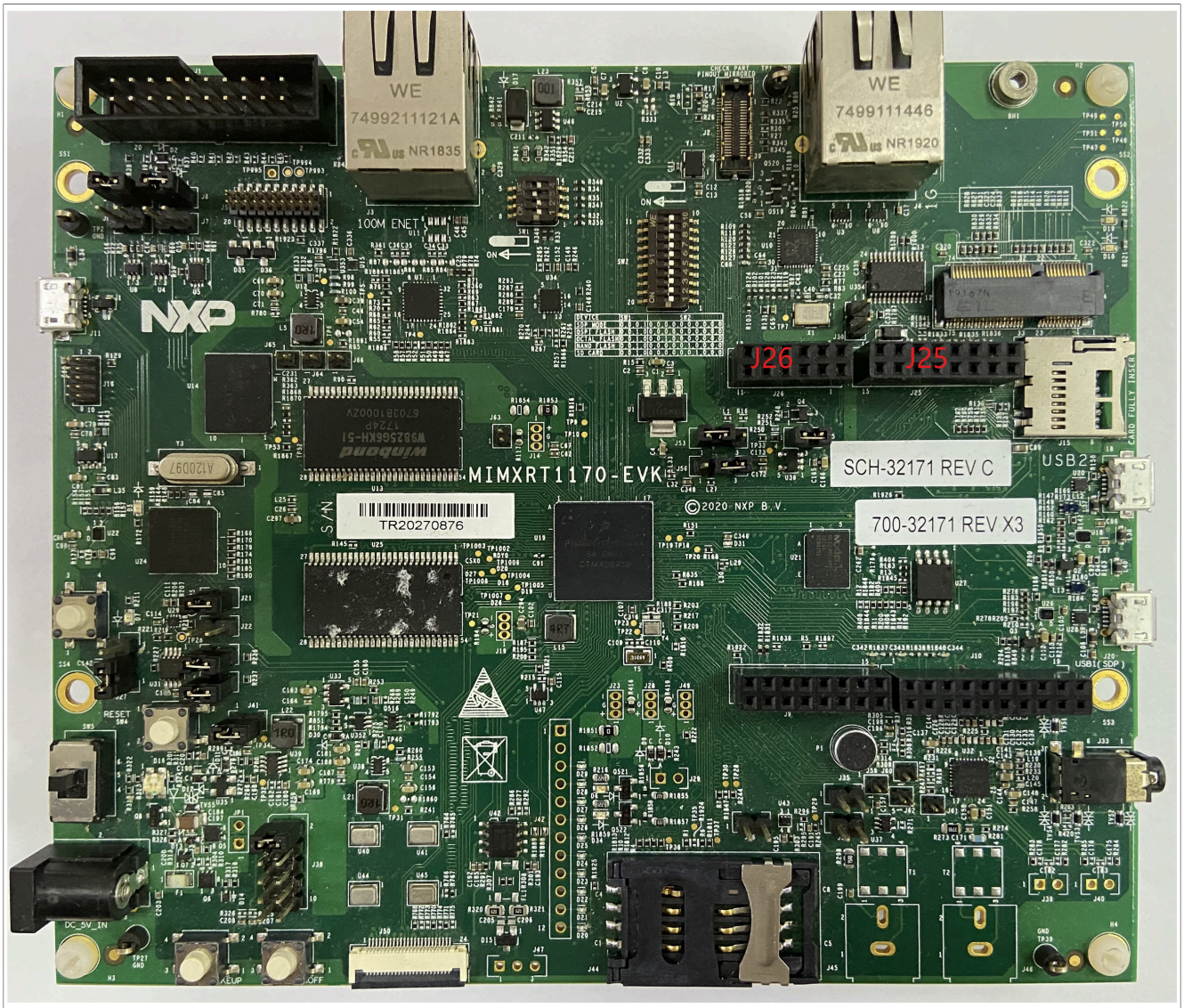


Figure 41. MIMXRT1170-EVK

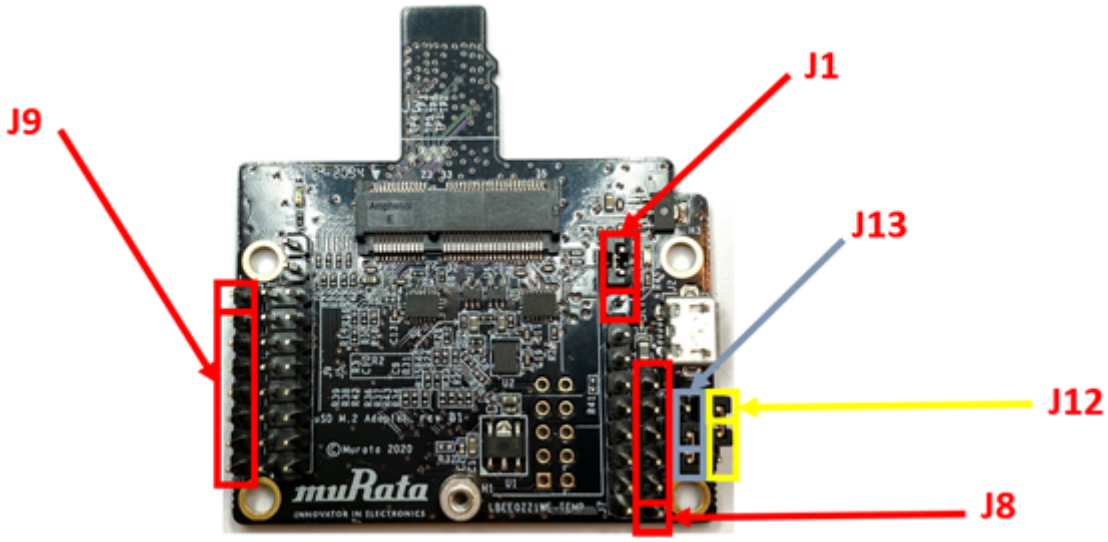


Figure 42. Murata uSD-M.2 adapter

Murata uSD-M.2 jumper settings:

- Both J12 and J13 = 1-2 (WLAN-SDIO = 1.8 V; and BT-UART and WLAN/BT-CTRL = 3.3 V)
- J1 = 2-3 (3.3 V from uSD connector)

16 Hardware Rework Guide for MIMXRT1170-EVKB and Murata 1XK M.2 Adapter

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1170-EVKB and the Murata 1XK M.2 solution - direct M.2 connection to Embedded Artists' EAR00385 (1XK) M.2 modules.

The hardware rework has two parts:

- HCI UART rework
- PCM interface rework

16.1 Hardware rework

- **HCI UART rework**
  1. Remove resistors R183 and R1816.
  2. Solder 0 ohm resistor to R404, R1901, and R1902.

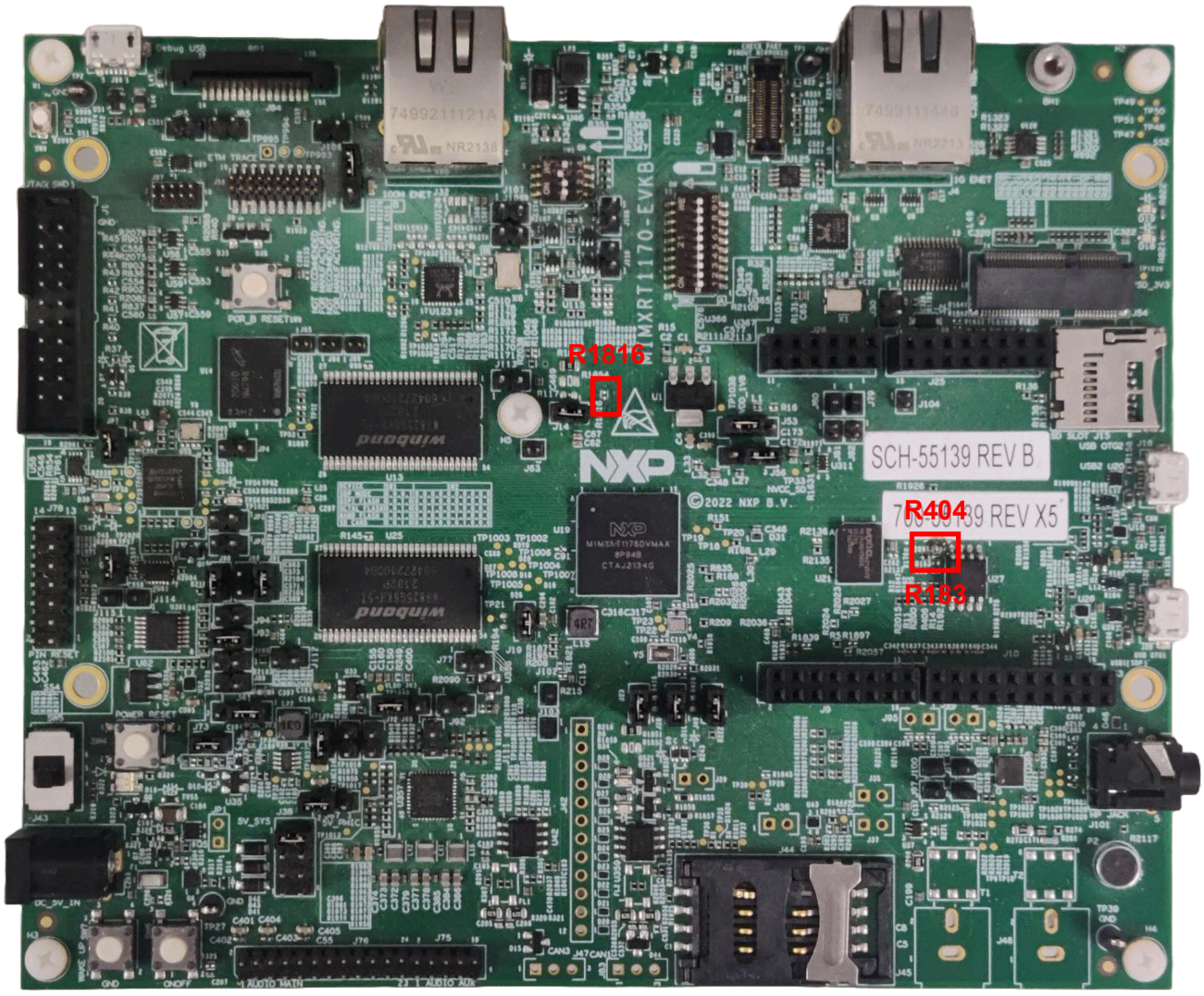


Figure 43. MIMXRT1170-EVKB UART Front

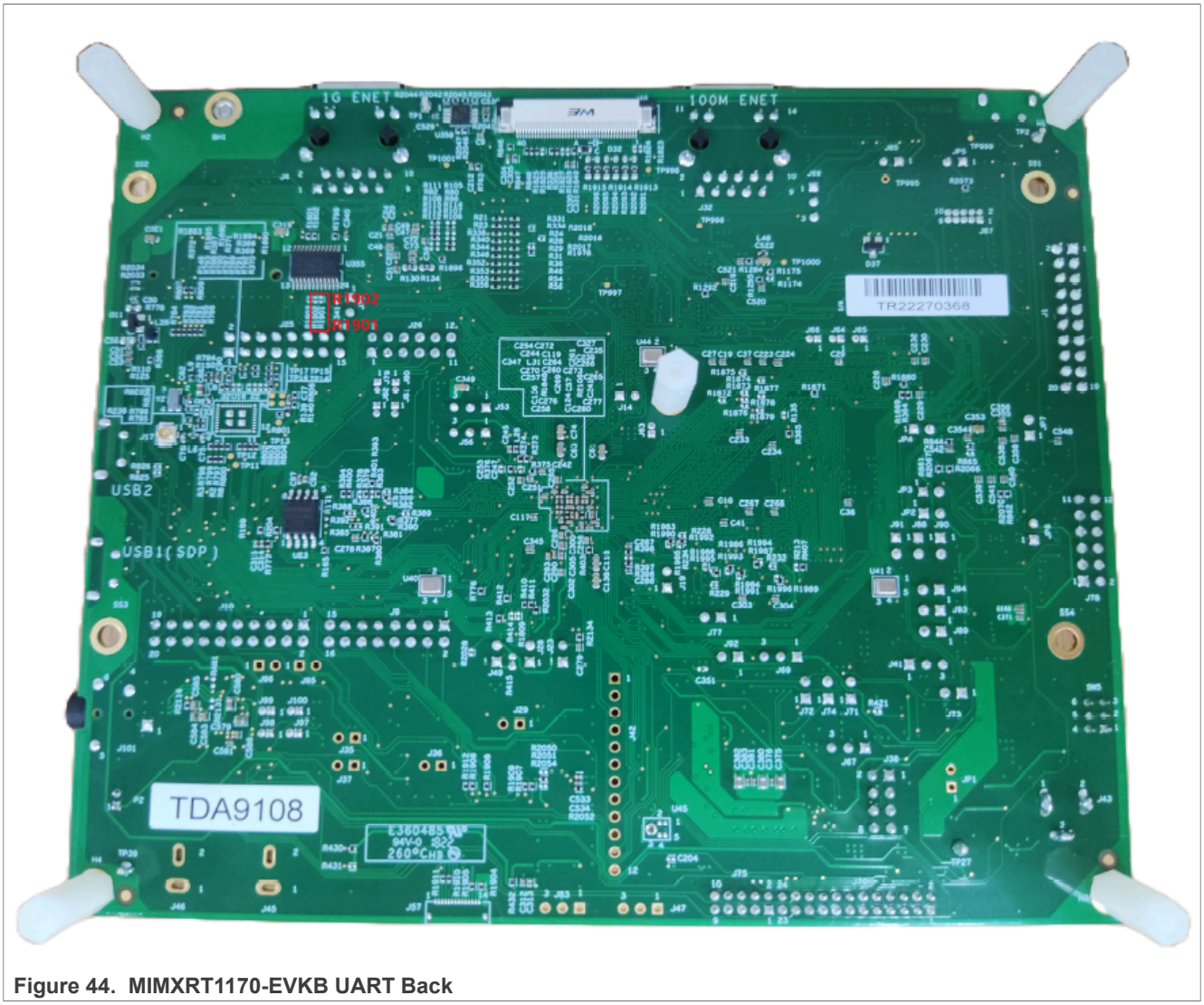


Figure 44. MIMXRT1170-EVKB UART Back

- **PCM interface rework**
  1. Disconnect header J79 and J80.
  2. Connect header J81 and J82.
  3. Remove resistors R1985, R1986, R1987, R1988, R1992, R1993, R1994, and R1995.
  4. Solder 0 ohm resistor to R228, R229, R232, R234, and R1903.

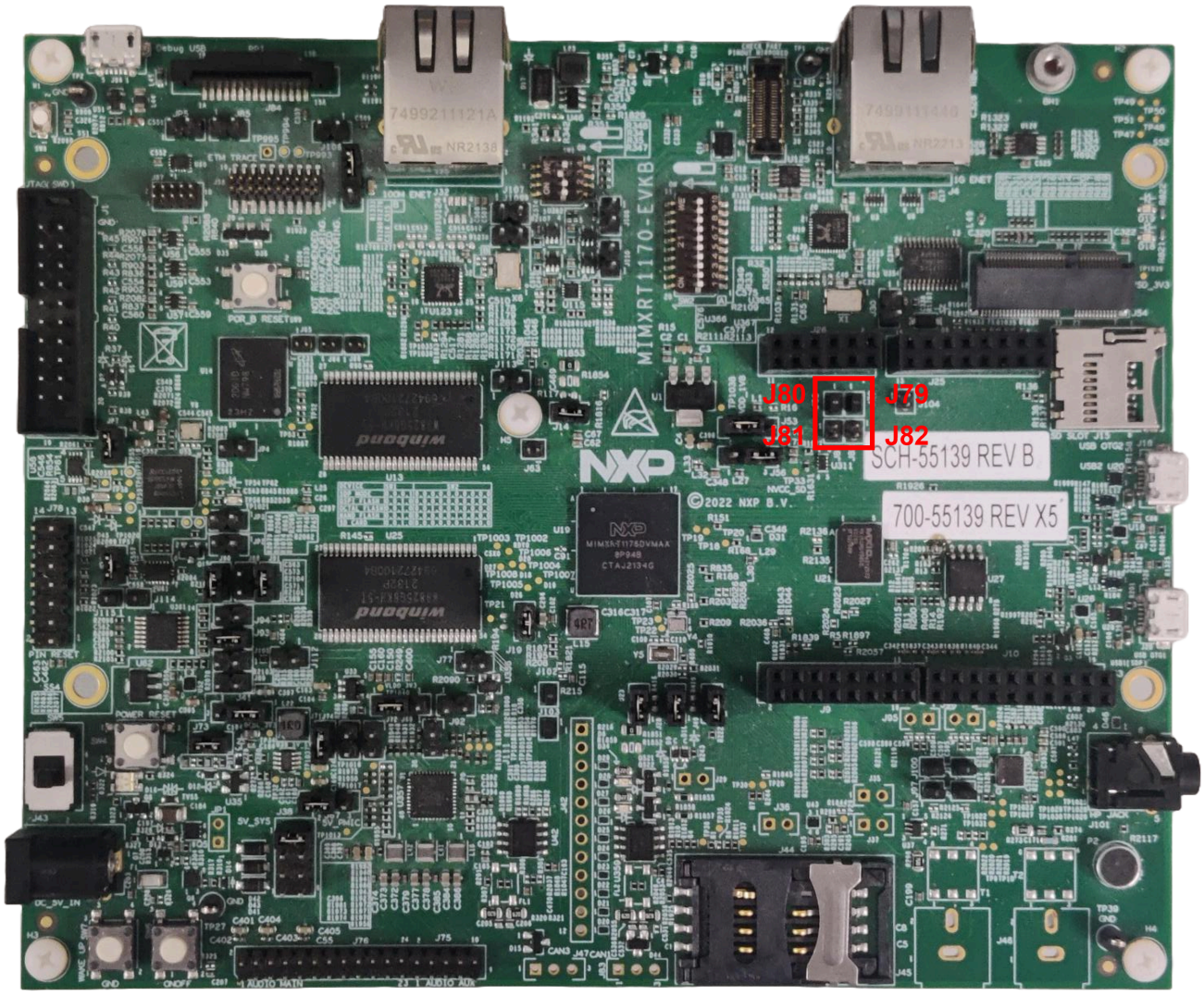


Figure 45. MIMXRT1170-EVKB PCM Front

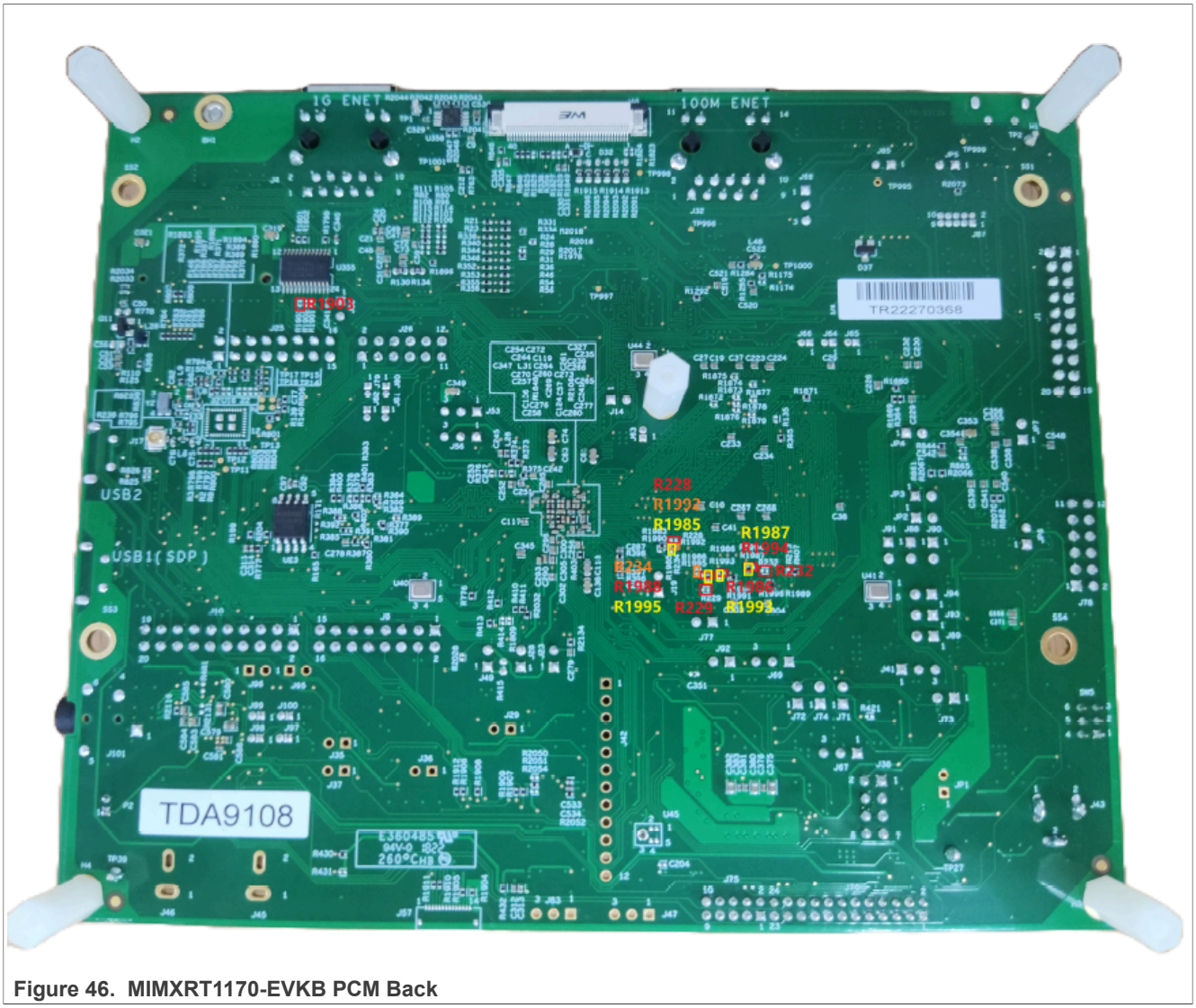


Figure 46. MIMXRT1170-EVKB PCM Back

17 Hardware Rework Guide for MIMXRT1170-EVKB and Murata 1ZM M.2 Adapter

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1170-EVKB and the Murata 1ZM M.2 solution - direct M.2 connection to Embedded Artists' EAR00364 (1ZM) M.2 modules.

The hardware rework has two parts:

- HCI UART rework
- PCM interface rework

17.1 Hardware rework

- **HCI UART rework**
  1. Remove resistors R183 and R1816.
  2. Solder 0 ohm resistor to R404, R1901, and R1902.

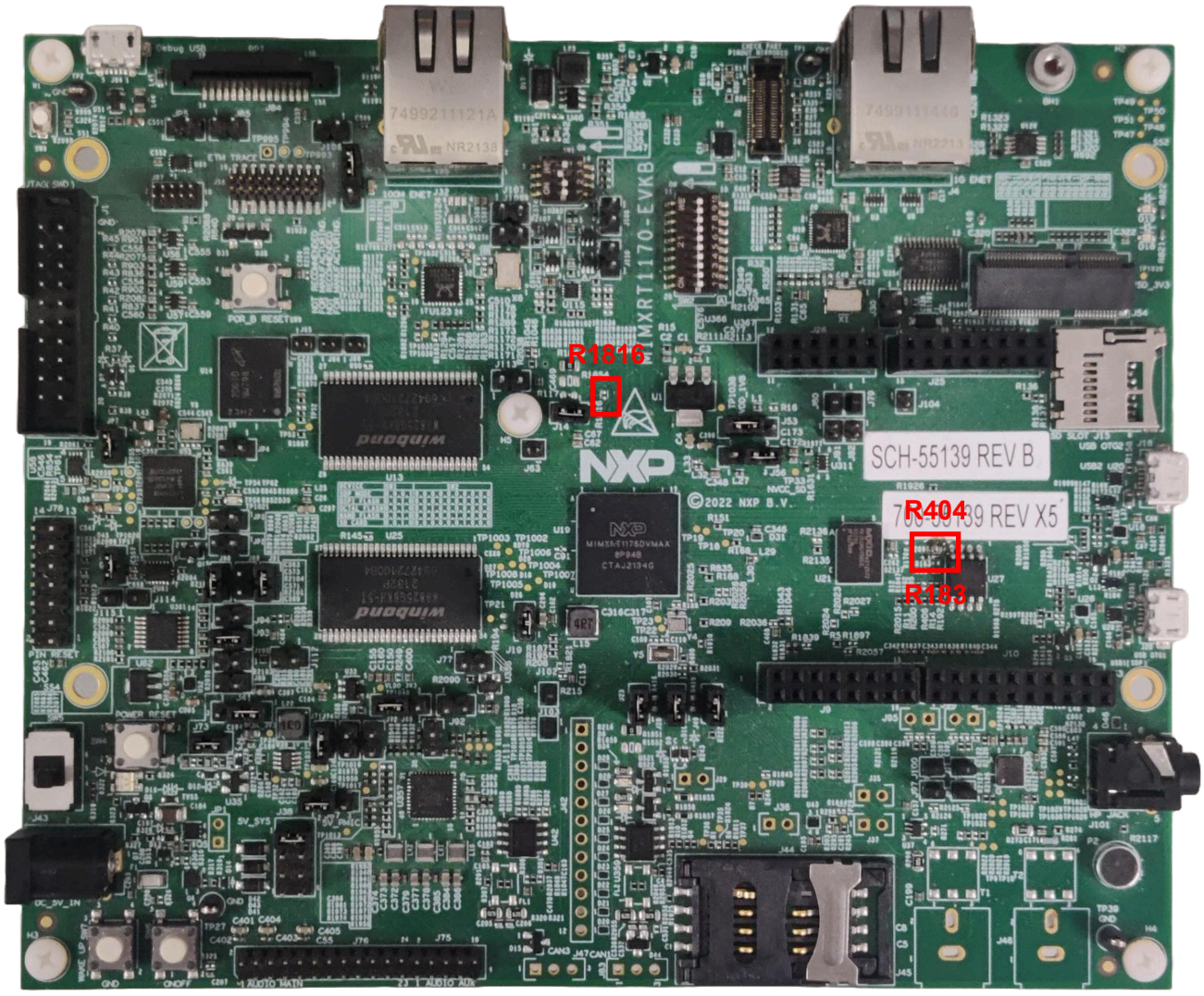


Figure 47. MIMXRT1170-EVKB UART Front

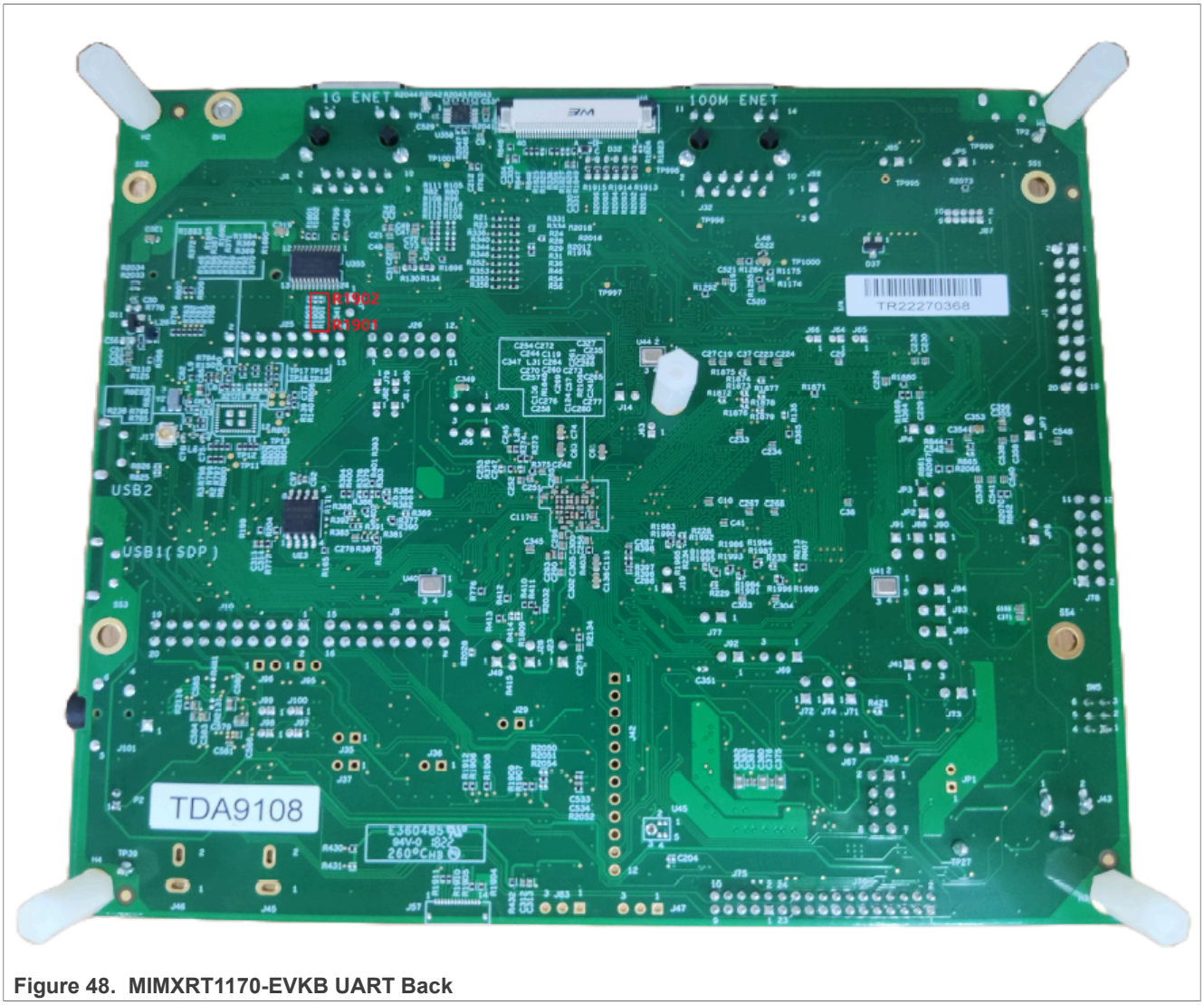


Figure 48. MIMXRT1170-EVKB UART Back

- **PCM interface rework**
  1. Disconnect header J79 and J80.
  2. Connect header J81 and J82.
  3. Remove resistors R1985, R1986, R1987, R1988, R1992, R1993, R1994, and R1995.
  4. Solder 0 ohm resistor to R228, R229, R232, R234, and R1903.

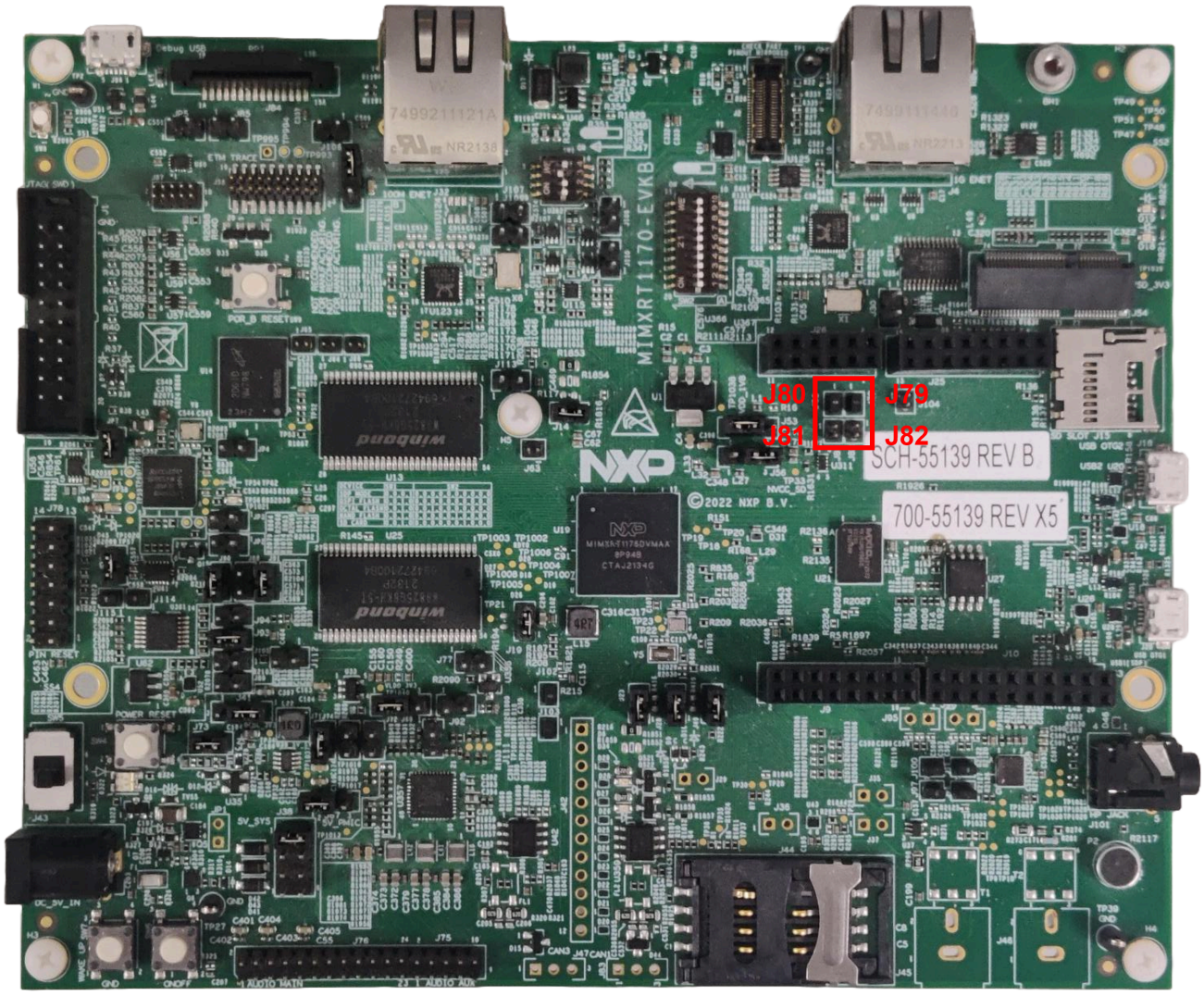


Figure 49. MIMXRT1170-EVKB PCM Front

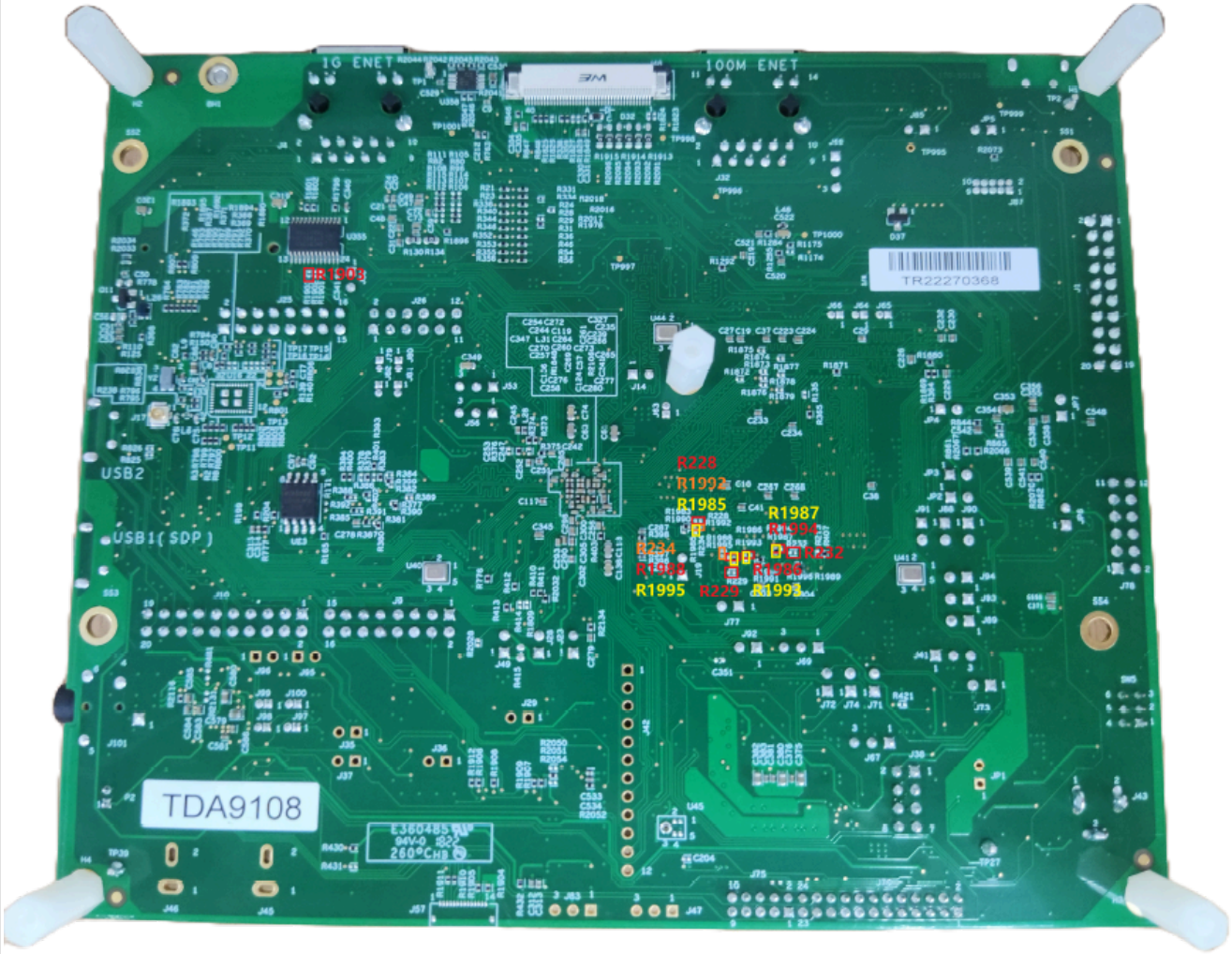


Figure 50. MIMXRT1170-EVKB PCM Back

18 Hardware Rework Guide for MIMXRT1170-EVKB and Murata 2EL M.2 Adapter

Hardware Rework Guide for MIMXRT1170-EVKB and Murata

2EL M.2 Adapter

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1170-EVKB and the Murata 2EL M.2 solution - direct M.2 connection to Embedded Artists' Rev-A1 (2EL) M.2 modules.

The hardware rework has three parts:

- HCI UART rework
- PCM interface rework
- LE Audio Synchronization interface rework (only used on sink side)

18.1 Hardware rework

- **HCI UART rework**
  1. Remove resistors R183 and R1816.
  2. Solder 0 ohm resistor to R404, R1901, and R1902.

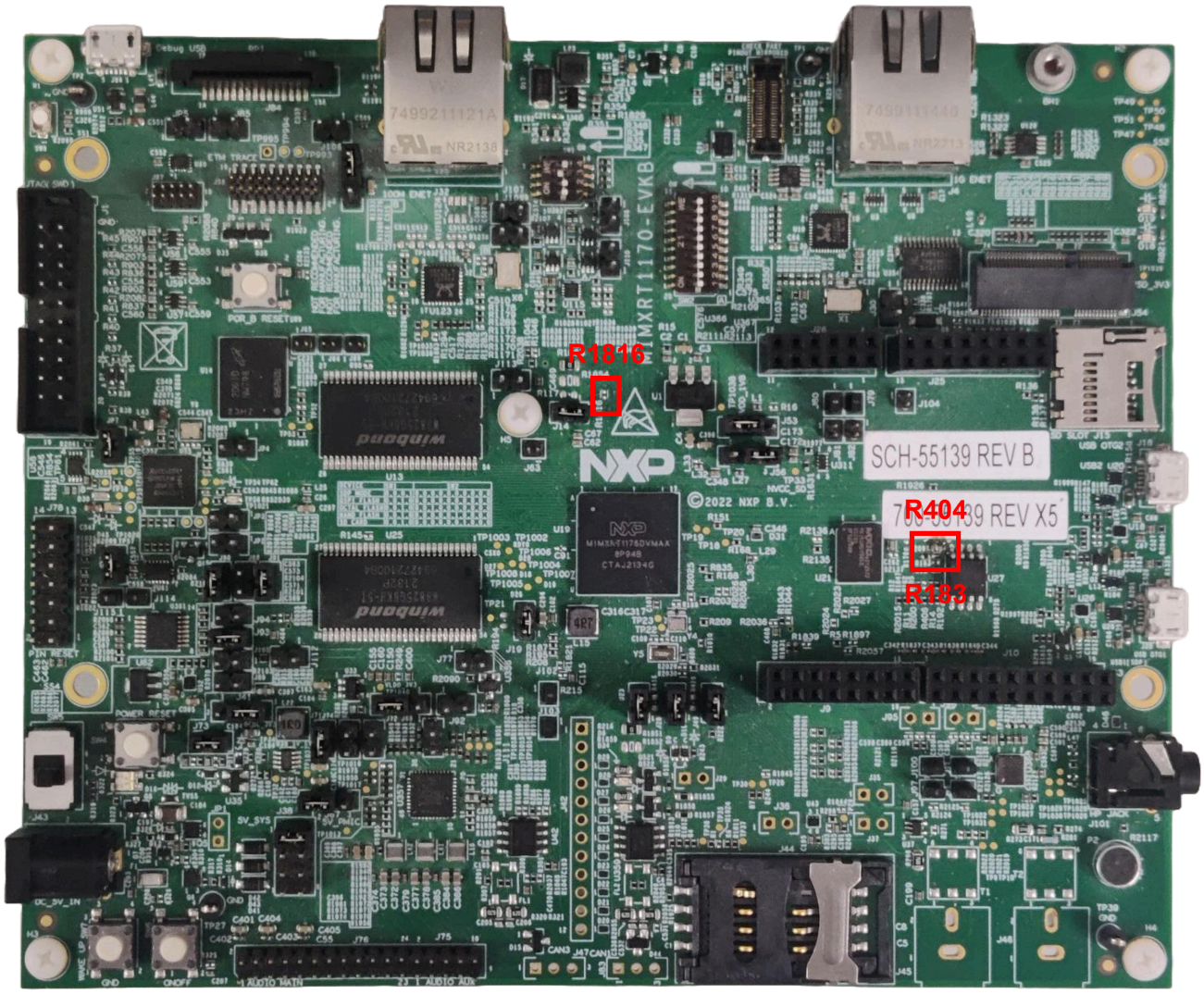


Figure 51. MIMXRT1170-EVKB UART Front

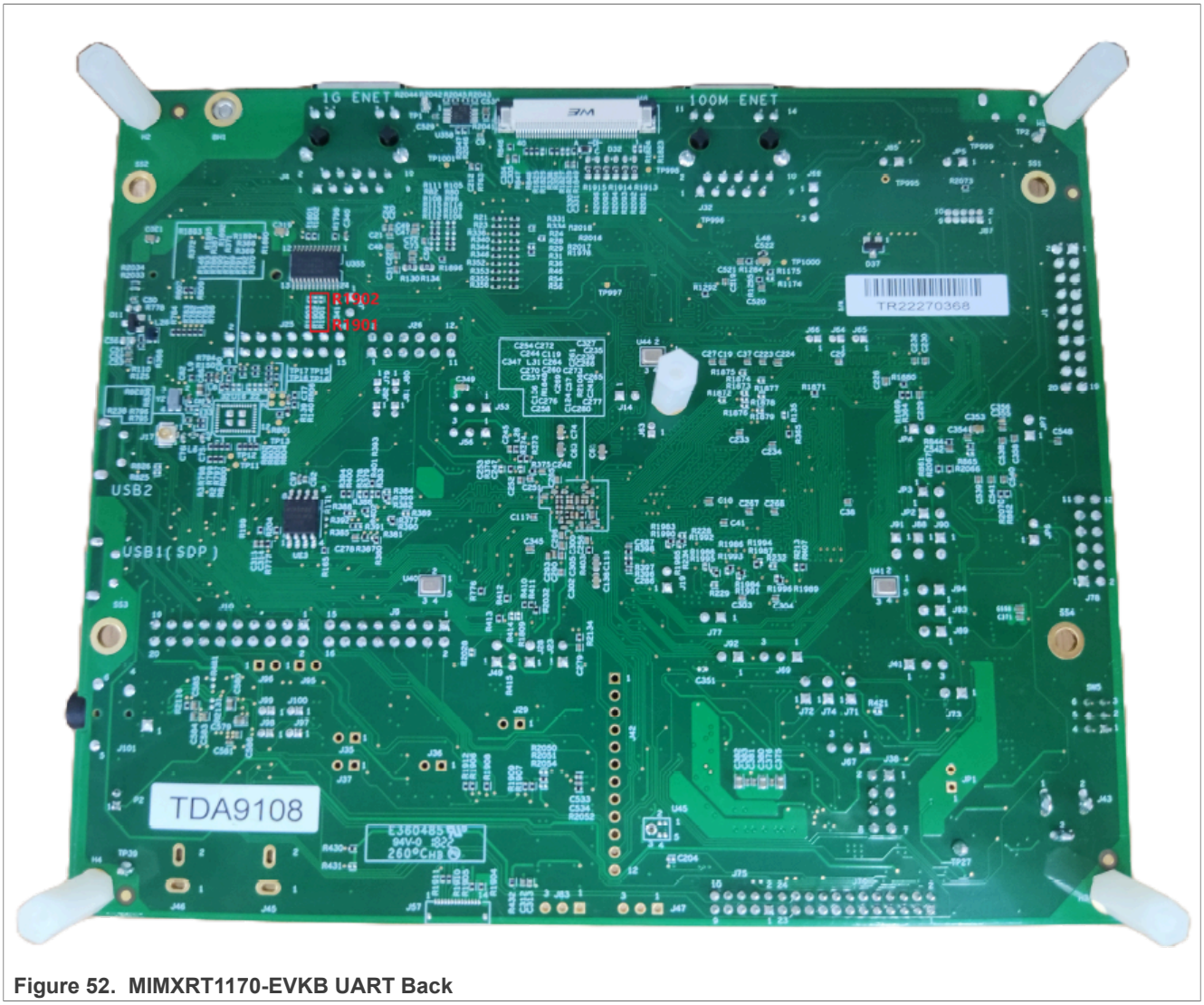


Figure 52. MIMXRT1170-EVKB UART Back

- **PCM interface rework**
  1. Disconnect header J79 and J80.
  2. Connect header J81 and J82.
  3. Remove resistors R1985, R1986, R1987, R1988, R1992, R1993, R1994, and R1995.
  4. Solder 0 ohm resistor to R228, R229, R232, R234, and R1903.

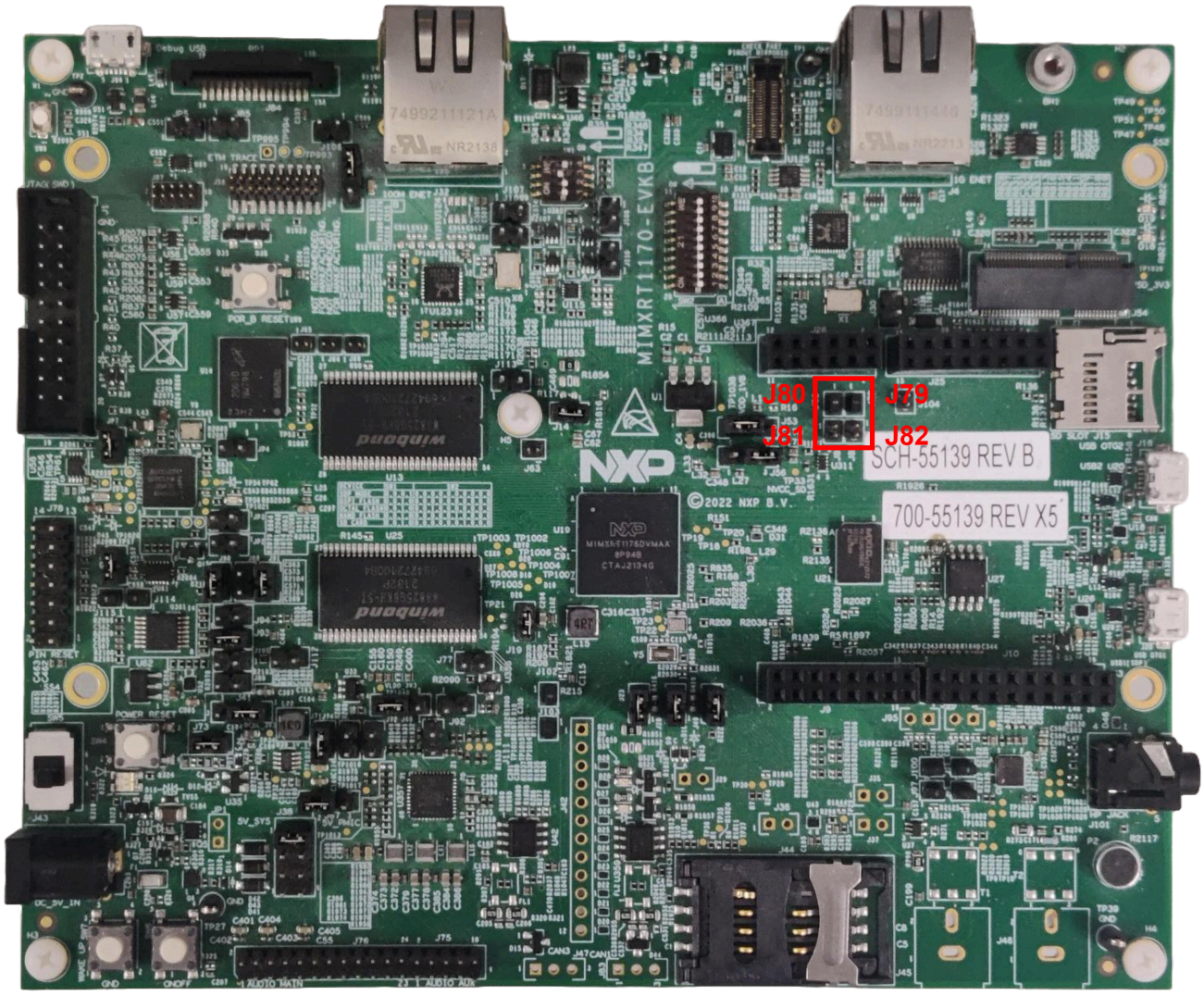


Figure 53. MIMXRT1170-EVKB PCM Front

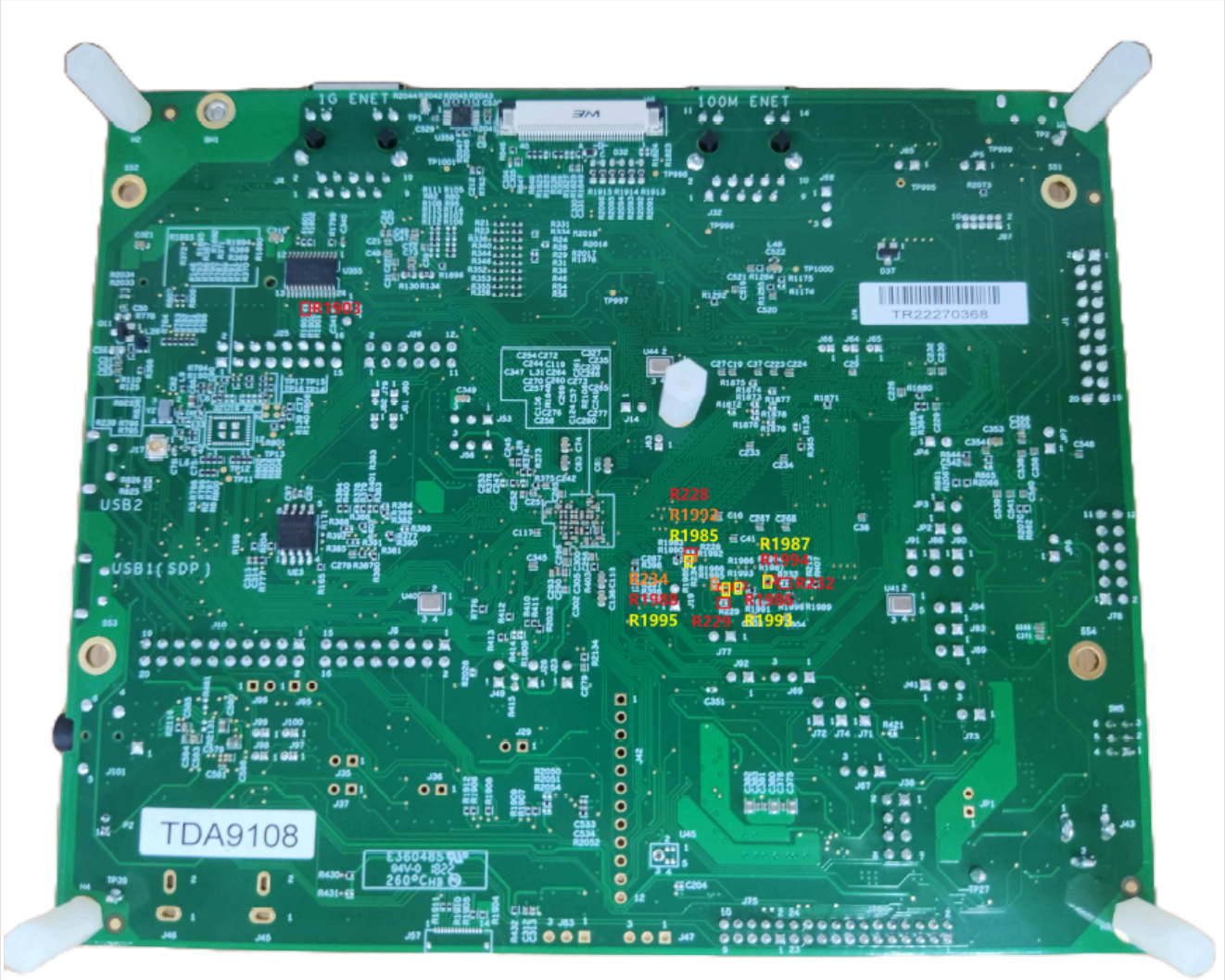


Figure 54. MIMXRT1170-EVKB PCM Back

- LE Audio Synchronization interface rework (only used on sink side)
  1. Connect J25-15 with J97.
  2. Connect J25-13 with 2EL's GPIO_27

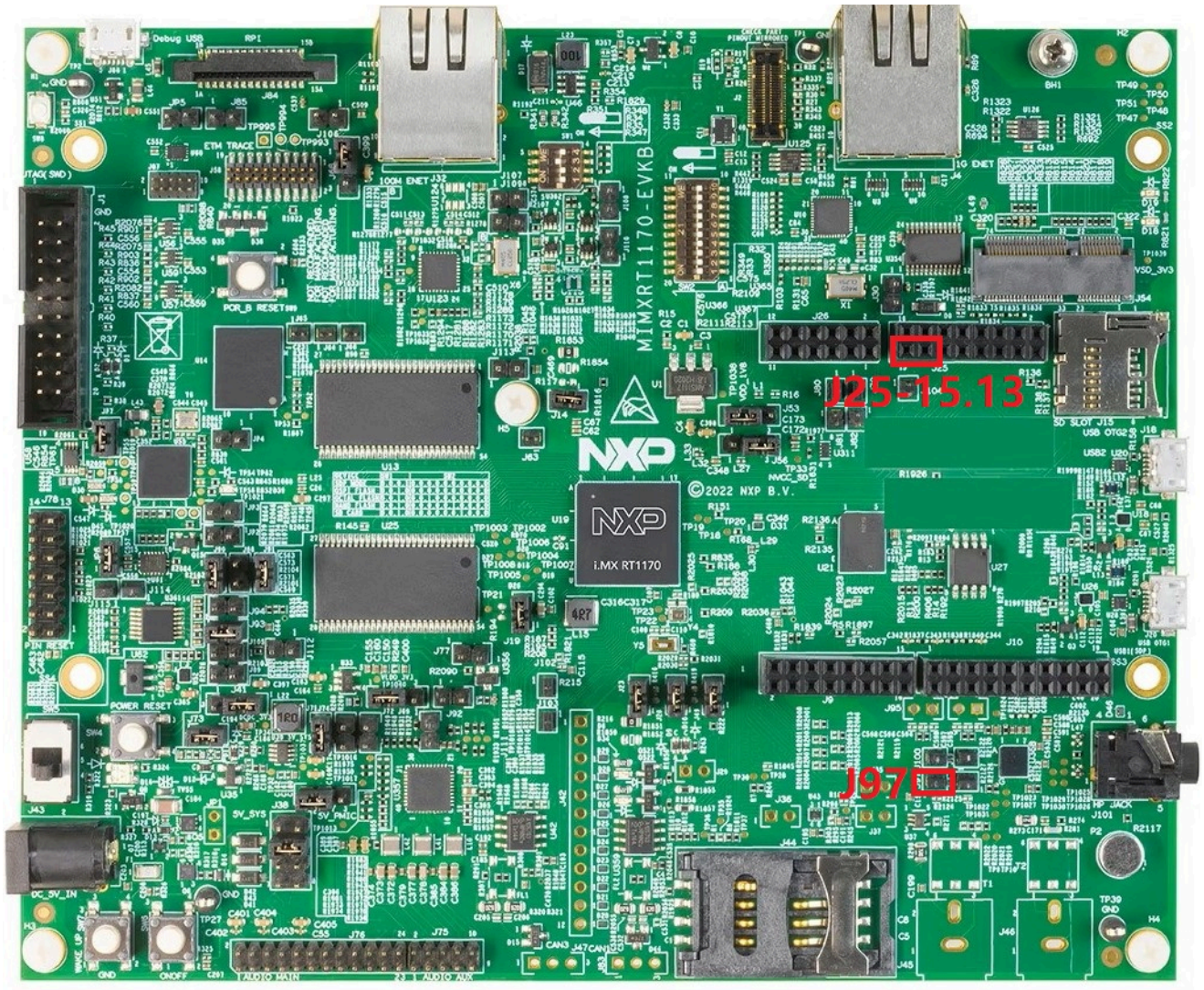


Figure 55. MIMXRT1170-EVKB Synchronization interface Front

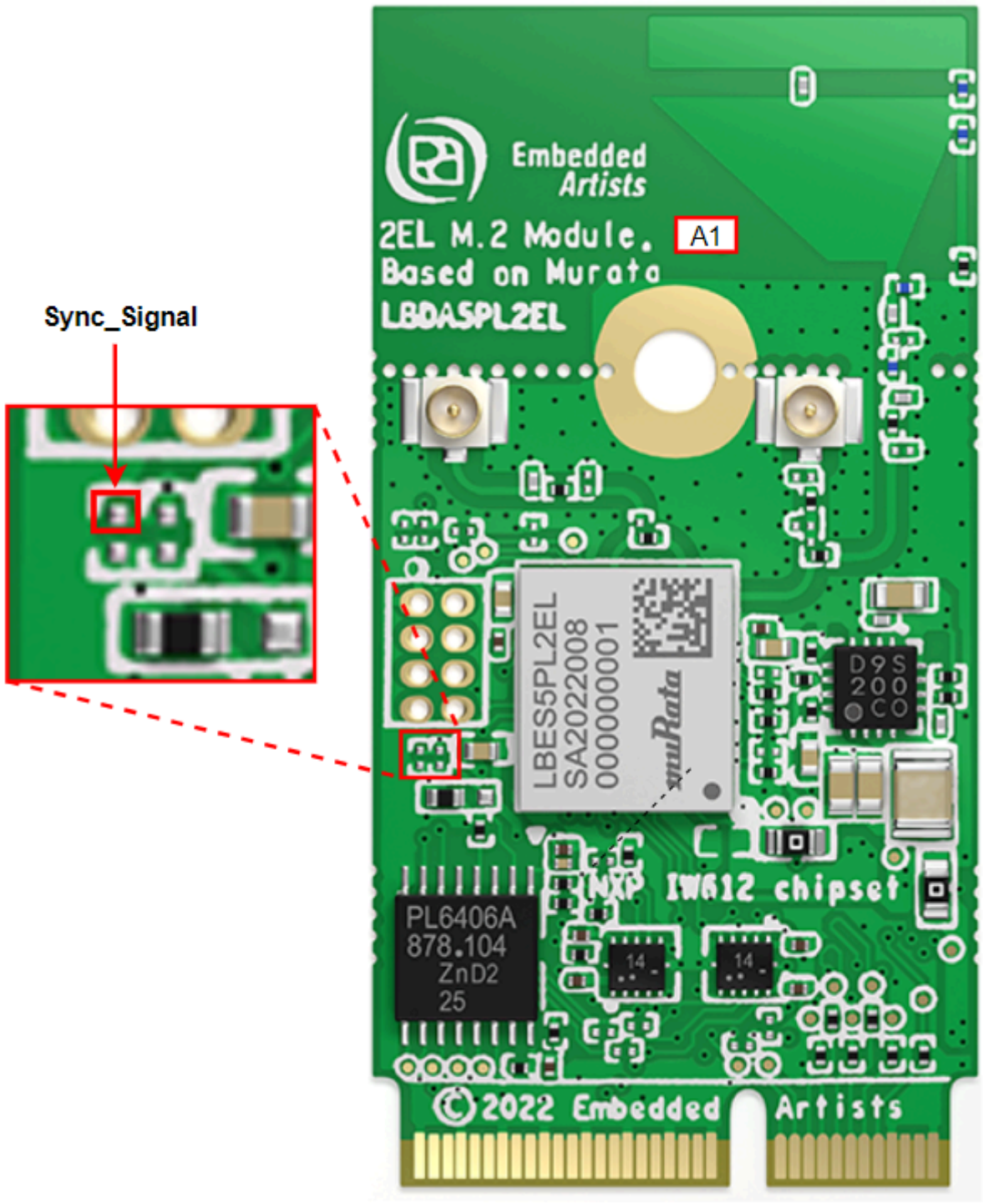


Figure 56. Embedded Artists' Rev-A1 (2EL) M.2 module's GPIO_27 (Sync_Signal) pad

19 Hardware Rework Guide for MIMXRT685-EVK and AW-AM457-uSD

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT685-EVK board and AW-AM457-uSD. The AW-AM457-uSD user guide is available here.The hardware rework has one part:

- HCI UART rework

19.1 Hardware rework

HCI UART rework

- R398 move from 1-2 to 2-3
- JP12 2-3
- Connect the pins of two boards as the following table.

Table 19. Connect pins

Pin Name	AW-AM457-uSD	i.MX RT685	PIN NAME	GPIONAME of i.MX RT685
UART_TXD	J10 (pin 4)	J27 (pin 1)	USART4_RXD	FC4_RXD_SDA_MOSI_DATA
UART_RXD	J10 (pin 2)	J27 (pin 2)	USART4_TXD	FC4_TXD_SCL_MISO_WS
UART_RTS	J10 (pin 6)	J47 (pin 9)	USART4_CTS	FC4_CTS_SDA_SSEL0
UART_CTS	J10 (pin 8)	J27 (pin 5)	USART4_RTS	FC4_RTS_SCL_SSEL1
GND	J6 (pin 7)	J29 (pin 6)	GND	GND

Figure 57. MIMXRT685-EVK

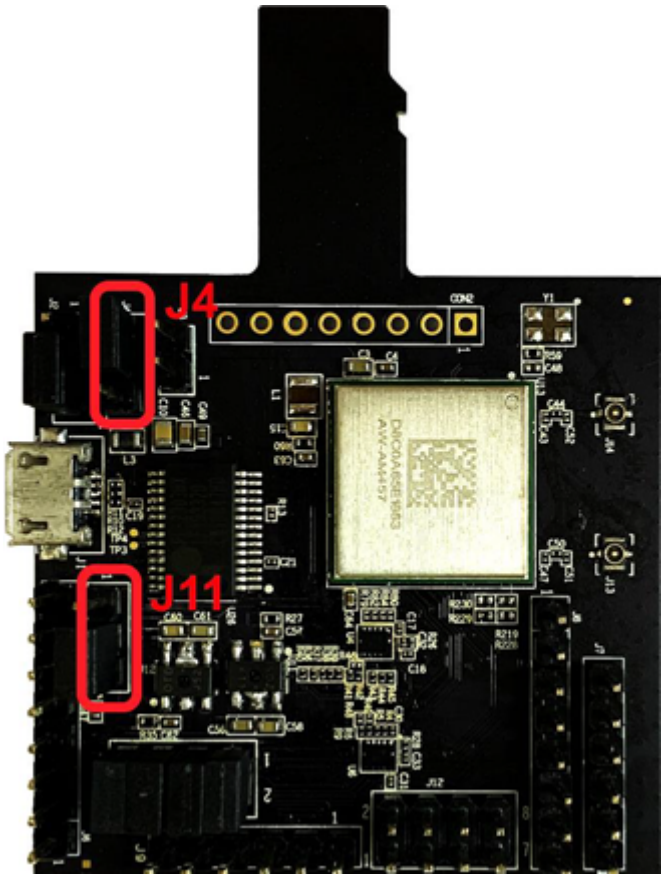


Figure 58. AW-AM457-uSD

Jumper Settings:

- Connect J4[2-3] for VIO 3.3 V supply
- Connect J11[2-3] for VIO_SD 3.3 V supply

PCM interface rework

Connect the pins of two boards as the following table.

Table 20. Connect pins

Pin Name	AW-AM457-uSD	i.MX RT685	PIN NAME of I.MX RT685	GPIONAME of I.MX RT685
PCM_IN	J9 (pin 1)	J47 (pin 7)	I2S2_TXD	FC2_RXD_SDA_MOSI_DATA
PCM_OUT	J9 (pin 2)	J28 (pin 4)	I2S5_RXD	FC5_RXD_SDA_MOSI_DATA
PCM_SYNC	J9 (pin 3)	J28 (pin 5)	I2S5_WS	FC5_TXD_SCL_MISO_WS
PCM_CLK	J9 (pin 4)	J28 (pin 6)	I2S5_SCK	FC5_SCK
GND	J9 (pin 6)	J29 (pin 7)	GND	GND

20 Hardware Rework Guide for MIMXRT685-EVK and AW-CM358-uSD

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT685-EVK board and AW-CM358-uSD. The AW-CM358-uSD user guide is available here. The hardware rework has one part:

- HCI UART rework

20.1 Hardware rework

HCI UART rework

R398 move from 1-2 to 2-3.

Connect the pins of two boards as the following table.

Table 21. Connect pins

Pin Name	AW-CM358-USD	i.MXRT685	PIN NAME	GPIONAME of RT685
UART_TXD	J10 (pin 4)	J27 (pin 1)	USART4_RXD	FC4_RXD_SDA_MOSI_DATA
UART_RXD	J10 (pin 2)	J27 (pin 2)	USART4_TXD	FC4_TXD_SCL_MISO_WS
UART_RTS	J10 (pin 6)	J47 (pin 9)	USART4_CTS	FC4_CTS_SDA_SSEL0
UART_CTS	J10 (pin 8)	J27 (pin 5)	USART4_RTS	FC4_RTS_SCL_SSEL1
GND	J6 (pin 7)	J29 (pin 6)	GND	GND

Figure 59. MIMXRT685-EVK

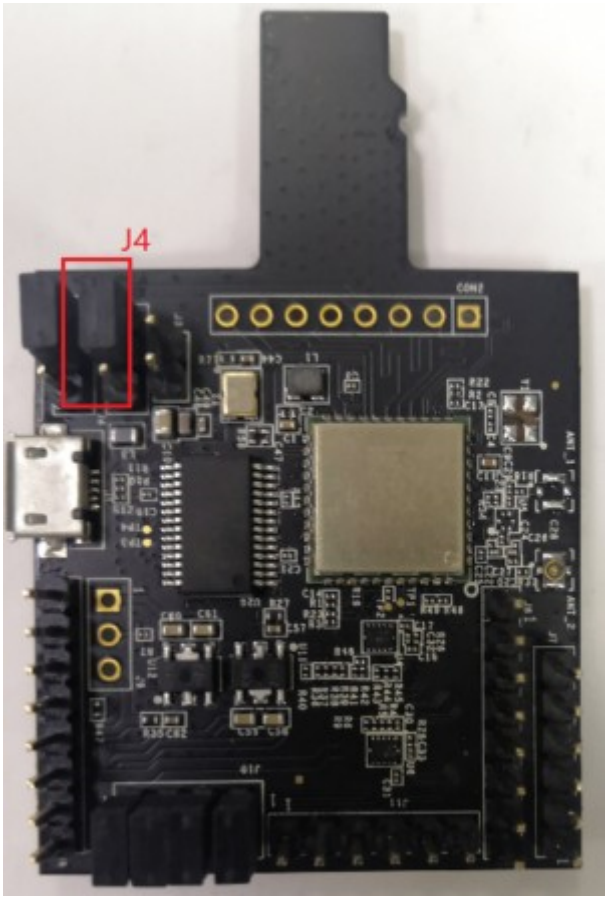


Figure 60. AW-CM358-uSD

Jumper Setting:

Connect J4[1-2] for VIO 1.8 V supply.

PCM interface rework

Connect the pins of two boards as the following table.

Table 22. Connect pins

Pin Name	AW-CM358-USD	i.MX RT685	PIN NAME of RT685	GPIONAME of RT685
PCM_IN	J11 (pin 1)	J47 (pin 7)	I2S2_TXD	FC2_RXD_SDA_MOSI_DATA
PCM_OUT	J11 (pin 2)	J28 (pin 4)	I2S5_RXD	FC5_RXD_SDA_MOSI_DATA
PCM_SYNC	J11 (pin 3)	J28 (pin 5)	I2S5_WS	FC5_TXD_SCL_MISO_WS
PCM_CLK	J11 (pin 4)	J28 (pin 6)	I2S5_SCK	FC5_SCK
GND	J11 (pin 5)	J29 (pin 7)	GND	GND

21 Hardware Rework Guide for MIMXRT685-EVK and AW-AM510-uSD

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT685-EVK board and AW-AM510-uSD. The AW-AM510-uSD user guide is available here. The hardware rework has one part:

- HCI UART rework

21.1 Hardware rework

- **HCI UART rework**
  Connect the pins of two boards as the following table.

Table 23. Connect pins

Pin Name	AW-AM510-uSD	i.MXRT685	PIN NAME	GPIO NAME of RT685
UART_TXD	J10 (pin 4)	J27 (pin 1)	USART4_RXD	FC4_RXD_SDA_MOSI_DATA
UART_RXD	J10 (pin 2)	J27 (pin 2)	USART4_TXD	FC4_TXD_SCL_MISO_WS
UART_RTS	J10 (pin 6)	J47 (pin 9)	USART4_CTS	FC4_CTS_SDA_SSEL0
UART_CTS	J10 (pin 8)	J27 (pin 5)	USART4_RTS	FC4_RTS_SCL_SSEL1
GND	J6 (pin 7)	J29 (pin 6)	GND	GND

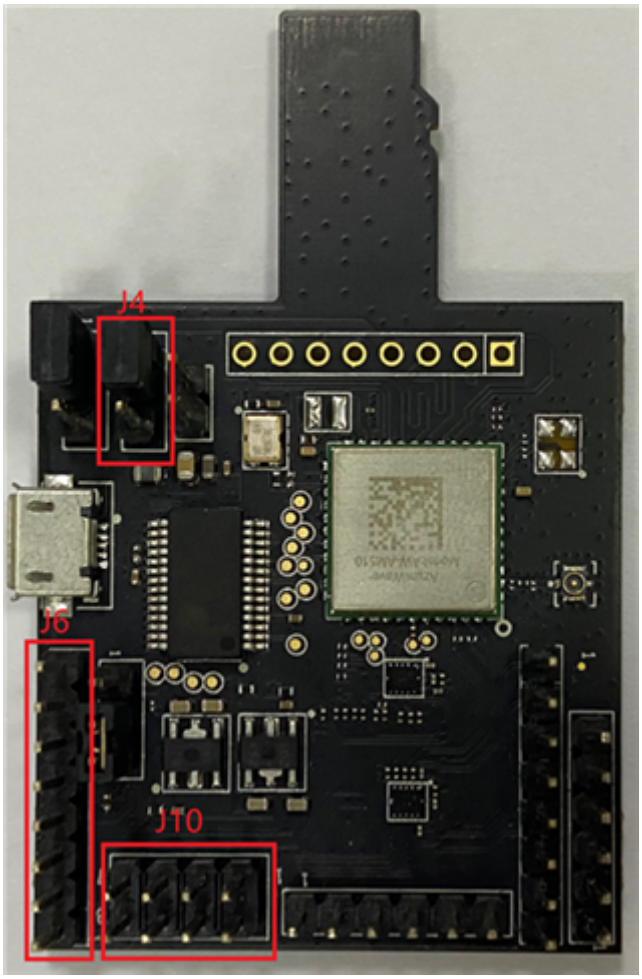


Figure 61. AW-AM510-uSD

Jumper Setting:

– Connect J4[2-3] for VIO 3.3 V supply

- **PCM interface rework**
  Connect the pins of two boards as the following table.

Table 24. Connect pins

PIN NAME	AW-AM510-USD	i.MX RT685	PIN NAME of RT685	GPIONAME of RT685
PCM_IN	J11 (pin 1)	J47 (pin 7)	I2S2_TXD	FC2_RXD_SDA_MOSI_DATA
PCM_OUT	J11 (pin 2)	J28 (pin 4)	I2S5_RXD	FC5_RXD_SDA_MOSI_DATA
PCM_SYNC	J11 (pin 3)	J28 (pin 5)	I2S5_WS	FC5_TXD_SCL_MISO_WS
PCM_CLK	J11 (pin 4)	J28 (pin 6)	I2S5_SCK	FC5_SCK
GND	J11 (pin 6)	J29 (pin 7)	GND	GND

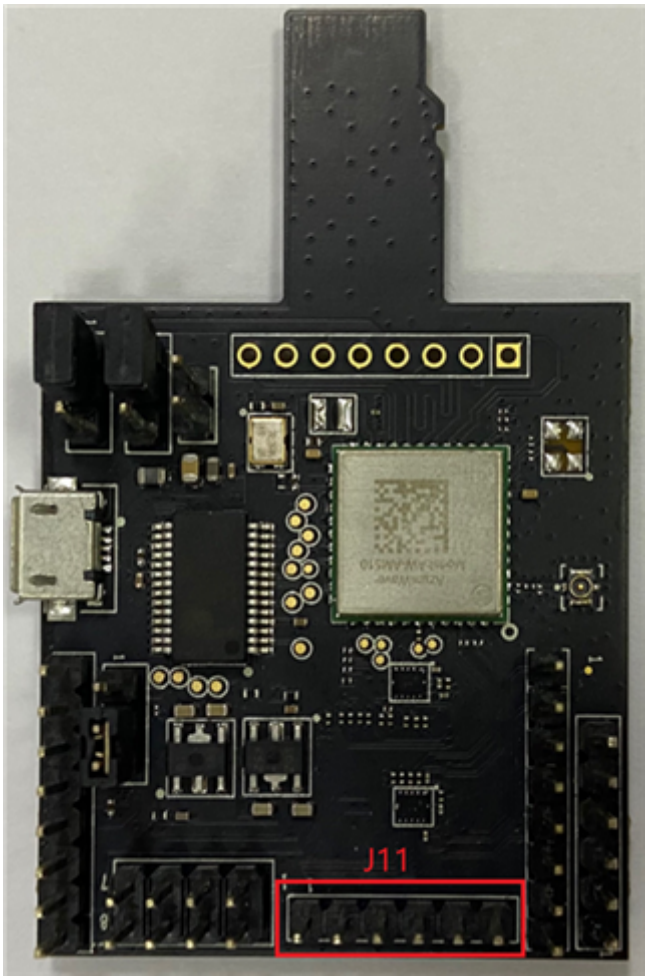


Figure 62. AW-AM510-uSD

22 Hardware Rework Guide for MIMXRT685-EVK and Murata uSD-M.2 Adapter

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT685-EVK board and the Murata uSD-M.2 adapter. For details on the Murata uSD-M.2 Adapter, see Murata's uSD-M.2 webpage.

The hardware rework has one part:

- HCI UART rework

22.1 Hardware rework

HCI UART rework :

- JP12 2-3
- Connect the pins of two boards as the following table using jumper cables included in Murata's uSD-M.2 Adapter kit.

Table 25. Connect HCI UART pins

Pin name	uSD-M.2 adapter pin	i.MX RT685 pin	Pin name of RT685	GPIO name of RT685
BT_UART_TXD_HOST	J9 (pin 1)	J27 (pin 1)	USART4_RXD	FC4_RXD_SDA_MOSI_DATA
BT_UART_RXD_HOST	J9 (pin 2)	J27 (pin 2)	USART4_TXD	FC4_TXD_SCL_MISO_WS
BT_UART_RTS_HOST	J8 (pin 3)	J47 (pin 9)	USART4_CTS	FC4_CTS_SDA_SSEL0
BT_UART_CTS_HOST	J8 (pin 4)	J27 (pin 5)	USART4_RTS	FC4_RTS_SCL_SSEL1

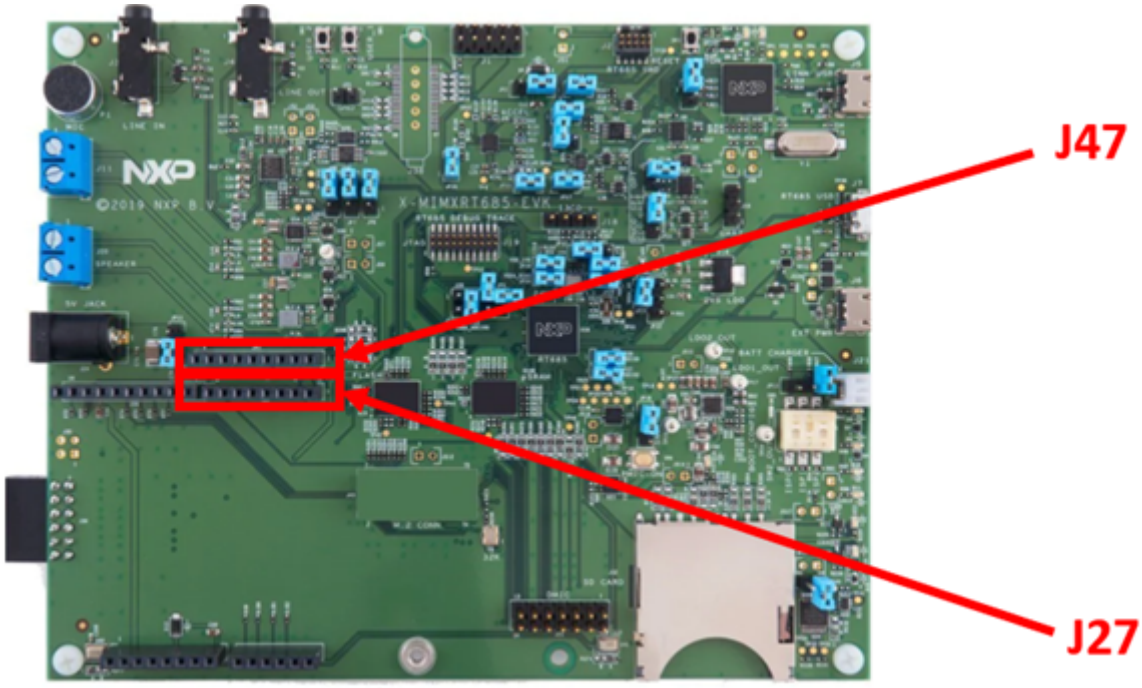


Figure 63. MIMXRT685-EVK

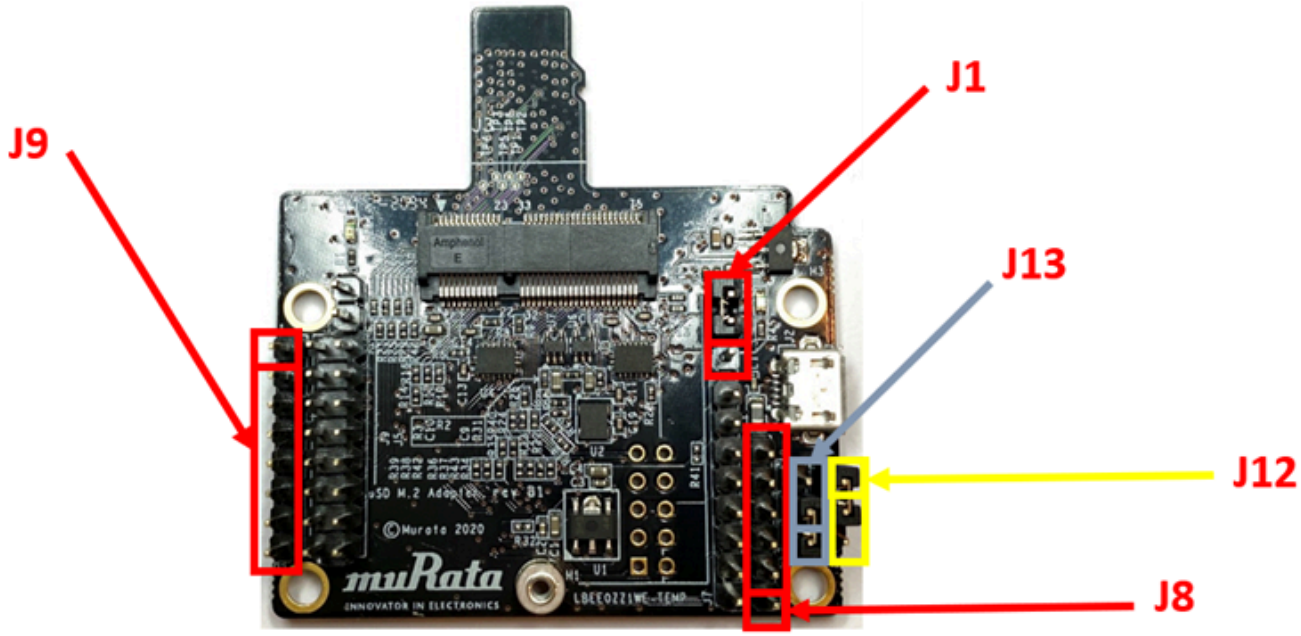


Figure 64. Murata uSD-M.2 adapter

Murata uSD-M.2 jumper settings:

- Both J12 and J13 = 1-2 (WLAN-SDIO = 1.8 V; and BT-UART and WLAN/BT-CTRL = 3.3 V)
- J1 = 2-3 (3.3 V from uSD connector)

23 Hardware Rework Guide for MIMXRT685-AUD-EVK and Murata M.2 Module

This section is a brief hardware rework guidance of the Edgefast Bluetooth PAL on the NXP i.MX MIMXRT685-AUD-EVK board and the Murata 1XK or 1ZM solution - direct M.2 connection to Embedded Artists' EAR00385 (1XK)or EAR00364 (1ZM) M.2 modules.

The hardware rework has one part:

- HCI UART rework

23.1 Hardware rework

HCI UART rework:

Mount R300~R305 A-B

Jumper Setting:

- Connect JP41[2-3]

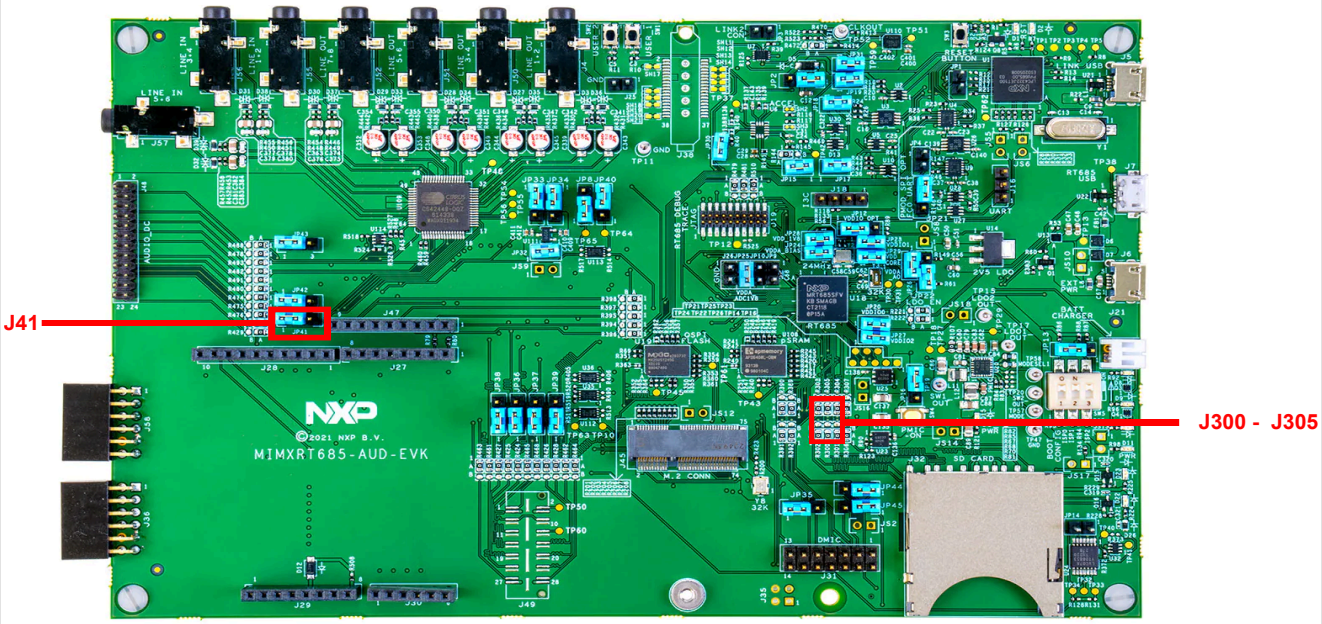


Figure 65. MIMRT685-AUD-EVK

24 Hardware Rework Guide for Low Power Feature on MIMXRT595-EVK and Murata 2EL M.2 Module

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL for low power feature on the NXP i.MX MIMXRT595-EVK board and the Murata's 2EL - direct M.2 connection to Embedded Artists' Rev-A1 (2EL) M.2 modules.

The hardware rework has three parts:

- Debug console serial rework
- Host wake-up controller pin rework (H2C)
- Controller wake-up host pin rework (C2H)

24.1 Hardware rework

- **Debug console serial rework**
  For details, refer Section 24 "Hardware Rework Guide for MIMXRT595-EVK and Murata M.2 Module".
- **Host wake-up controller pin rework**:
  For details, refer Section 25 "Hardware Rework Guide for Low Power Feature on MIMXRT595-EVK and Murata 1XK M.2 Module ".
- **Controller wake-up host pin rework:**

1. Remove resistors R709 on MIMXRT595-EVK,
2. Solder 0K ohm resistor on R33 of Murata 2EL M.2 Module
3. Solder 10K ohm resistor on the Murata 2EL M.2 Module between TP1 and TP20.

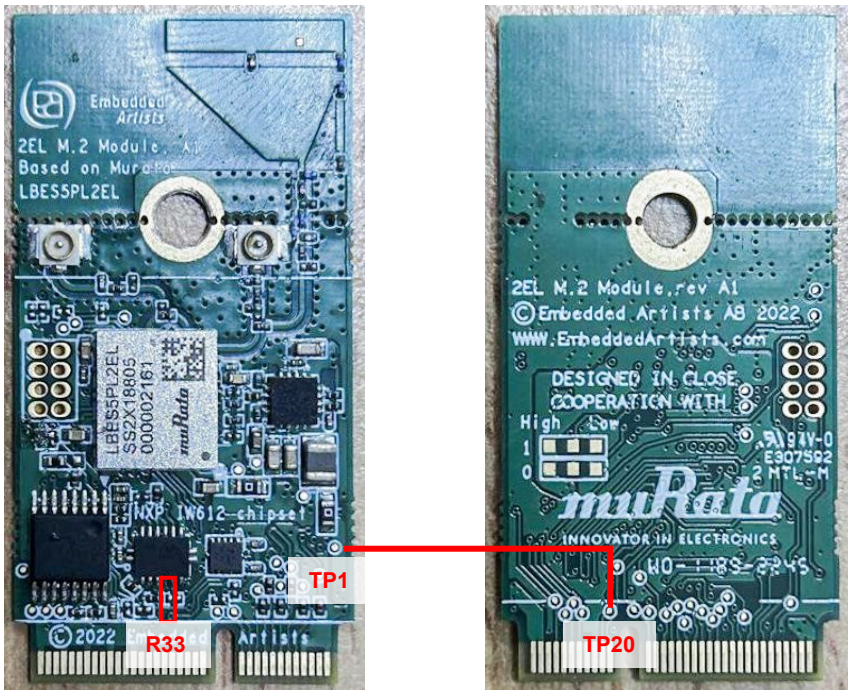


Figure 66. Harwre rework

25 Hardware Rework Guide for MIMXRT595-EVK and Murata M.2 Module

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT595-EVK board and the Murata's 1XK or 1ZM solution - direct M.2 connection to Embedded Artists EAR00385 (1XK) or EAR00364 (1ZM) M.2 modules.

The hardware rework has one part:

- Debug console serial rework

25.1 Hardware rework

Debug console serial rework:

No special rework is required, except the following to enable the debug port.

- JP4 1-2.
- J27 1 - TX of USB to serial converter
- J27 2 - RX of USB to serial converter

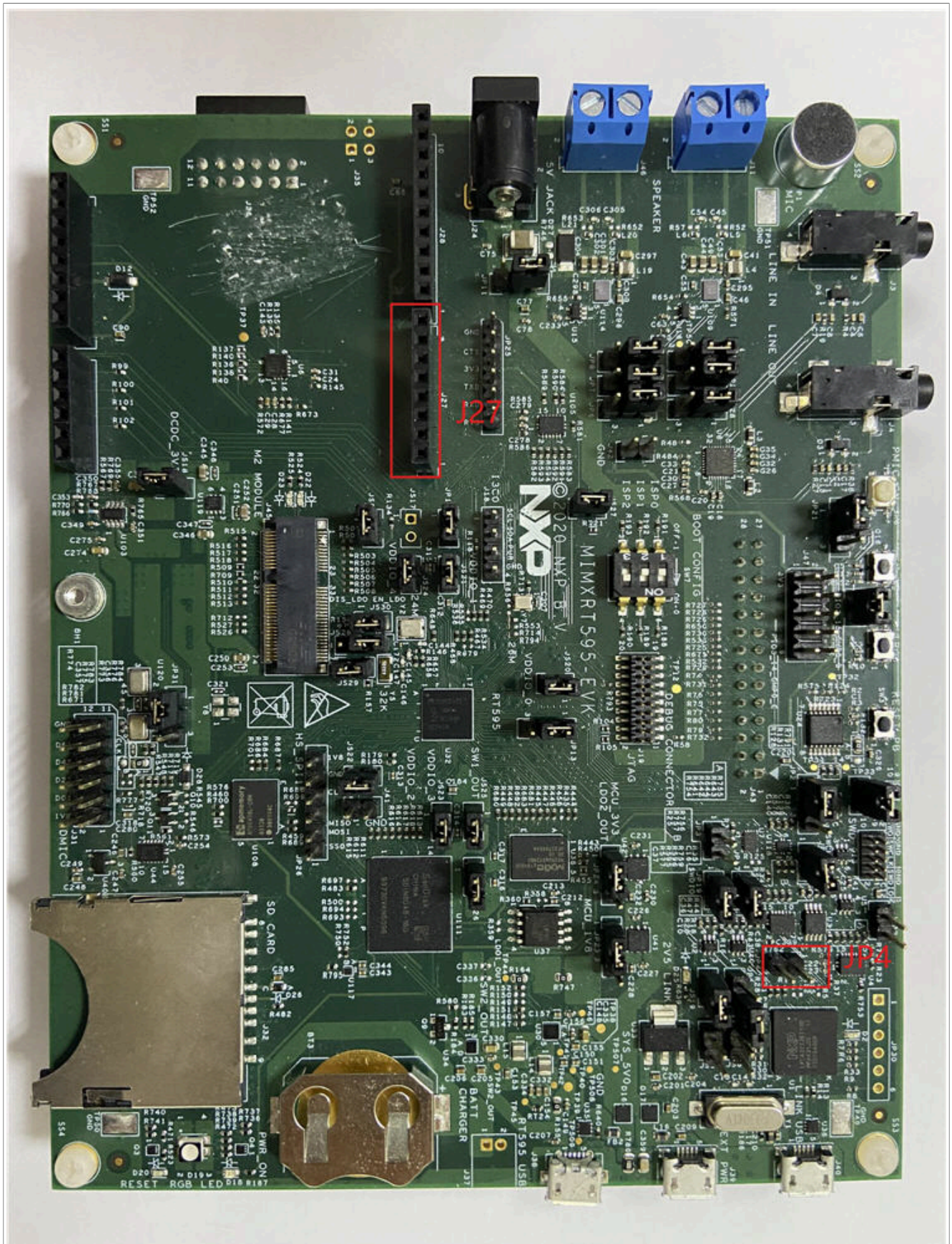


Figure 67. MIMXRT595

26 Hardware Rework Guide for Low Power Feature on MIMXRT595-EVK and Murata 1XK M.2 Module

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL for low power feature on the NXP i.MX MIMXRT595-EVK board and the Murata's 1XK - direct M.2 connection to Embedded Artists EAR00385 (1XK) M.2 modules.

The hardware rework has three parts:

- Debug console serial rework
- Host wake-up controller pin rework (H2C)
- Controller wake-up host pin rework (C2H)

26.1 Hardware rework

Debug console serial rework:

For details, refer Section 25 "Hardware Rework Guide for MIMXRT595-EVK and Murata M.2 Module".

Host wake-up controller pin rework:

Connect M.2 (pin 42) to JP26 (pin 4) with a wire.

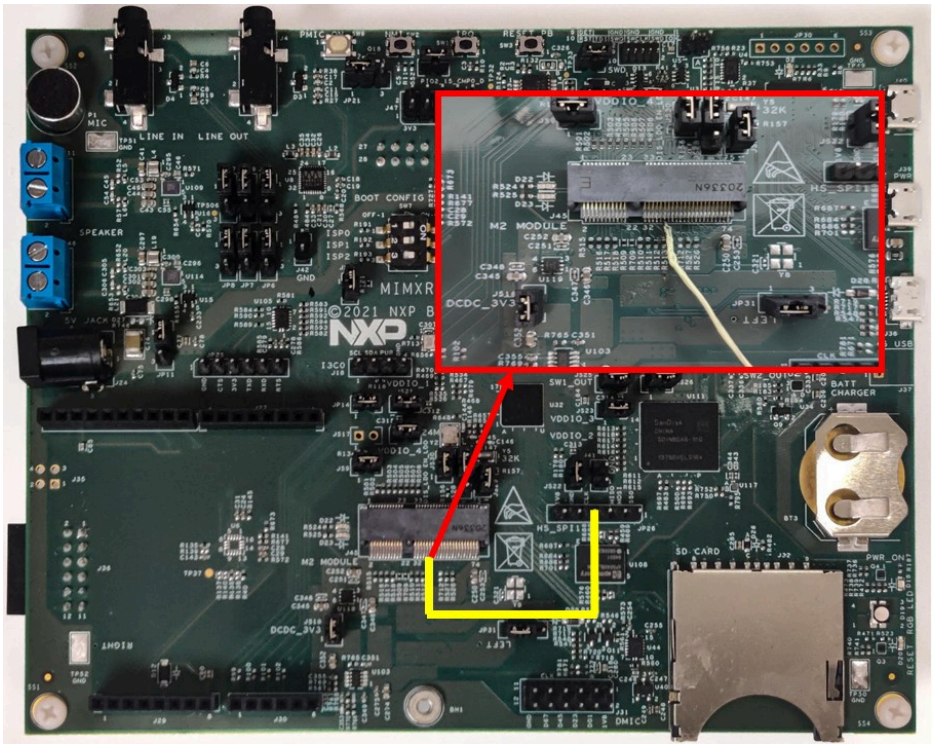


Figure 68. MIMXRT595-EVK

Controller wake-up host pin rework:

1. Remove resistors R709 on MIMXRT595-EVK.
2. Solder 10K ohm resistor on the Murata 1XK M.2 Module at the location shown in Figure 69.

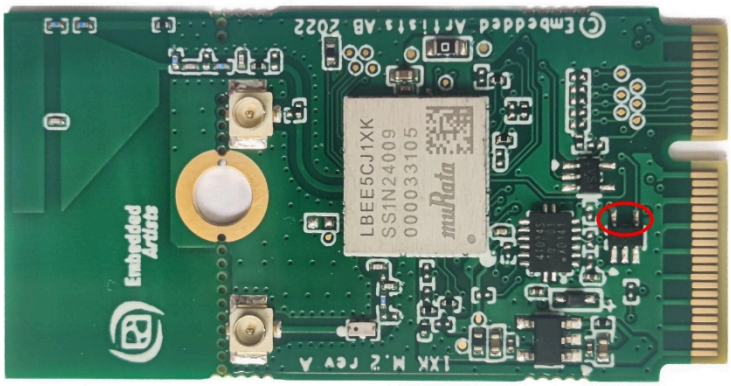


Figure 69. Murata 1XK M.2 Module

27 Hardware Rework Guide for MIMXRT595-EVK and AW-AM510MA

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT595-EVK board and AW-AM510MA. The AW-AM510MA user guide is available here. The hardware rework has one part:

- Debug console serial rework

27.1 Hardware rework

Debug console serial rework:

No special rework is required, except the following to enable the debug port.

- Connect J39 with external power.
- Connect JP4 1-2.
- J27 1 — TX of USB to serial converter.
- J27 2 — RX of USB to serial converter.

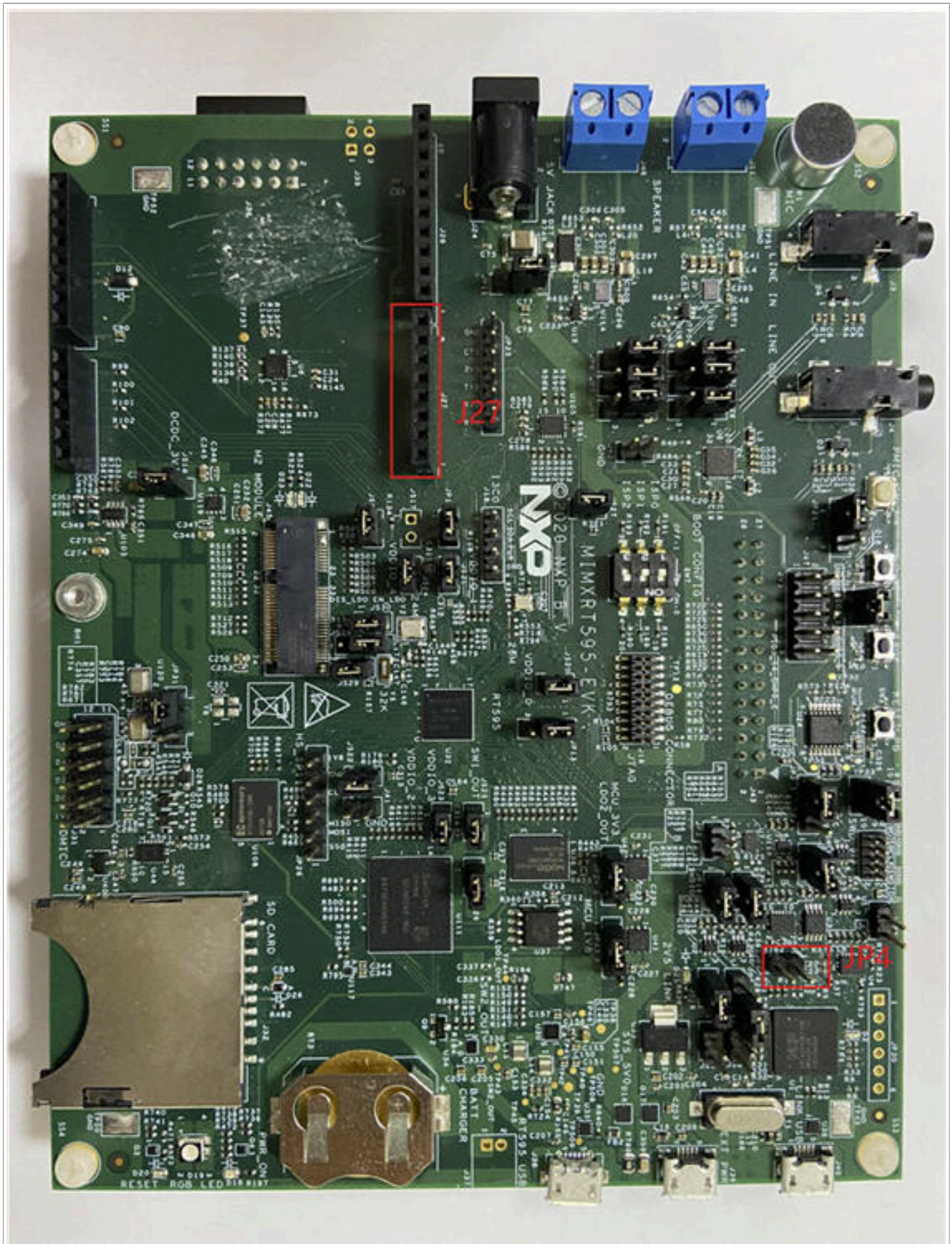


Figure 70. MIMXRT595-EVK

28 Hardware Rework Guide for MIMXRT595-EVK and AW-CM358MA

This section is a brief hardware rework guidance of the Ethermind Bluetooth stack on the NXP i.MX MIMXRT595-EVK board and AW-CM358MA. The AW-CM358MA user guide is available here. The hardware rework has one part:

- Debug console serial rework

28.1 Hardware rework

Debug console serial rework:

- Connect J39 with external power.
- JP4 1-2
- J27 1 - TX of USB to serial converter
- J27 2 - RX of USB to serial converter

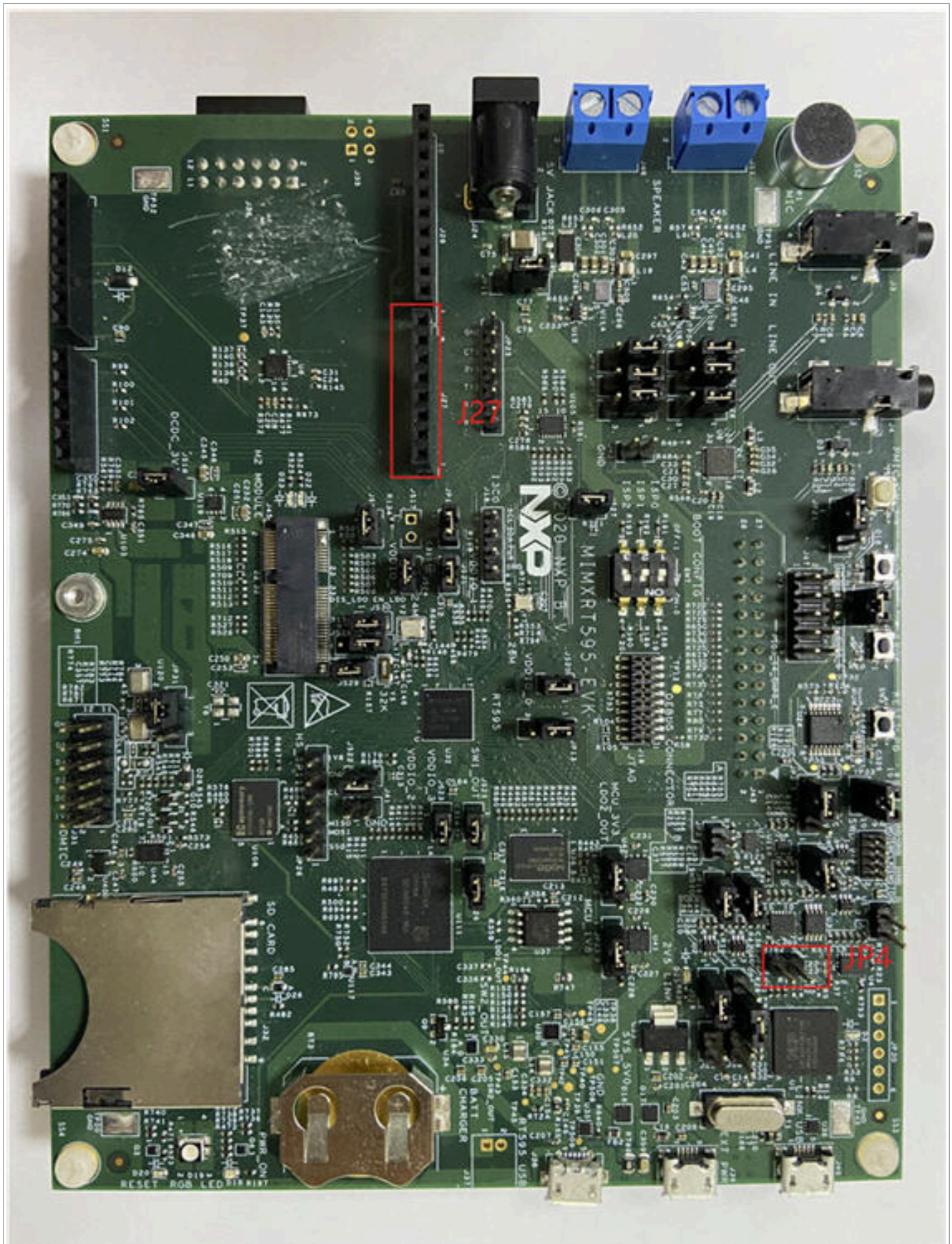


Figure 71. MIMXRT595-EVK

29 Hardware Rework Guide for MIMXRT1040-EVK and Murata M.2 Module

This section is a brief hardware rework guidance of the Edgefast Bluetooth PAL on the NXP i.MX MIMXRT1040-EVK board and the Murata 1XK or 1ZM solution - direct M.2 connection to Embedded Artists' EAR00385 (1XK) or EAR00364 (1ZM) M.2 modules.

The hardware rework has two parts:

- HCI UART rework
- PCM interface rework

29.1 Hardware rework

1. HCI UART rework
   - Solder R93 and R96
2. PCM interface rework
   - Solder R70 and R79; remove R76 and R86; Connect J80.

Note: *Make sure to disconnect J80 when debugging. Otherwise, the debugger downloading fails.*

30 Hardware Rework Guide for MIMXRT1160-EVK and Murata M.2 Module

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1160-EVK board and the Murata 1XK or 1ZM solution - direct M.2 connection to the Embedded Artists' EAR00385 (1XK) or EAR00364 (1ZM) M.2 modules.

30.1 Introduction

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1160-EVK and the Murata 1XK M.2 solution.

The hardware rework has two parts:

- HCI UART rework
- PCM interface rework

30.2 Hardware rework

- HCI UART rework:
  - Remove: R183 R176 R1816
  - Add 0 ohm R404 R1901 R1902

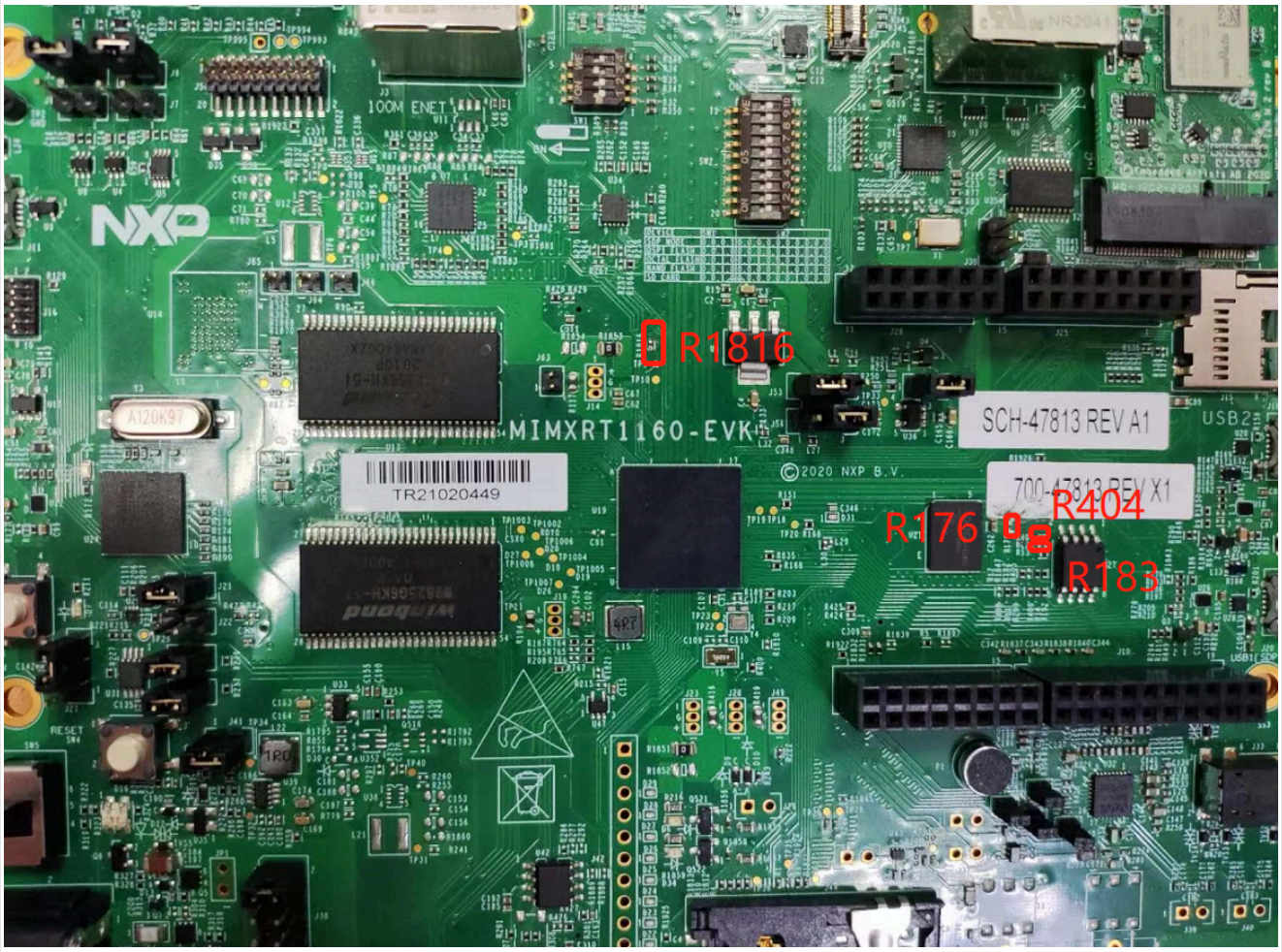


Figure 72. MIMXRT1160-EVK

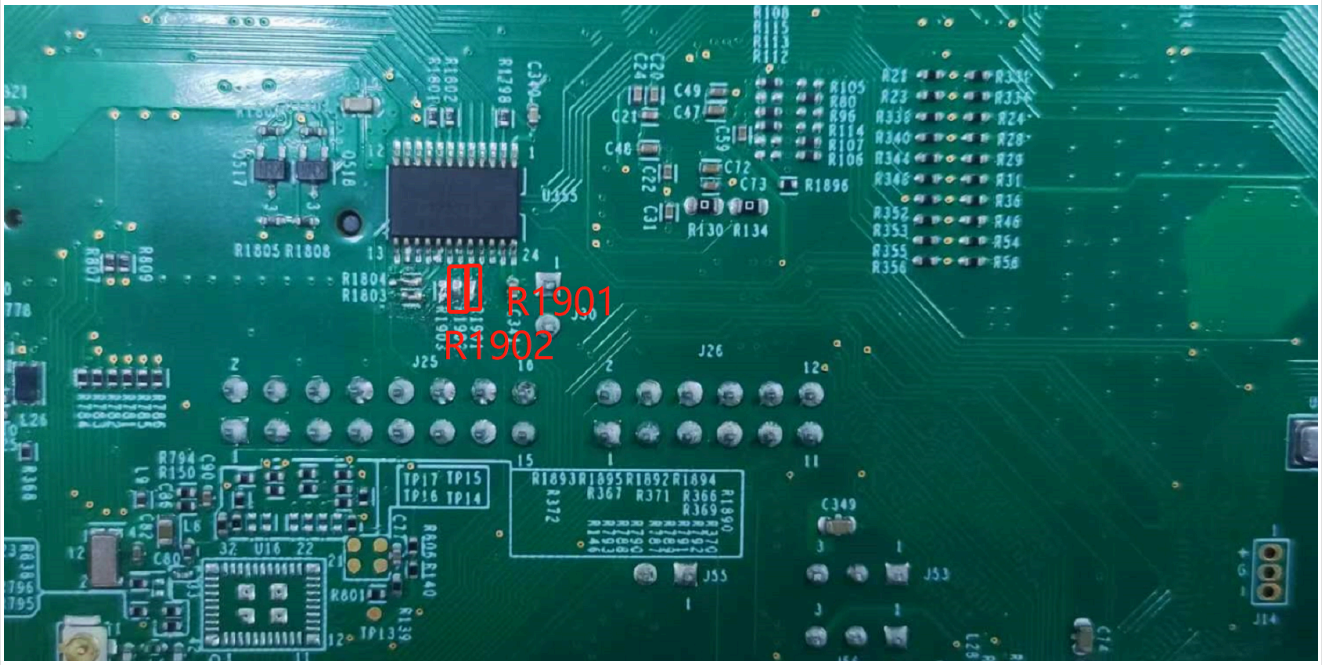


Figure 73. MIMXRT1160-EVK

- PCM interface rework:
  - Remove R1799 R1800
  - Add 0 ohm R1903 R1803 R1804

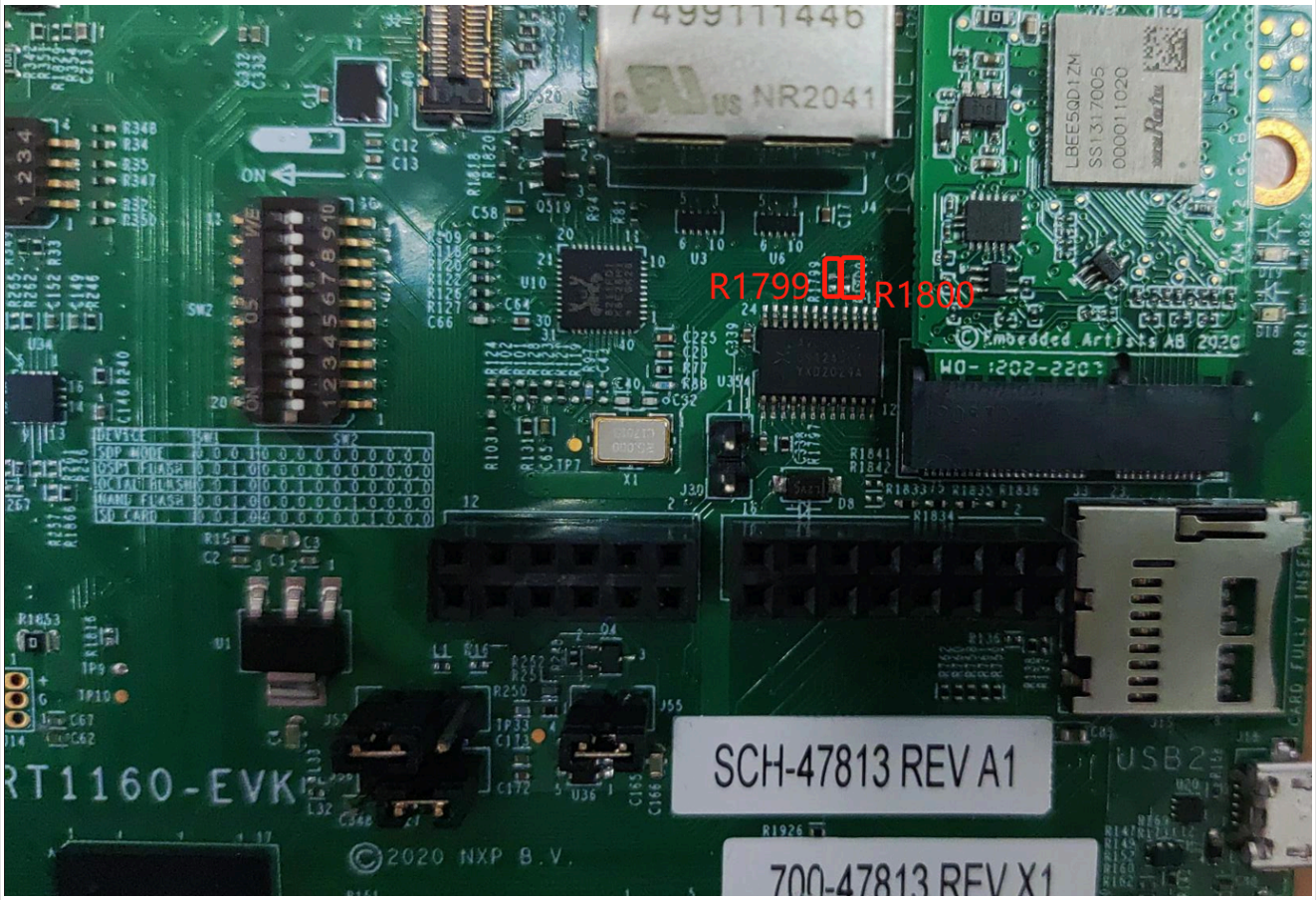


Figure 74. MIMXRT1160-EVK

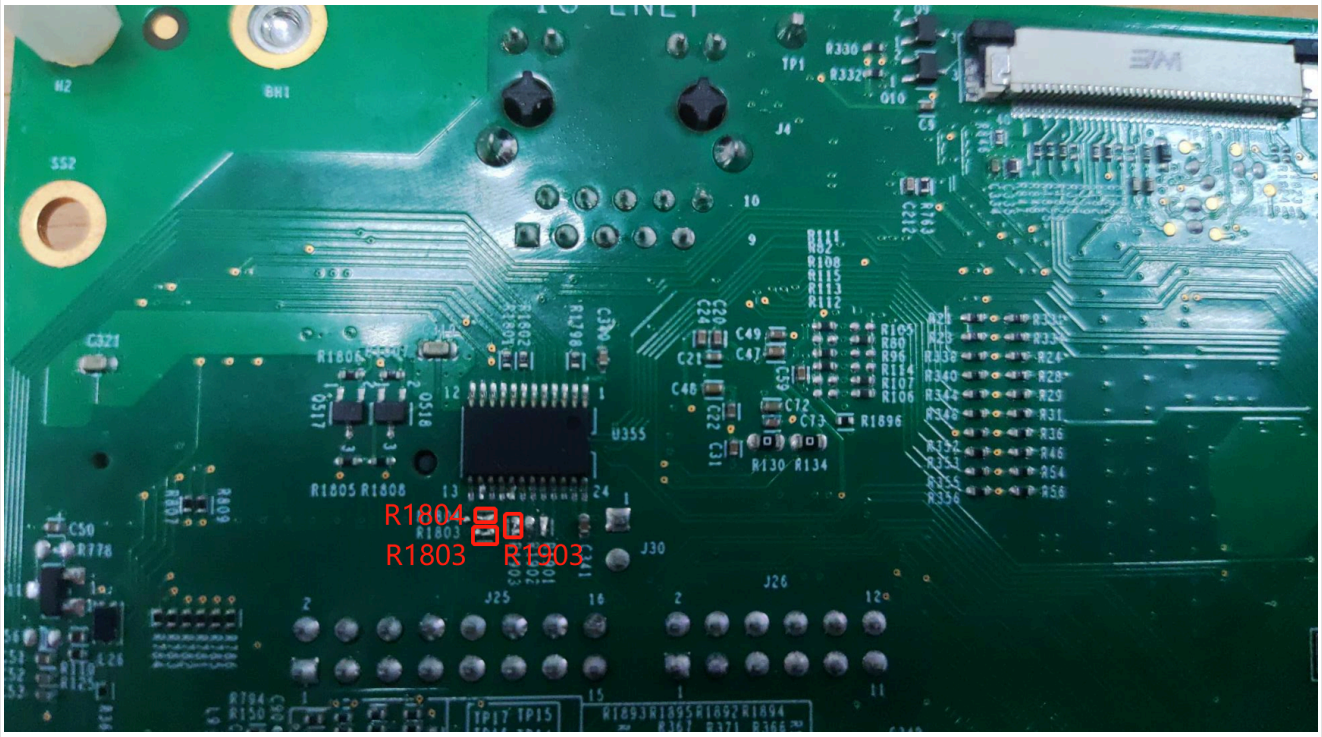


Figure 75. MIMXRT1160-EVK

30.3 Jumper settings for RT1160-EVK enabling 5 V external supply

- Remove J38 5-6.
- Connect J38 1-2.
- Connect J43 with external power; controlled by SW5 .
  Note: *To run the application after downloading the binary into qspiflash, boot directly from qspiflash and reset the board by pressing SW4 or power off/on the board.*

31 Hardware Rework Guide for MIMXRT1060-EVKC and Murata 1XK M.2 Adapter

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1060-EVKC and the Murata 1XK M.2 solution - direct M.2 connection to Embedded Artists' EAR00385(1XK) M.2 modules.

The hardware rework has two parts:

- HCI UART rework
- PCM interface rework

31.1 Hardware rework

- **HCI UART rework**

1. Mount R93, R96.
2. Remove R193.
3. Connect J109, connect J76 2-3.

- **PCM interface rework**

1. Remove J54 and J55, connect J56 and J57.
2. Remove R220.
3. Connect J103.

Note: *When J103 is connected, flash cannot be downloaded. So, remove the connection when downloading flash and reconnect it after downloading.*

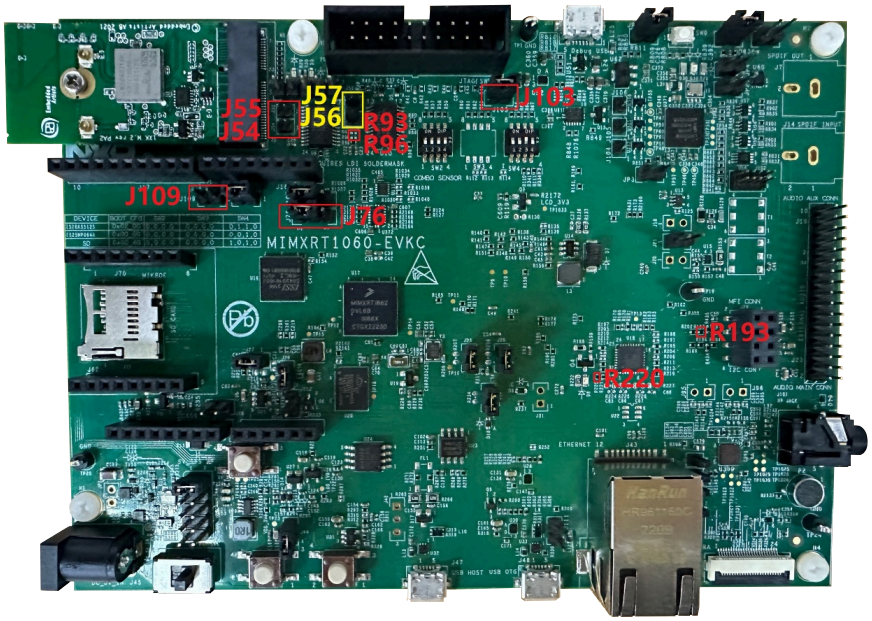


Figure 76. MIMXRT1060-EVKC

32 Hardware Rework Guide for MIMXRT1060-EVKC and Murata 1ZM M.2 Adapter

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1060-EVKC and the Murata 1ZM M.2 solution - direct M.2 connection to Embedded Artists' EAR00364(1ZM) M.2 modules.

The hardware rework has two parts:

- HCI UART rework
- PCM interface rework

32.1 Hardware rework

- HCI UART rework

1. Mount R93, R96.
2. Remove R193.
3. Connect J109, connect J76 2-3.

- PCM interface rework

1. Remove J54 and J55, connect J56 and J57.
2. Remove R220.

3. Connect J103.

Note: *When J103 is connected, flash cannot be downloaded. So, remove the connection when downloading flash and reconnect it after downloading.*

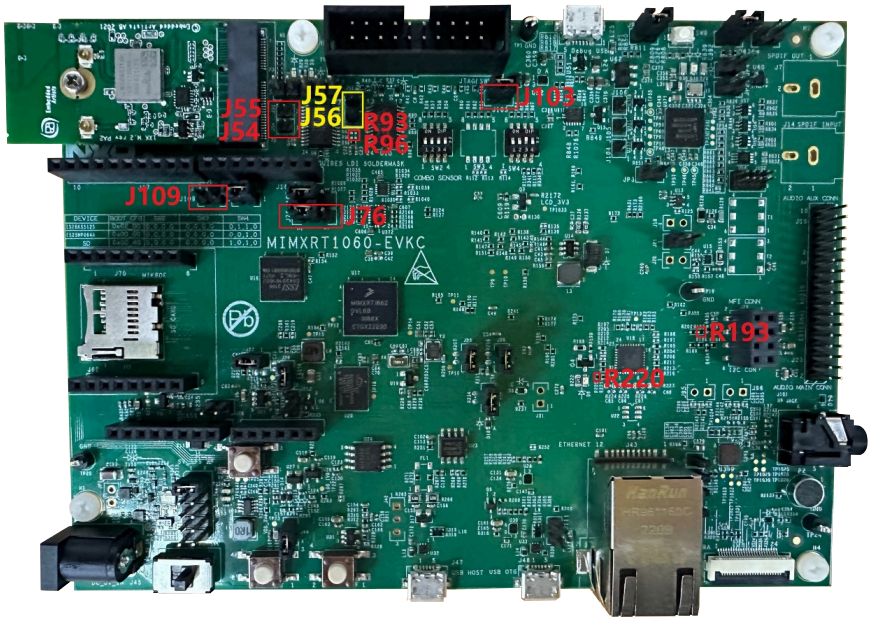


Figure 77. MIMXRT1060-EVKC

33 Hardware Rework Guide for MIMXRT1060-EVKC and Murata 2EL M.2 Adapter

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP i.MX MIMXRT1060-EVKC and the Murata 2EL M.2 solution - direct M.2 connection to Embedded Artists' Rev-A1 (2EL) M.2 modules.

The hardware rework has three parts:

- HCI UART rework
- PCM interface rework
- LE Audio Synchronization interface rework (only used on sink side)

33.1 Hardware rework

- HCI UART rework

1. Mount R93, R96.
2. Remove R193.
3. Connect J109, connect J76 2-3.

- PCM interface rework
  1. Remove J54 and J55, connect J56, and J57.
  2. Remove R220.
  3. Connect J103.
     Note: *When J103 is connected, flash cannot be downloaded. So, remove the connection when downloading flash and reconnect it after downloading.*

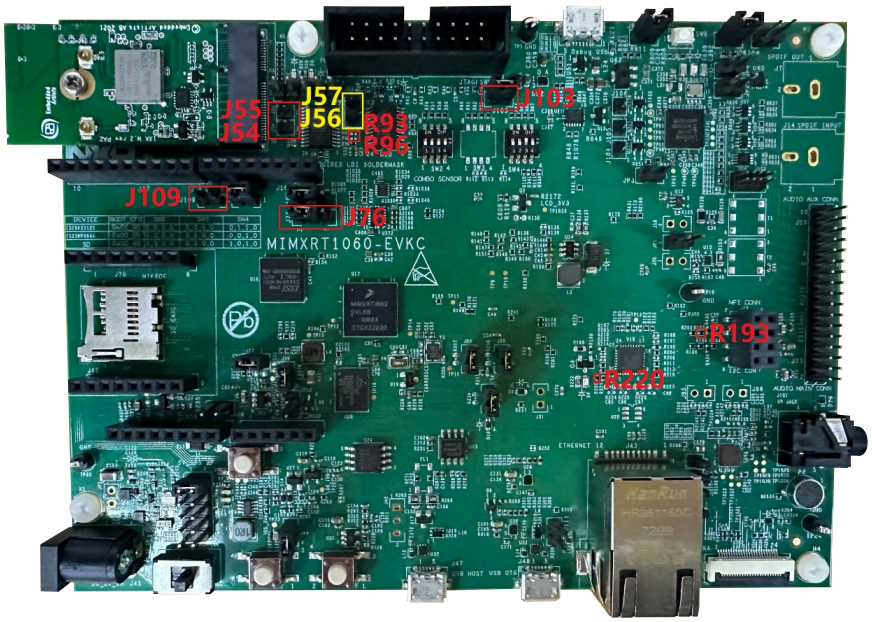


Figure 78. MIMXRT1060-EVKC

- LE Audio Synchronization interface rework (only used on sink side)
  1. Remove J110 jumper cap.
  2. Remove R196, R201, R213, and R211.
  3. Connect J110-1 (GPT2_CLK) to R2140 (SAI_MCLK).
  4. Connect ENET_MDIO (GPT2_CAP1) with J97 (SAI_SW).
  5. Connect ENET_MDC (GPT2_CAP2) with 2EL's GPIO_27 (Sync Signal).

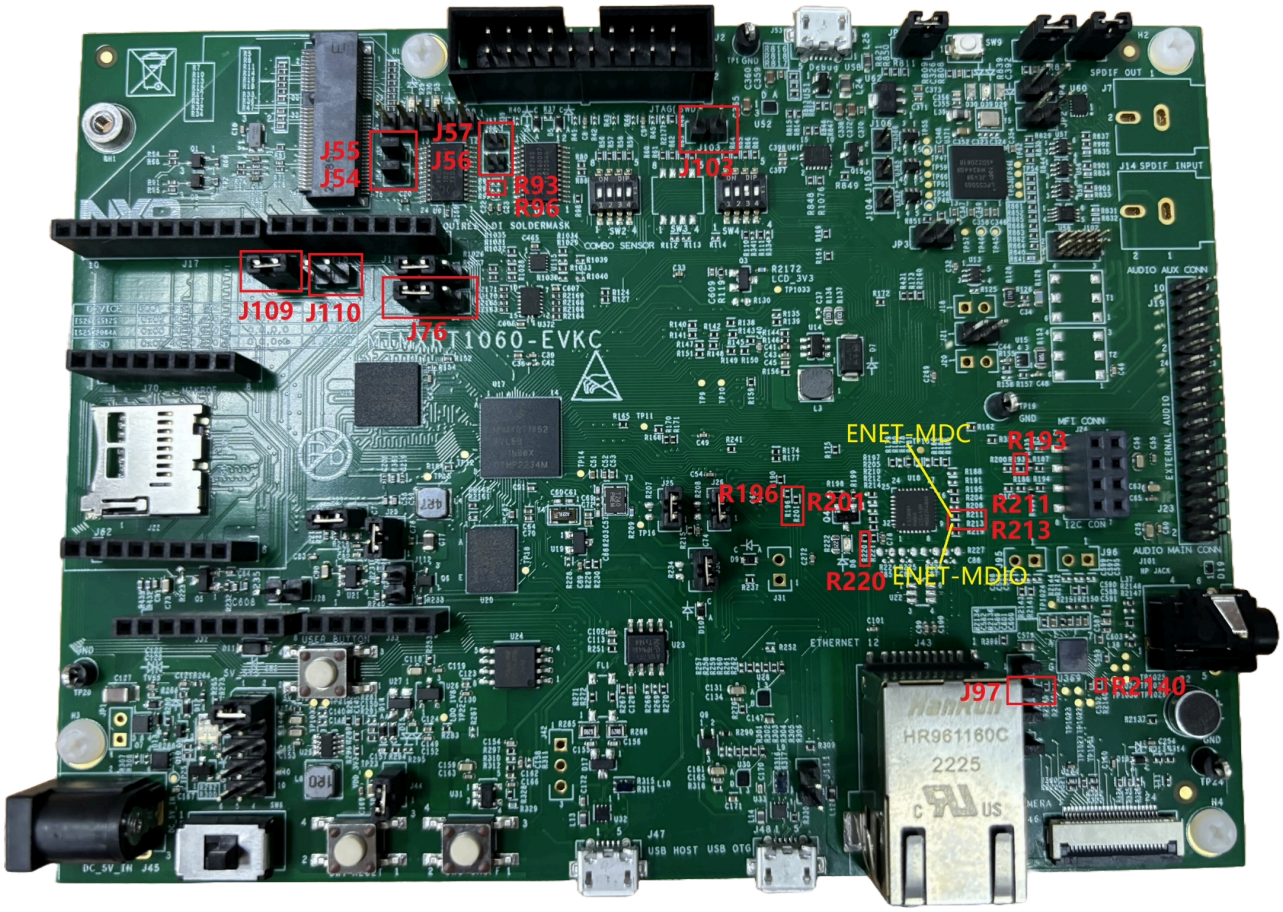


Figure 79. RT1060-EVKC front side

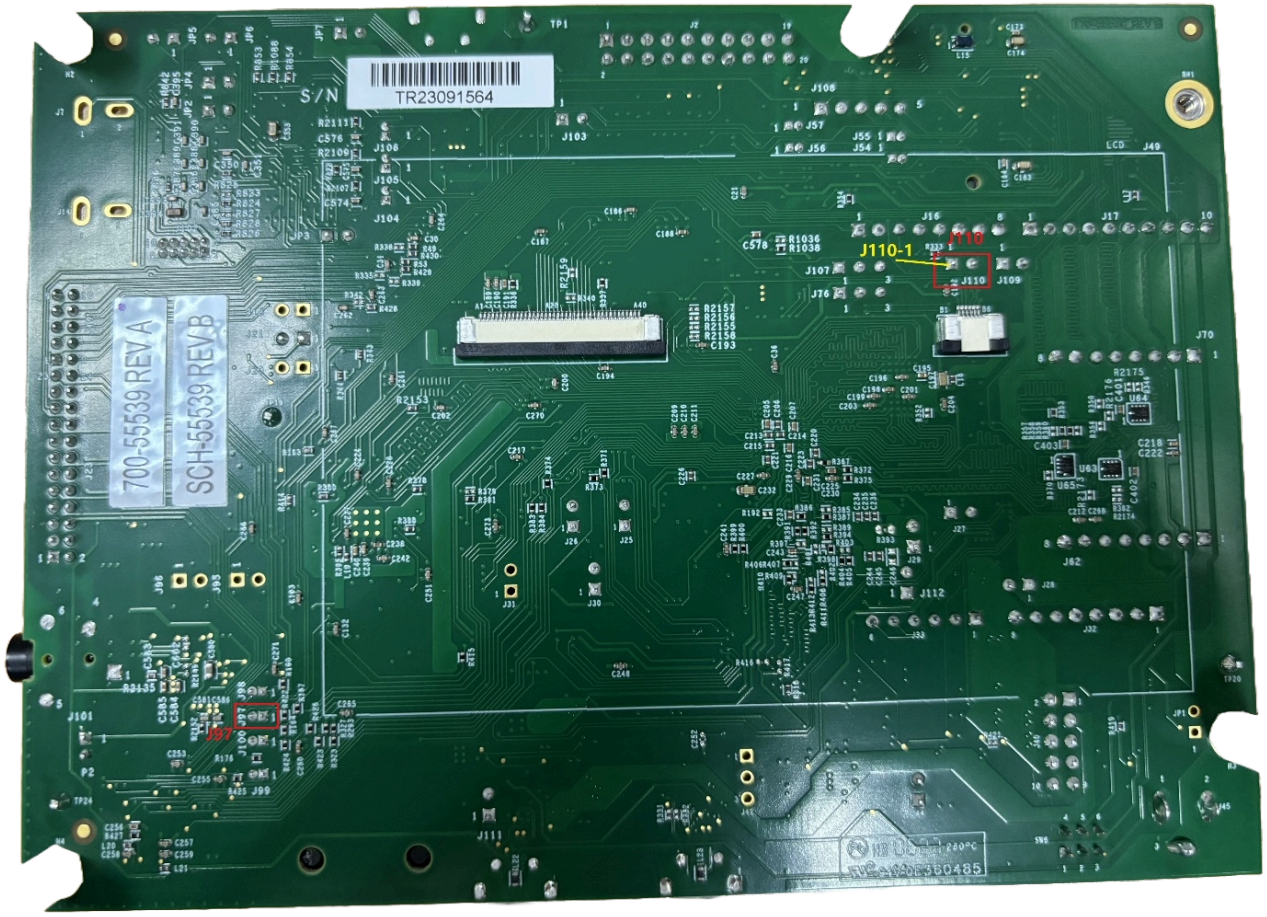


Figure 80. RT1060-EVKC back side

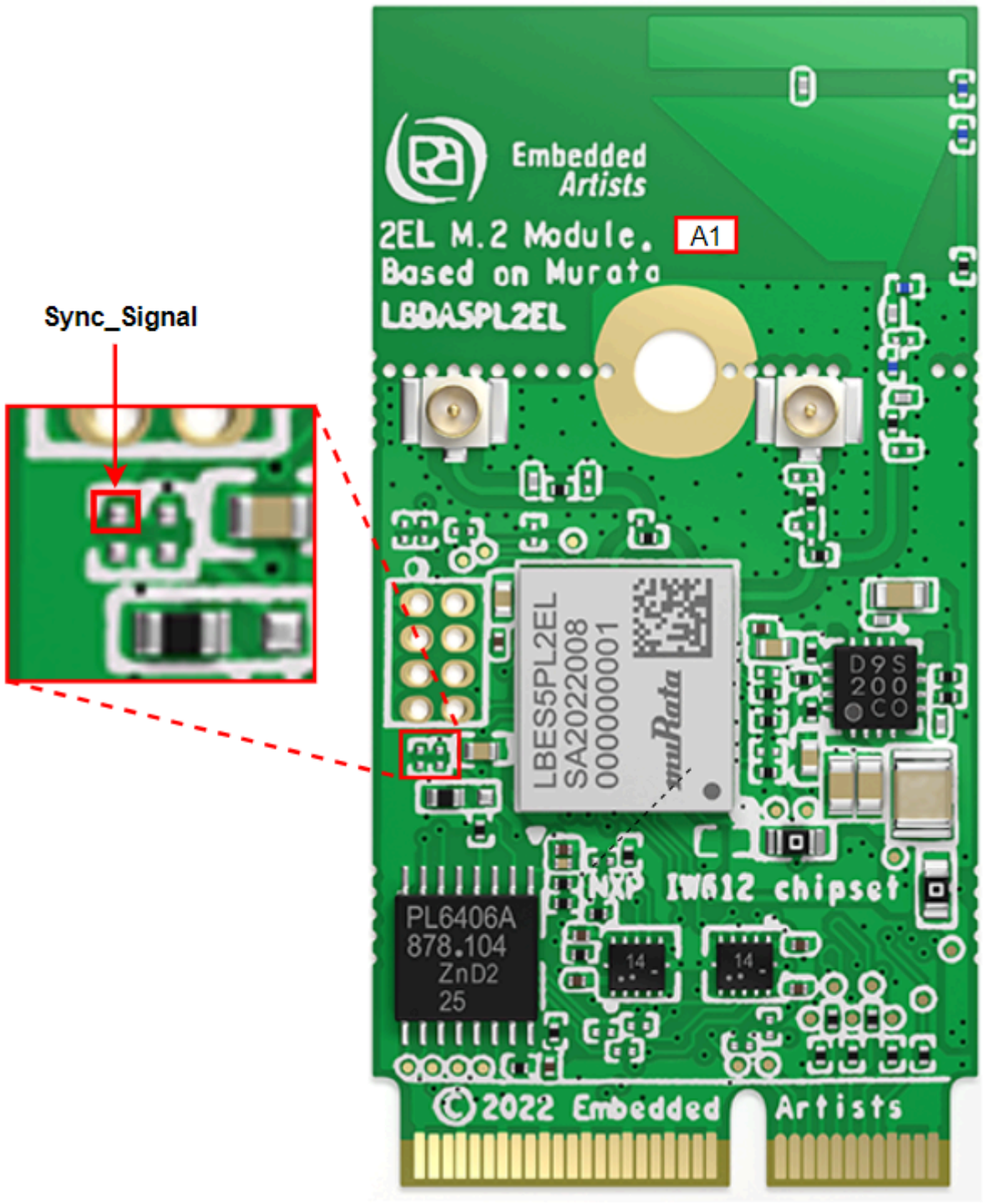


Figure 81. Embedded Artists' Rev-A1 (2EL) M.2 module's GPIO_27 (Sync_Signal) pad

34 Hardware Rework Guide for MCXN547-EVK and Murata M.2 Module

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP MCXN548-EVK board and the Murata 1XK or 1ZM solution - direct M.2 connection to Embedded Artists' EAR00385 (1XK) or EAR00364 (1ZM) M.2 modules. The hardware rework consists of two parts:

- M.2 UART interface
- M.2 SDIO interface

34.1 Hardware rework

- M.2 UART interface rework
  - Mount R835
  - Connect JP45 2-3 to supply 1.8V for GPIO4
- M.2 SDIO interface rework
  - Remove R818, connect R823
  - Remove R819, connect R824
  - Remove R817, connect R822
  - Remove R815, connect R816
  - Remove R820, connect R825
  - Remove R821, connect R826

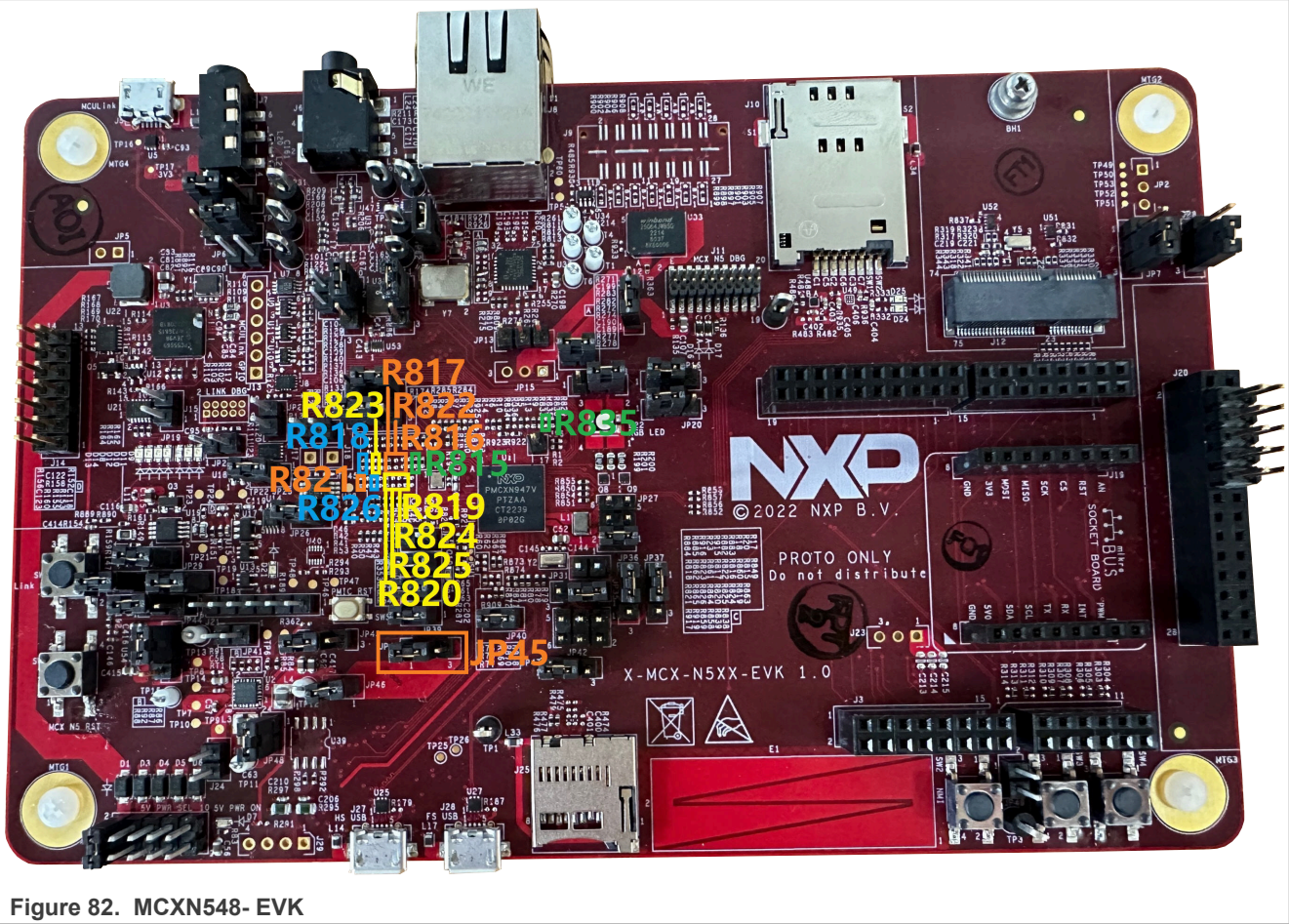


Figure 82. MCXN548- EVK

35 Hardware Rework Guide for MCXN947-EVK and Murata M.2 Module

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP MCXN947-EVK board and the Murata 1XK or 1ZM solution - direct M.2 connection to Embedded Artists' EAR00385 (1XK) or EAR00364 (1ZM) M.2 modules. The hardware rework consists of two parts:

- M.2 UART interface
- M.2 SDIO interface

35.1 Hardware rework

- M.2 UART interface rework
  - Mount R835
  - Connect JP45 2-3 to supply 1.8V for GPIO4
- M.2 SDIO interface rework
  - Remove R818, connect R823
  - Remove R819, connect R824
  - Remove R817, connect R822
  - Remove R815, connect R816
  - Remove R820, connect R825
  - Remove R821, connect R826

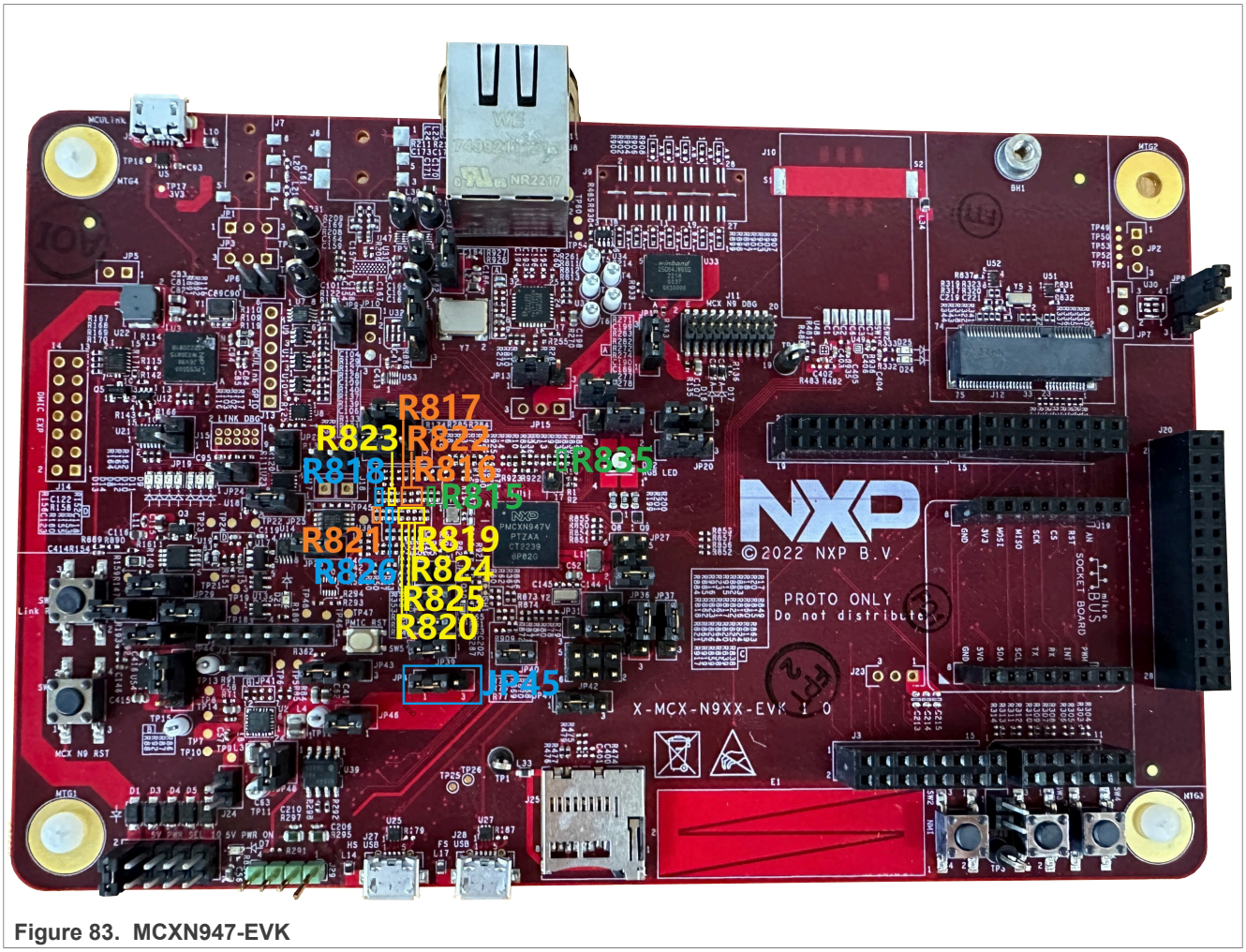


Figure 83. MCXN947-EVK

36 Hardware Rework Guide for IMXRT1050-EVKB and Murata M.2 Module

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP MCXN548-EVK board and the Murata 1XK,1ZM and 2EL solution - direct M.2 connection to Embedded Artists' EAR00385 (1XK) , EAR00364 (1ZM) or EAR00409 (2EL)M.2 modules. The hardware rework consists of three parts:

- Murata uSDM
- HCI UART rework

36.1 Hardware rework

- Murata uSD-M.2 jumper settings
  - J12 = 1-2: WLAN-SDIO & BT-PCM = 1.8 V
  - J13 = 1-2: BT-UART & WLAN/BT-CTRL = 3.3 V
  - J1 = 2-3: 3.3 V from uSD connector
- HCI UART interface rework
  Connect the TX/RX/RTS/CTS pins of the two boards as show in Table 1 using the jumper cables included in the Murata's uSD-M.2 Adapter kit as shown in Table 26.

Table 26. Connect the TX/RX/RTS/CTS pins

Pin name	uSD-M.2 adapter pin	i.MX RT1050-EVKB pin	Pin name of RT1050-EVKB	GPIO name of RT1050-EVKB
BT_UART_TXD_HOST	J9 (pin 1)	J22 (pin 1)	LPUART3_RXD	GPIO_AD_B1_07
BT_UART_RXD_HOST	J9 (pin 2)	J22 (pin 2)	LPUART3_TXD	GPIO_AD_B1_06
BT_UART_RTS_HOST	J8 (pin 3)	J23 (pin 3)	LPUART3_CTS	GPIO_AD_B1_04
BT_UART_CTS_HOST	J8 (pin 4)	J23 (pin 4)	LPUART3_RTS	GPIO_AD_B1_05
GND	J7 (pin 7)	J25 (pin 7)	GND	GND

37 Hardware Rework Guide for MIMXRT1180 and Murata M.2 Module

This section is a brief hardware rework guidance of the EdgeFast Bluetooth PAL on the NXP MIMXRT1180 board and the Murata 1XK , 1ZM, or 2EL solution - direct M.2 connection to Embedded Artists' EAR00385 (1XK), EAR00364 (1ZM) or Artists' Rev-A1 (2EL) M.2 modules. The hardware rework consists of two parts:

- HCI UART rework
- PCM interface rework

38 Hardware rework

- HCI UART rework:
  - Remove: R124,R126
  - Mount R696, R697
  - Connect J57 [2-3], J76 [2-3]
- PCM interface rework
  - Mount R699
  - Disconnect J78 J79
  - Connect J80 J81

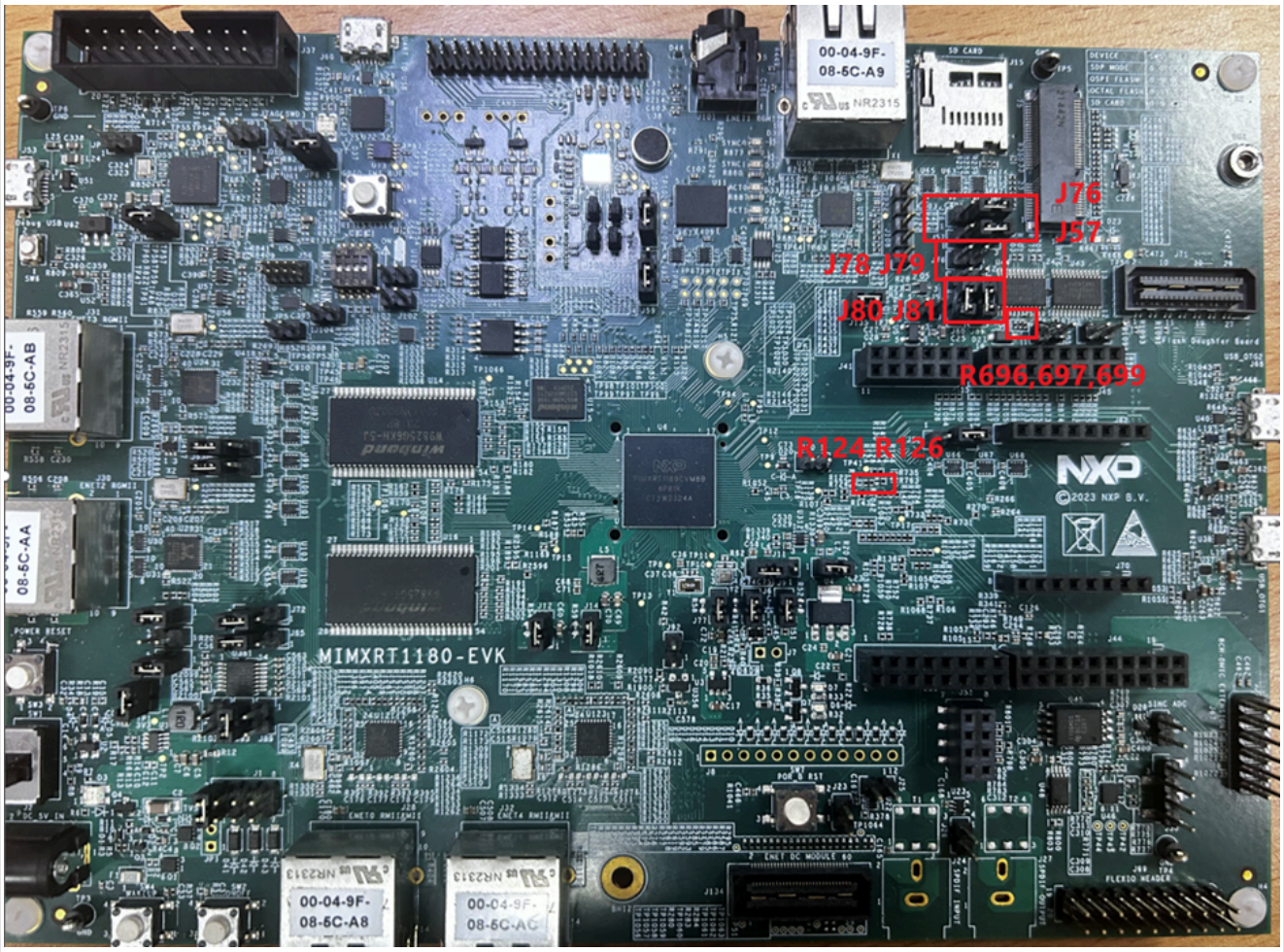


Figure 84. MIMXRT1180

39 Revision history

Table 27 summarizes revisions to this document.

Table 27. Revision history

Document ID	Release date	Description
0	10 June 2021	Initial release
1	08 September 2021	Updated for MCUXpresso SDK 2.10.1
2	01 December 2021	Updated for MCUXpresso SDK 2.11.0
3	11 April 2022	Updated Legal information for MCUXpresso SDK 2.12.0
4	08 August 2022	Updated for MCUXpresso SDK 2.12.1
5	28 November 2022	Added Section 16 and Section 17.
6	11 January 2023	Updated for MCUXpresso SDK 2.13.0. Updated Section 9.1, Section 10.1, and Section 30.

Table 27. Revision history...*continued*

Document ID	Release date	Description
7	17 April 2023	Added Hardware Rework Guide for MIMXRT1060-EVKC and Murata 1XK M.2 Adapter and Hardware Rework Guide for MIMXRT1060-EVKC and Murata 1ZM M.2 Adapter.
8	27 July 2023	Updated for MCUXpresso SDK for 2.14.0.
9	10 January 2023	Updated for MCUXpresso SDK for 2.15.000.
10	22 February 2024	Updated for MCUXpresso SDK for 2.15.100. Updated Section 18 "Hardware Rework Guide for MIMXRT1170-EVKB and Murata 2EL M.2 Adapter" and Section 33 "Hardware Rework Guide for MIMXRT1060-EVKC and Murata 2EL M.2 Adapter".
11	25 June 2024	Updated for MCUXpresso SDK for 2.16.000. Added Section 18 "Hardware Rework Guide for MIMXRT1170-EVKB and Murata 2EL M.2 Adapter" and Section 36.1 "Hardware rework".
12	10 September 2024	Updated for MCUXpresso SDK for 2.16.100. Added Section 37 "Hardware Rework Guide for MIMXRT1180 and Murata M.2 Module".

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