



# HWRGEFBTPALUG

## Hardware Rework Guide for EdgeFast BT PAL

Rev. 4 — 8 August 2022

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.

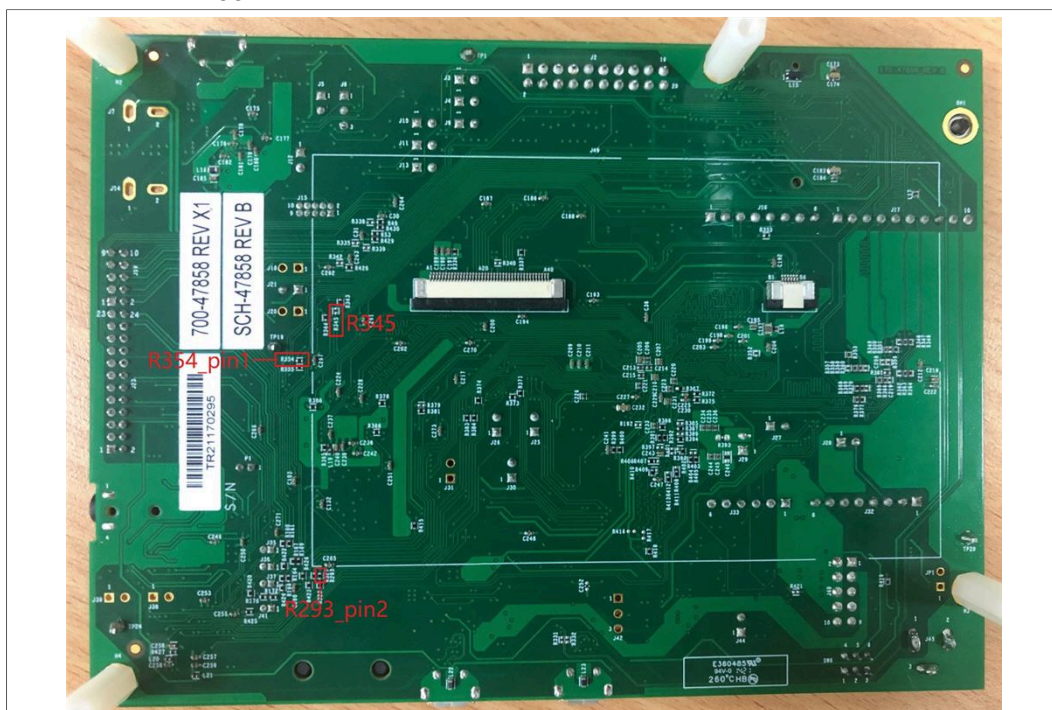
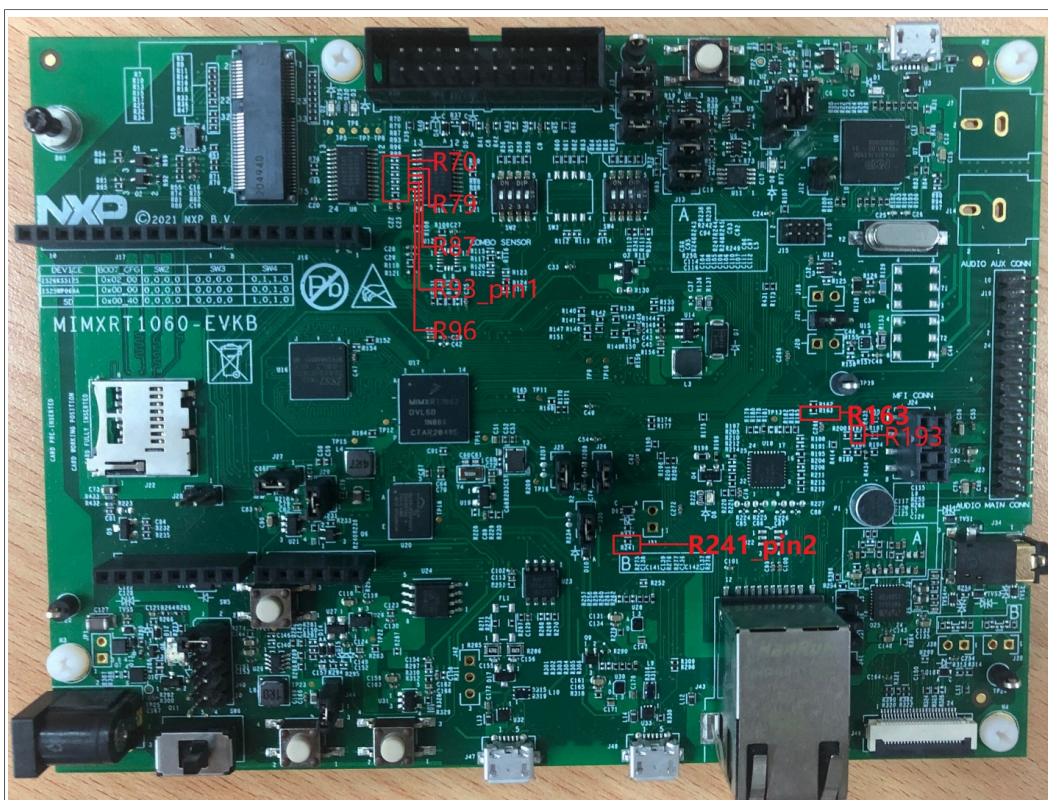


Figure 1. MIMXRT1060-EVKB (Back)





**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.

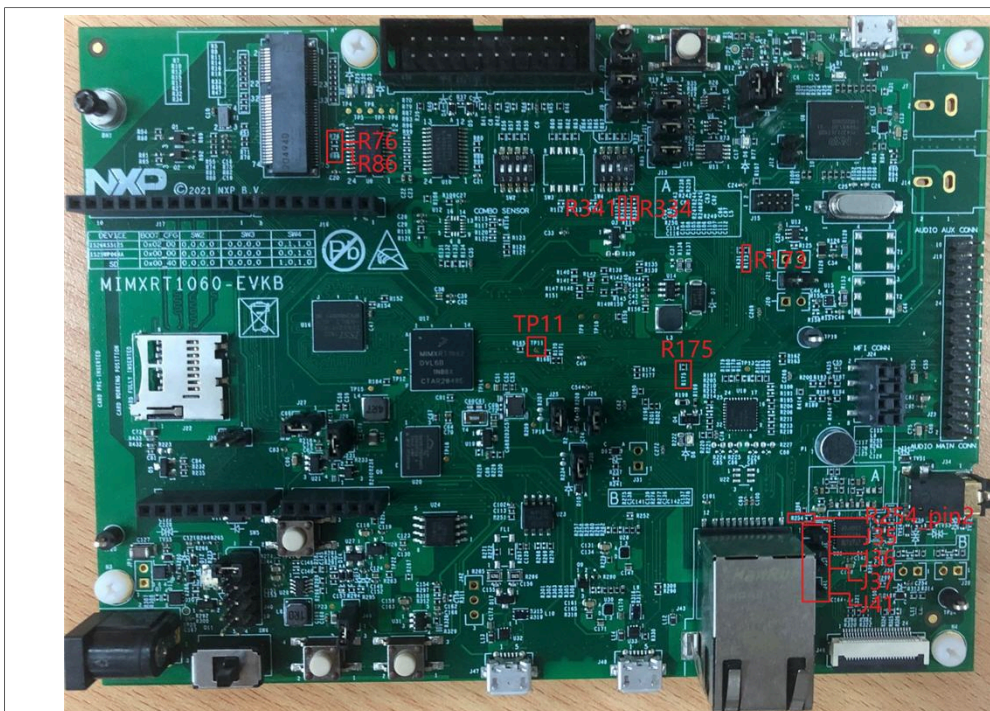


Figure 3. MIMXRT1060-EVKB (Front)

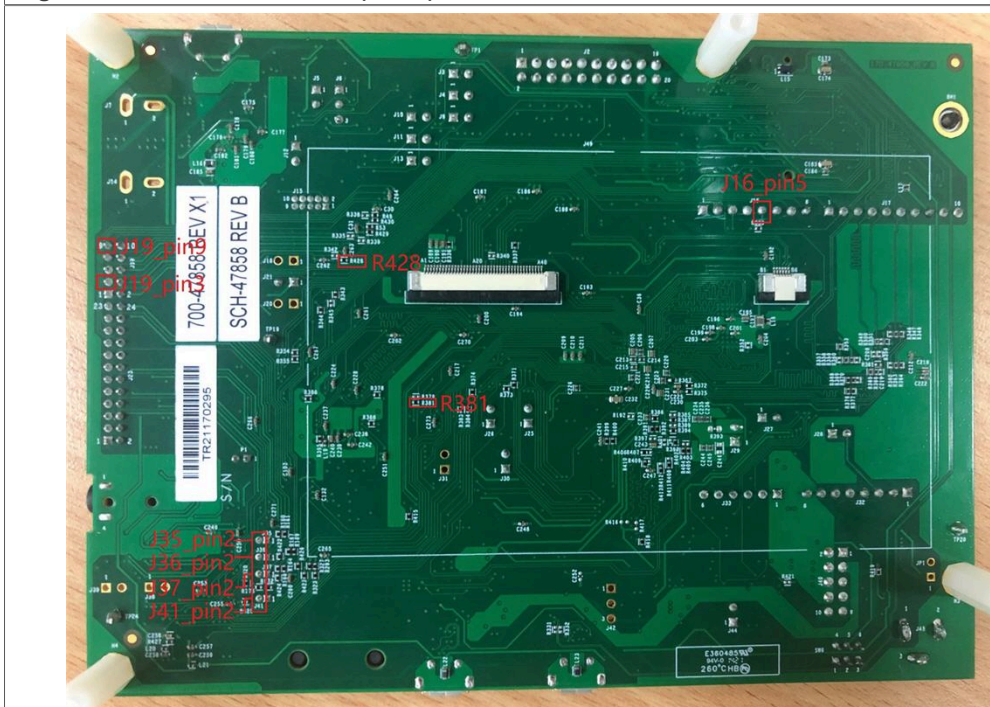


Figure 4. MIMXRT1060-EVKB (Back)

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



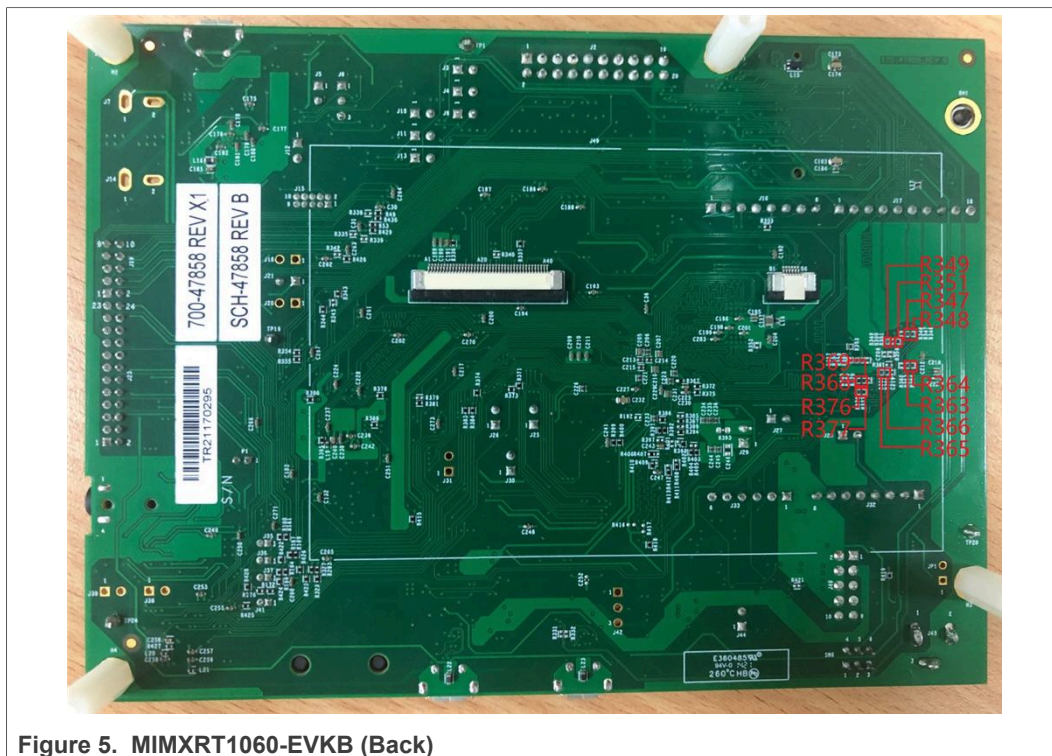


Figure 5. MIMXRT1060-EVKB (Back)

## 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.

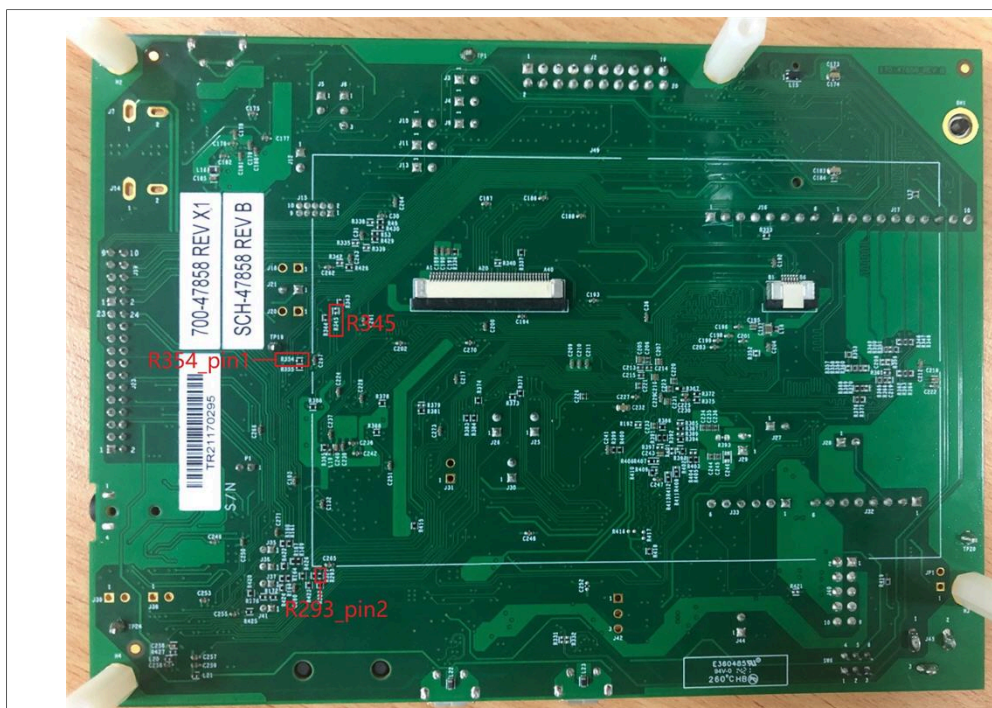


Figure 6. MIMXRT1060-EVKB (Back)

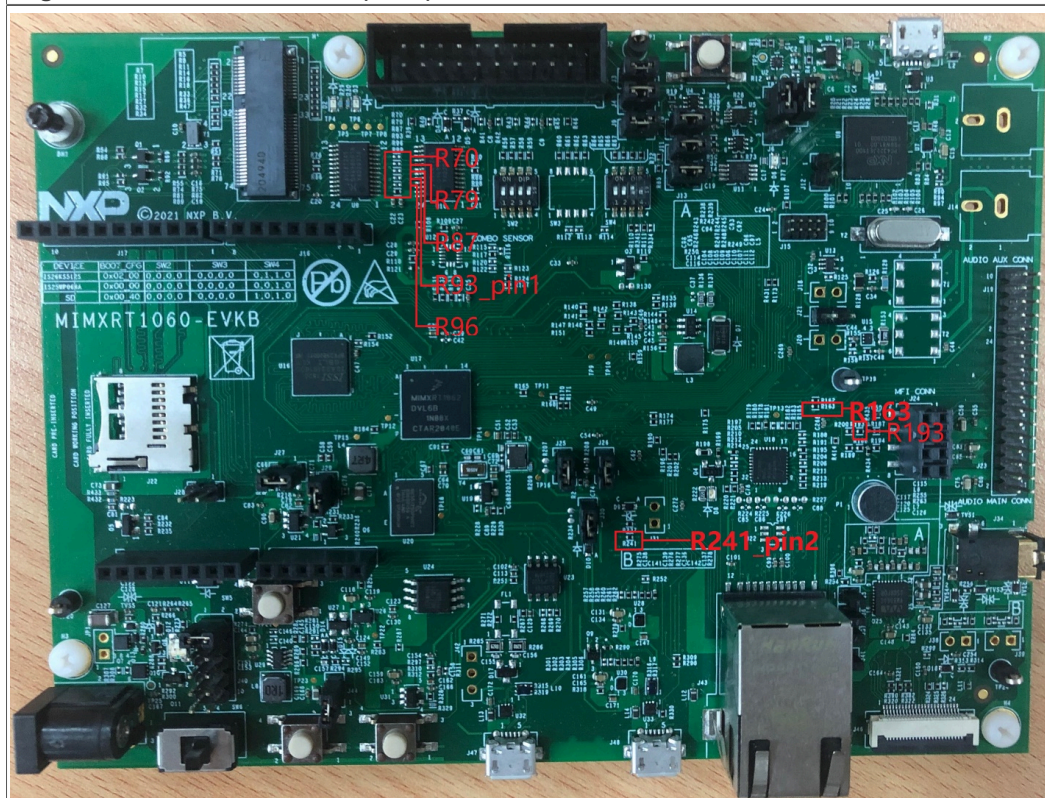


Figure 7. MIMXRT1060-EVKB (Front)

- 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.

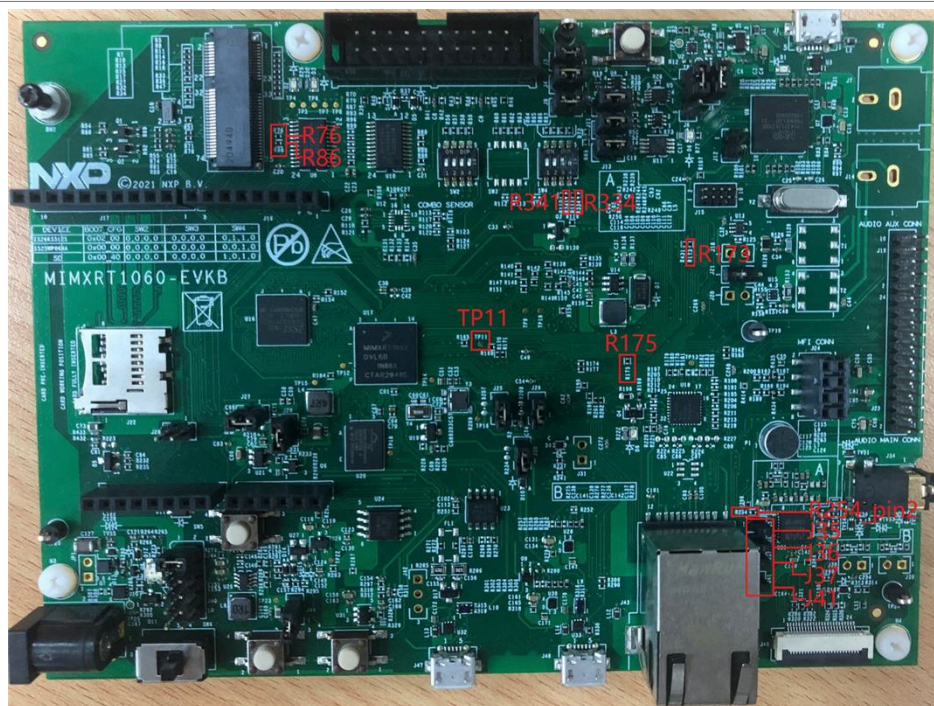


Figure 8. MIMXRT1060-EVKB (Front)

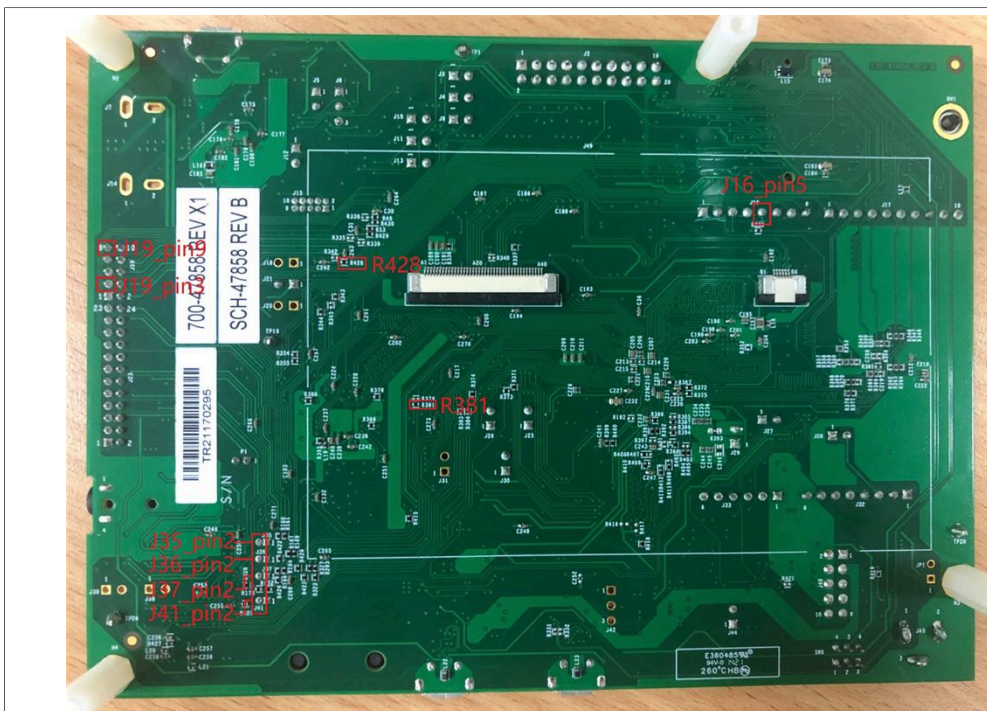


Figure 9. MIMXRT1060-EVKB (Back)

- **M.2 SDIO rework**

1. Solder R368, R376, R347, R349, R365, and R363.
2. Remove R364, R366, R351, R348, R377, and R369.

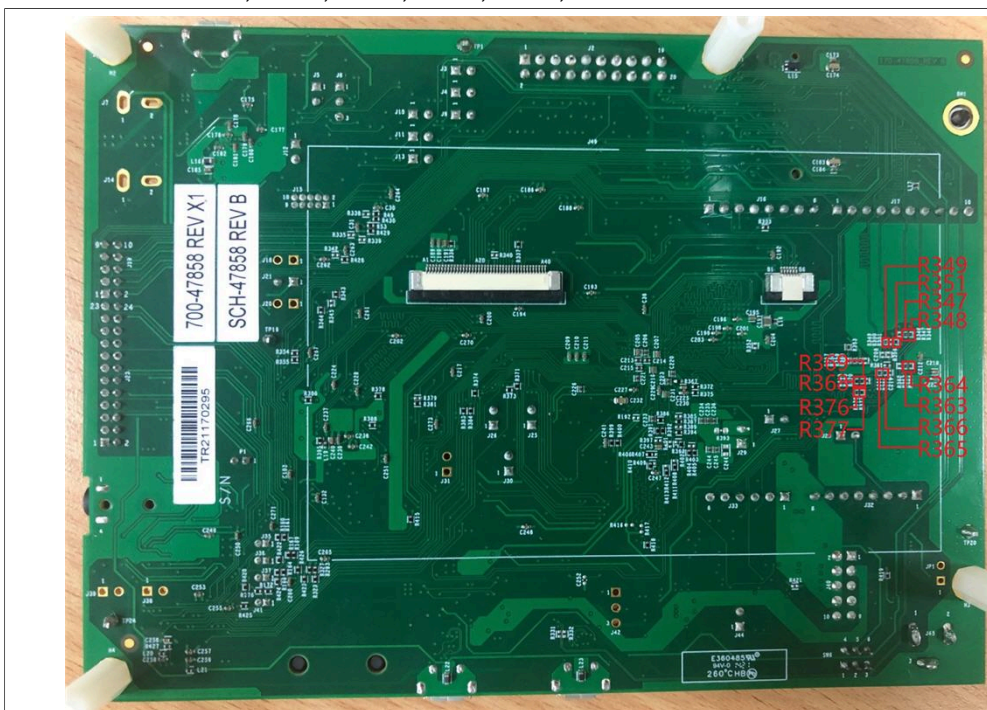


Figure 10. MIMXRT1060-EVKB (Back)



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 port rework
- PCM interface rework

3.1 Hardware rework

- **HCI UART rework**  
Make sure resistors R368/R376/R347/R349/R365/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

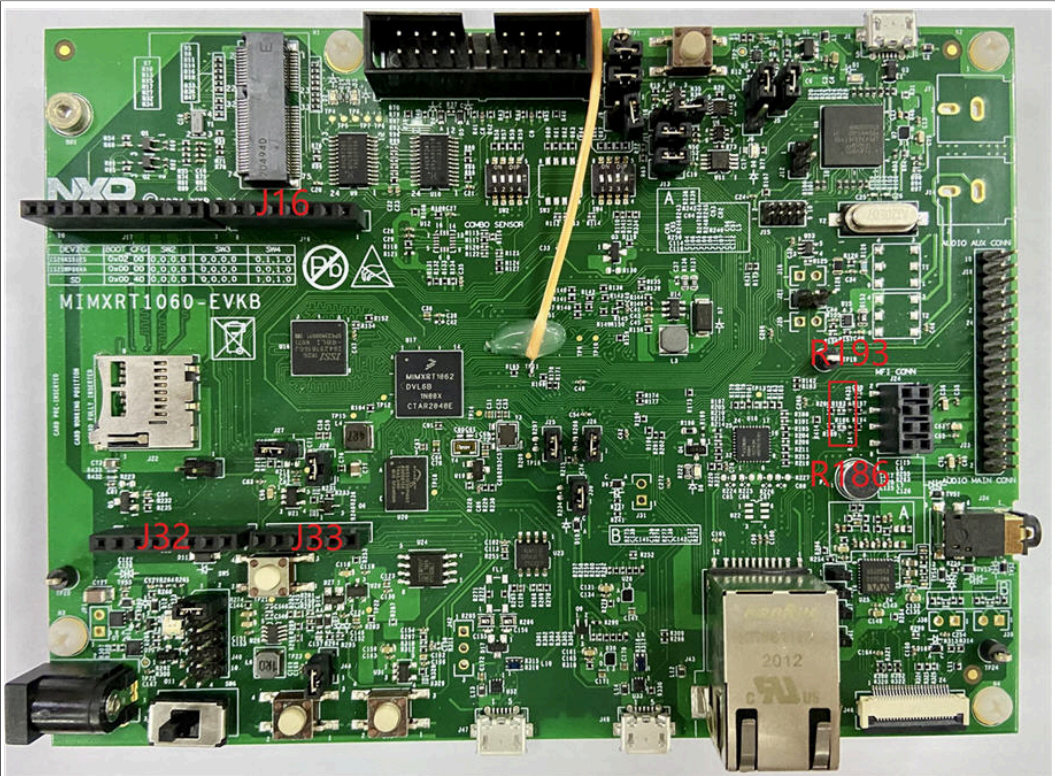


Figure 11. MIMXRT1060-EVKB (Front)

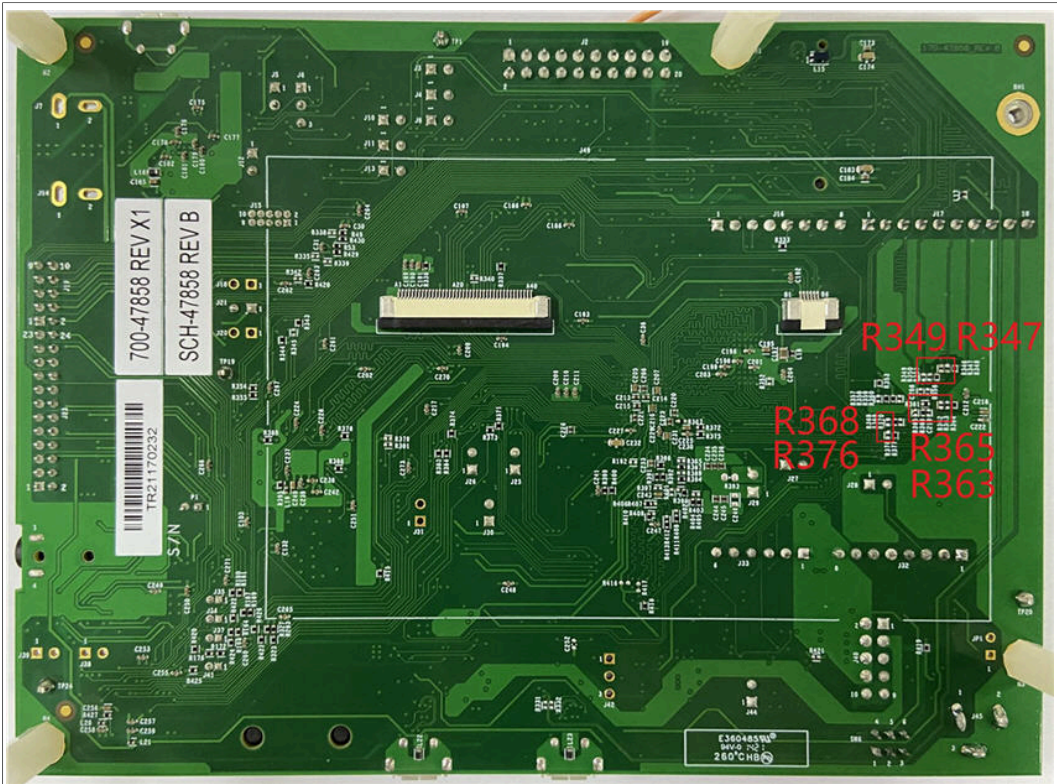


Figure 12. MIMXRT1060-EVKB (Back)

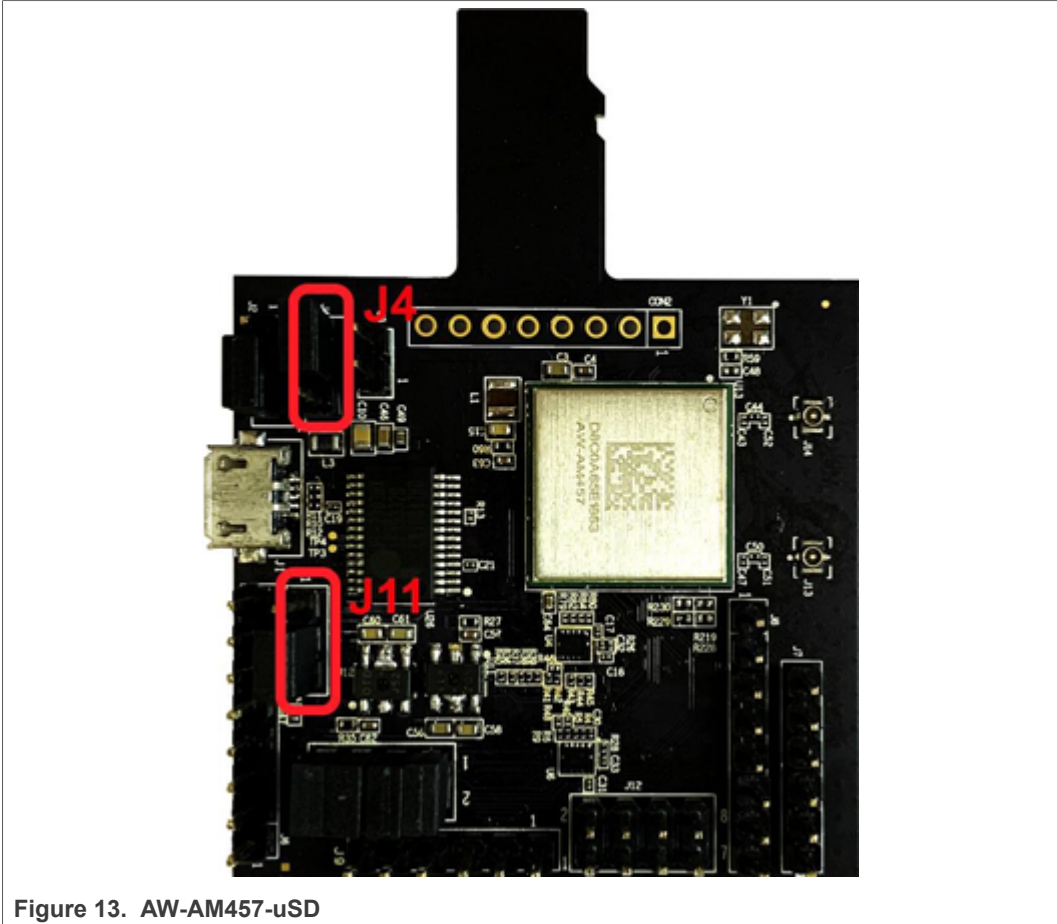


Figure 13. AW-AM457-uSD

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



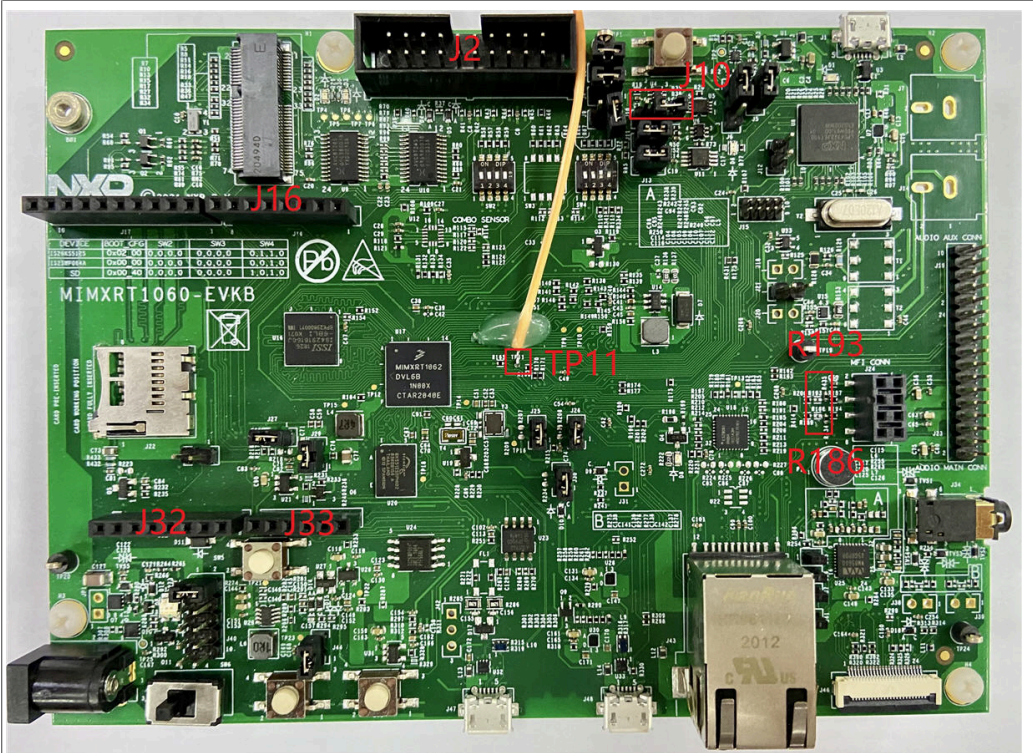


Figure 14. MIMXRT1060-EVKB (Front)

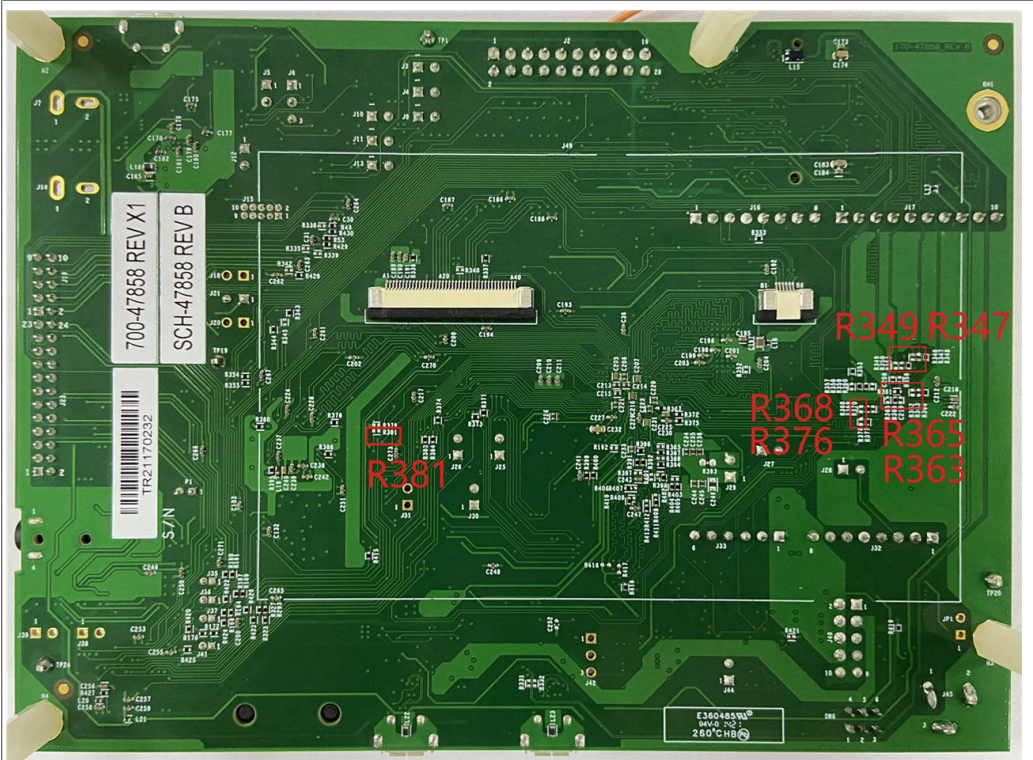
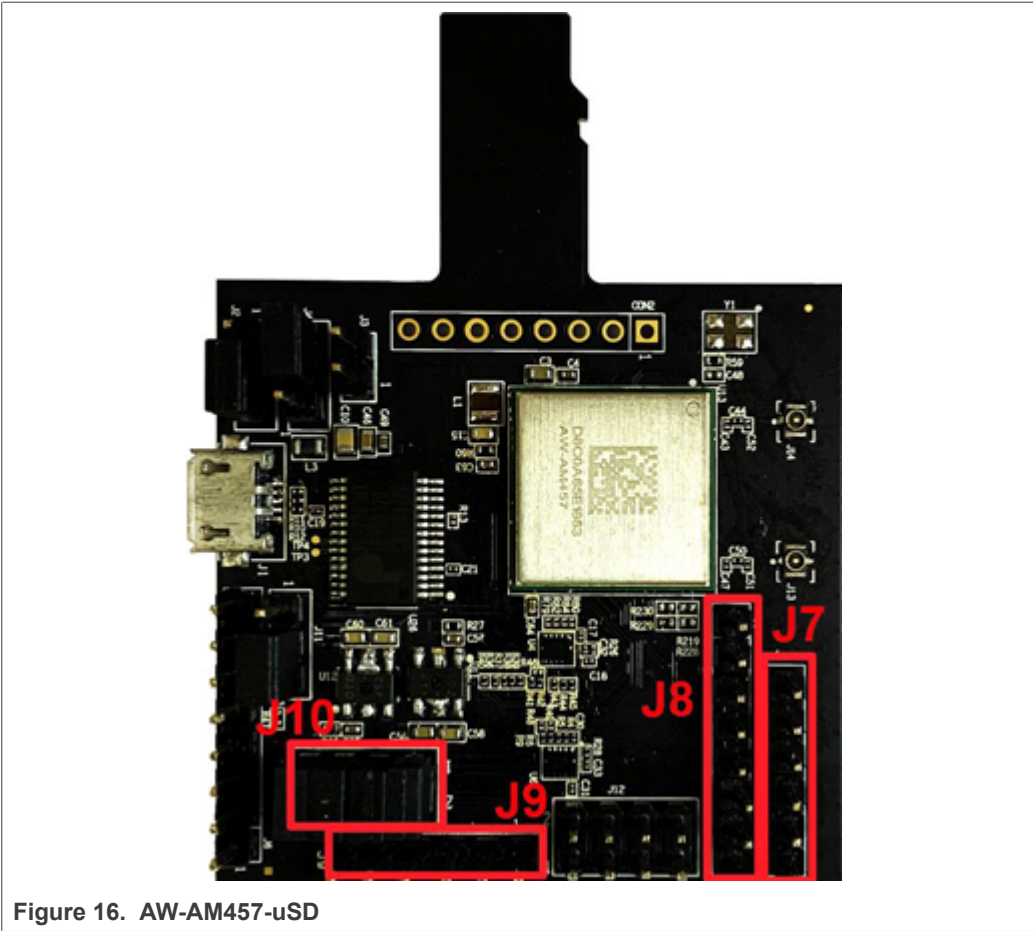


Figure 15. MIMXRT1060-EVKB (Back)

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



## 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 port 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



Table 3. Connect pins...continued

Pin Name	AW-CM358-USD	i.MXRT1060	PIN NAME	GPIO NAME of RT1060
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

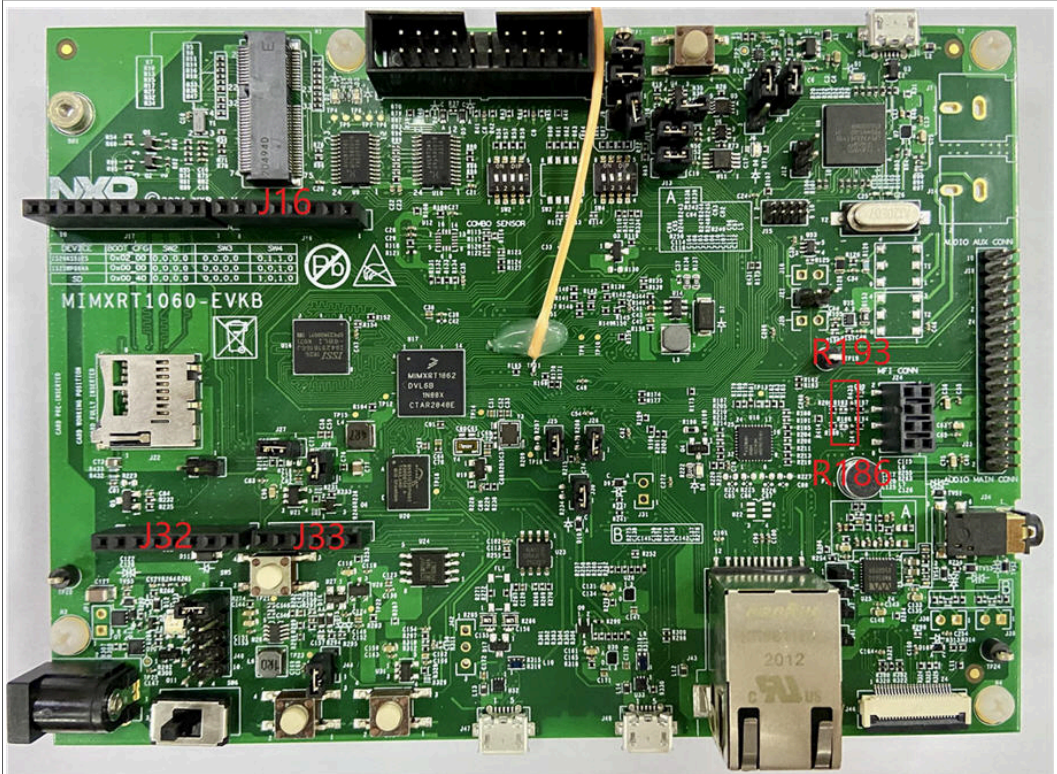


Figure 17. MIMXRT1060-EVKB (Front)

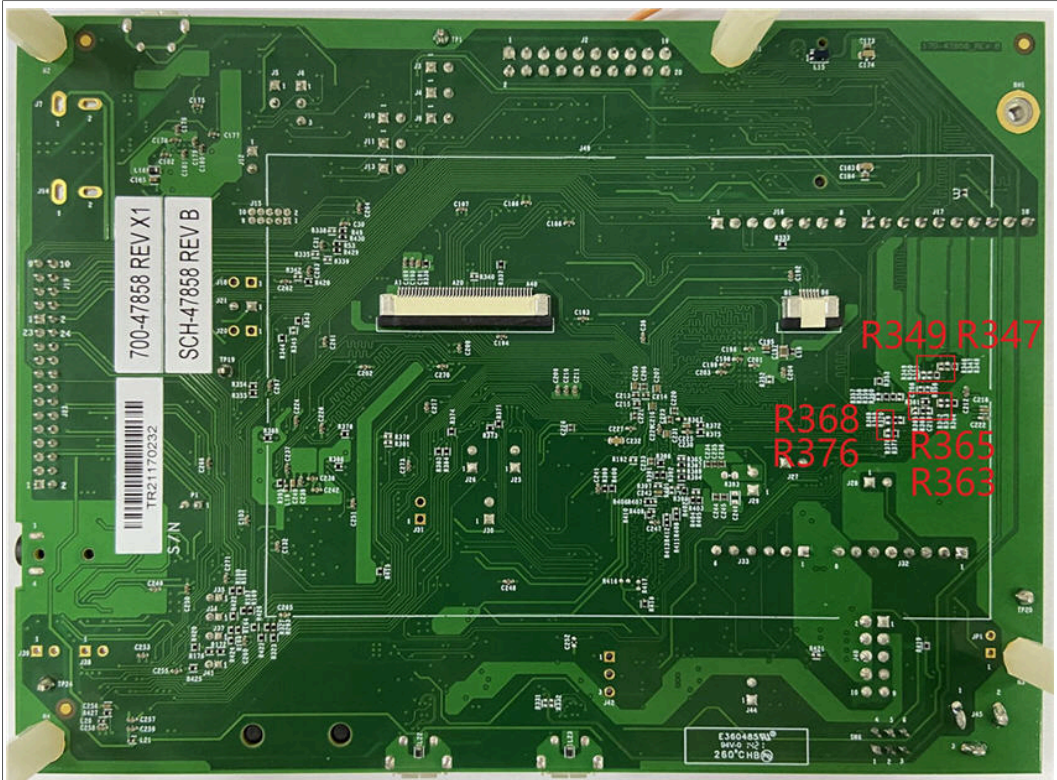


Figure 18. MIMXRT1060-EVKB (Back)

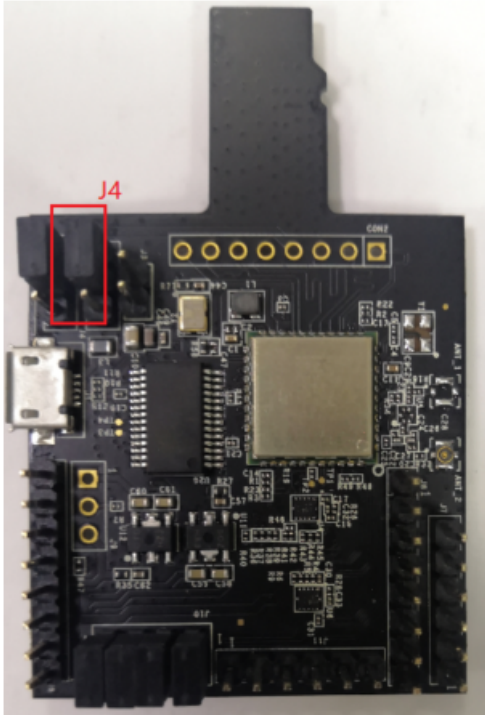


Figure 19. AW-CM358-uSD

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.MXR1060	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

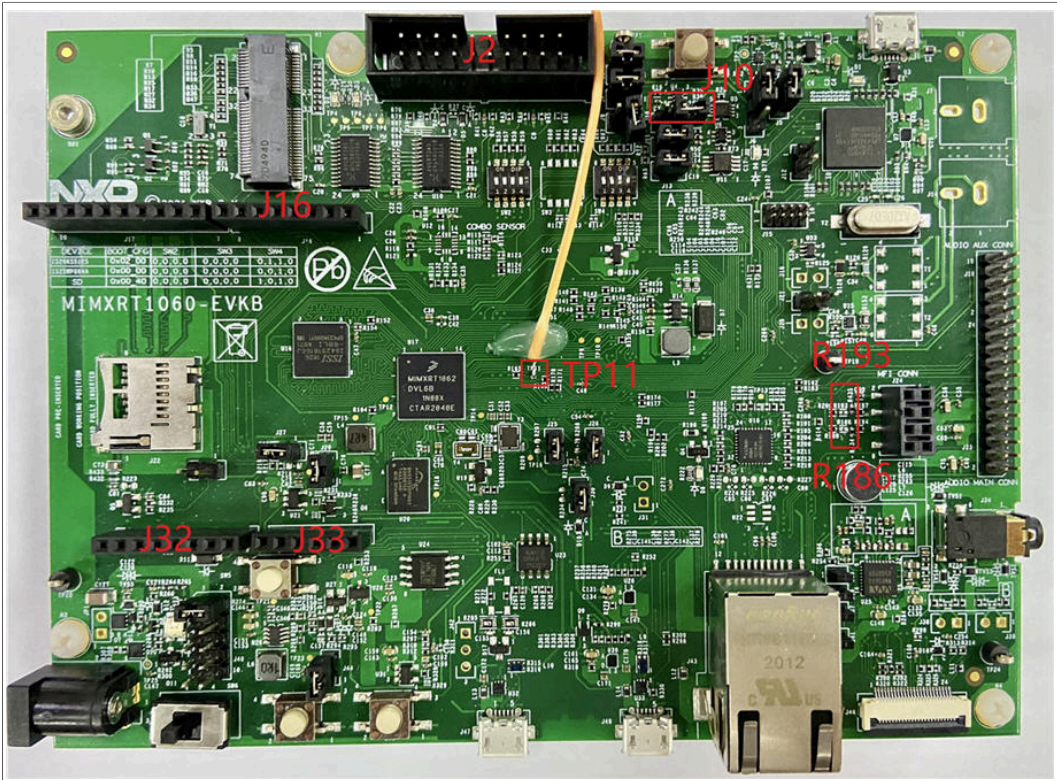


Figure 20. MIMXR1060-EVKB (Front)

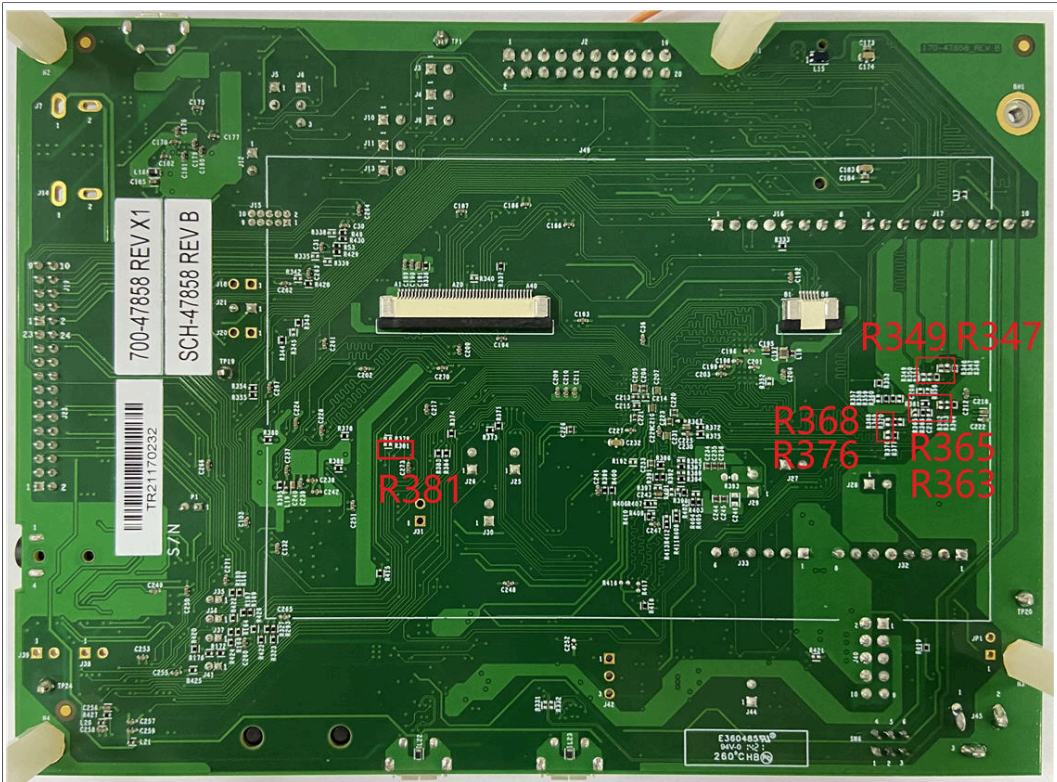


Figure 21. MIMXRT1060-EVKB (Back)

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

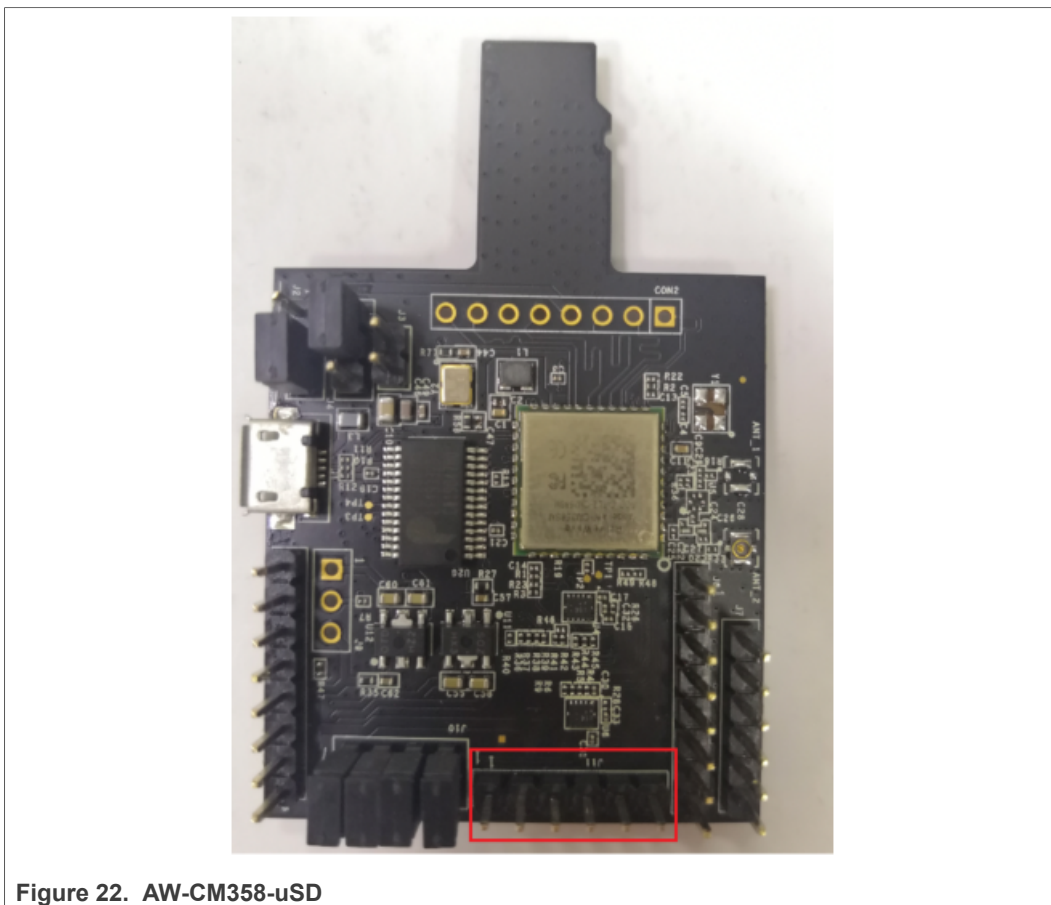


Figure 22. AW-CM358-uSD

## 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 5](#) using 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



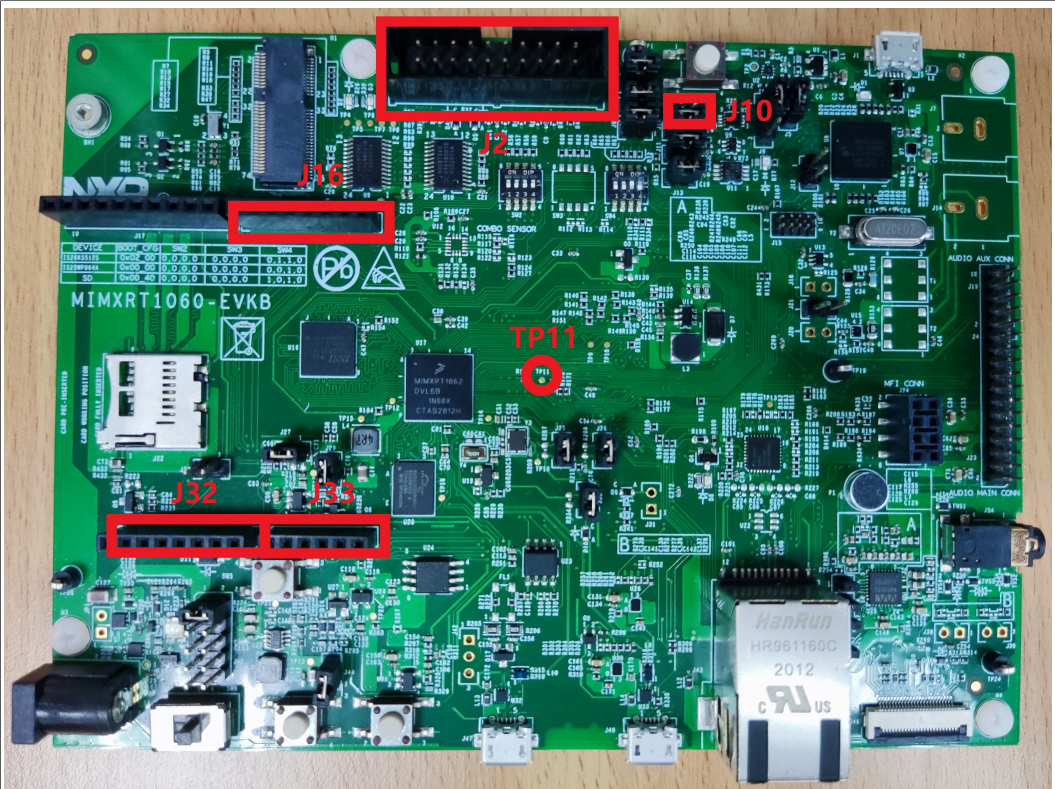


Figure 23. MIMXRT1060-EVKB board

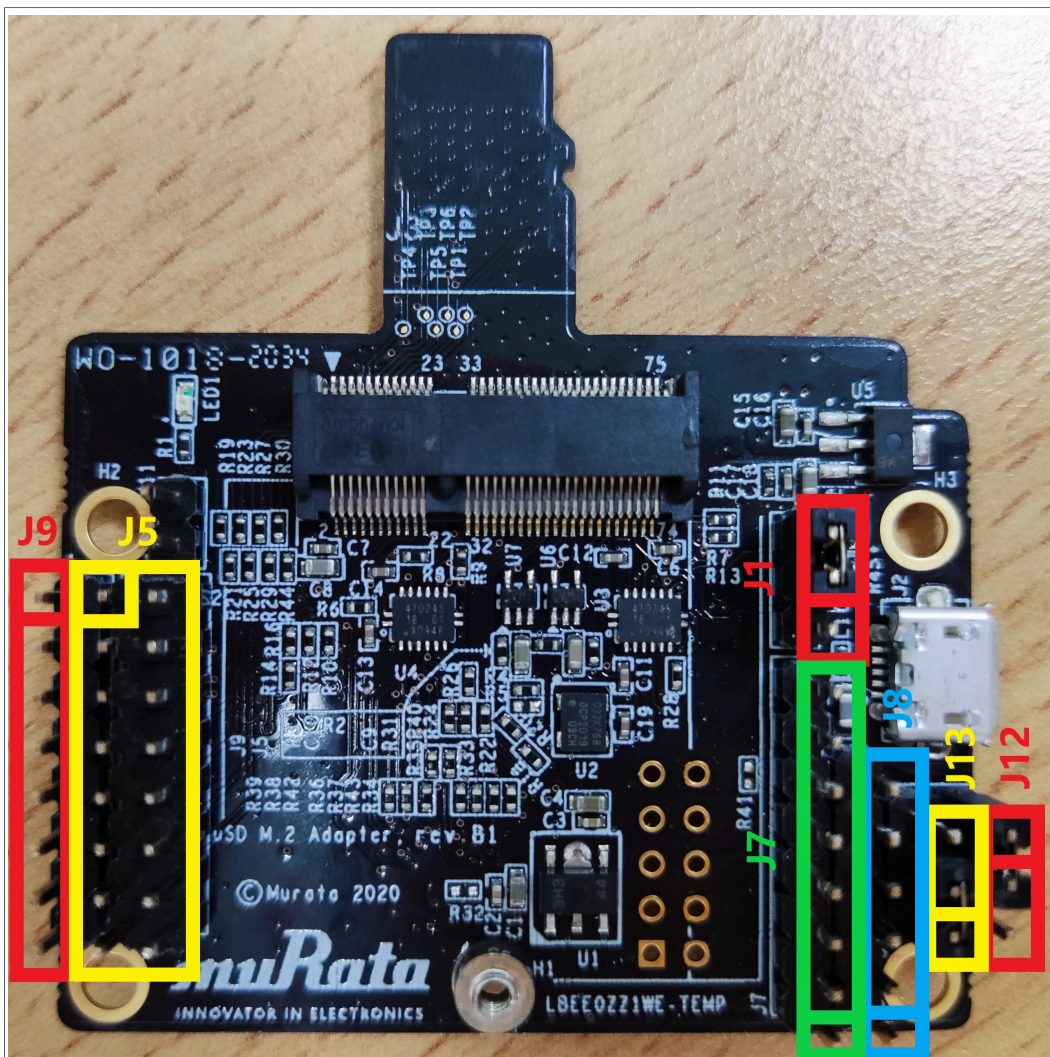


Figure 24. SD-M.2\_Adapter

## 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 port 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

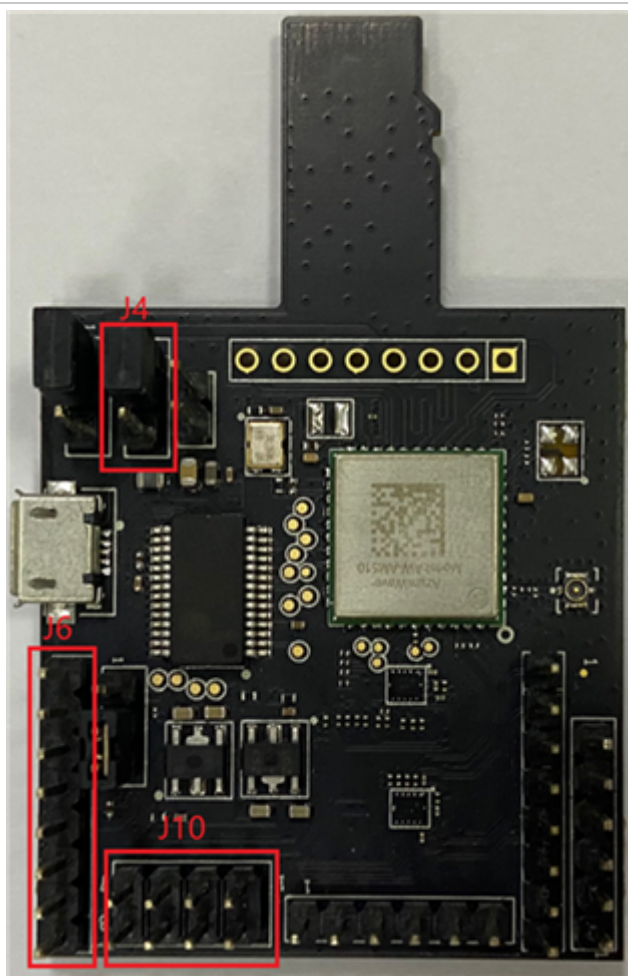


Figure 25. AW-AM510-uSD

**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	IMXRT1060	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

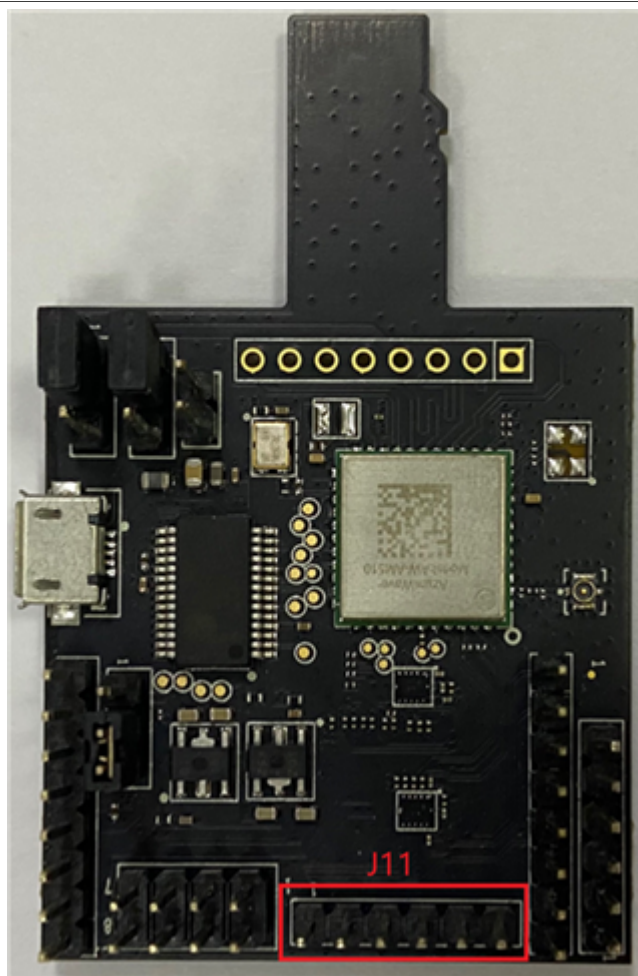


Figure 26. AW-AM510-uSD

## 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 port 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

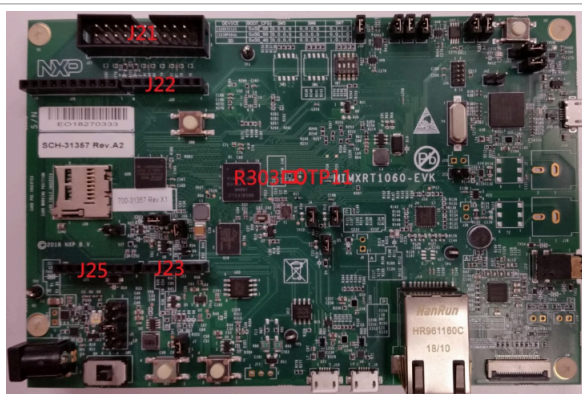


Figure 27. MIMXRT1060-EVK

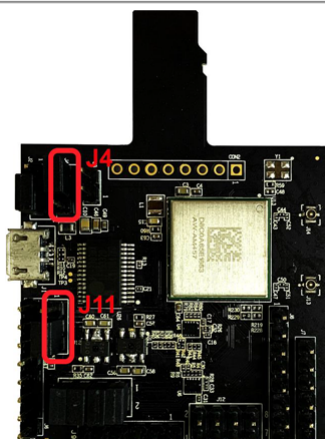


Figure 28. AW-AM457-uSD

### 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	IMXR1060	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
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. MIMXR1060-EVK

**Note:**

To support HFP feature, you must remove R316 and R323 on MIMXR1060-EVK.  
To run HFP feature, you must remove J47 jumper.



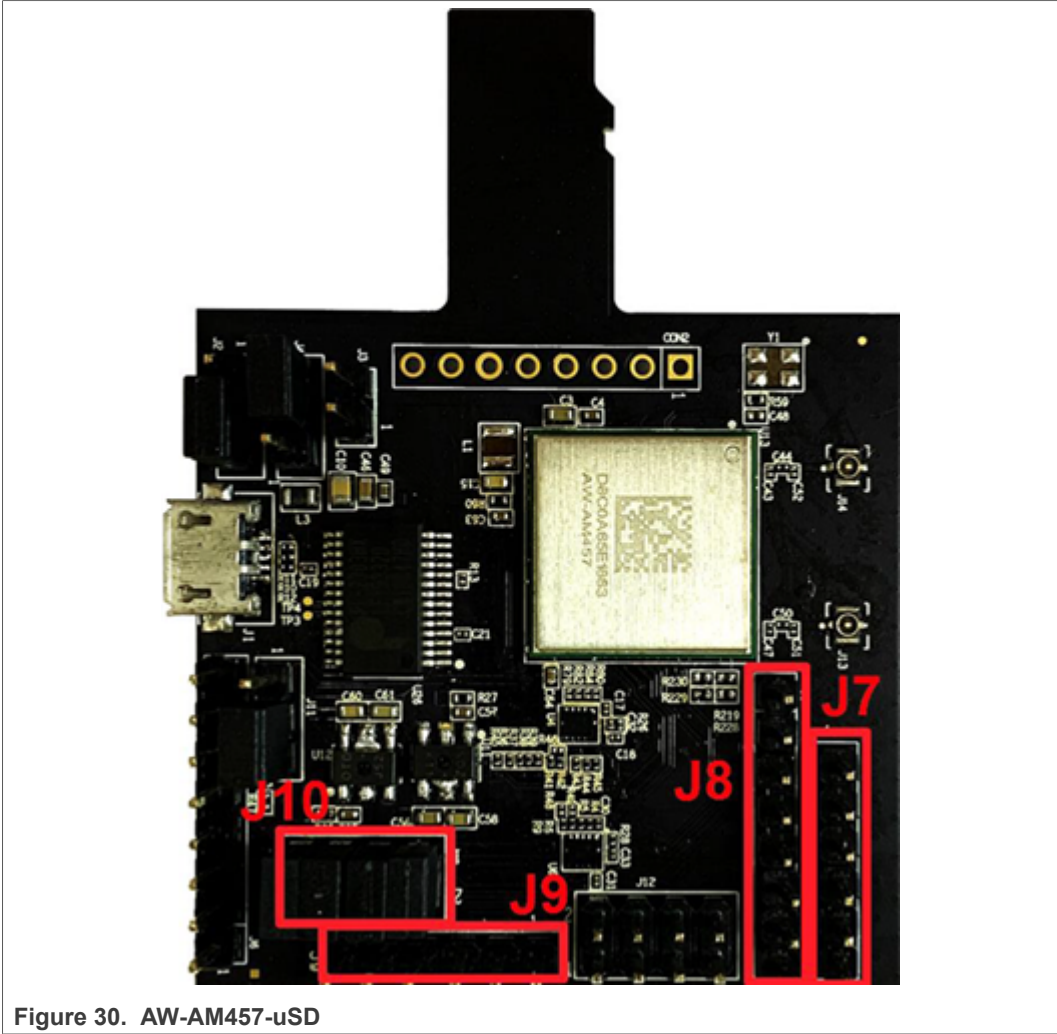


Figure 30. AW-AM457-uSD

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 port 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

Table 11. Connect pins...continued

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

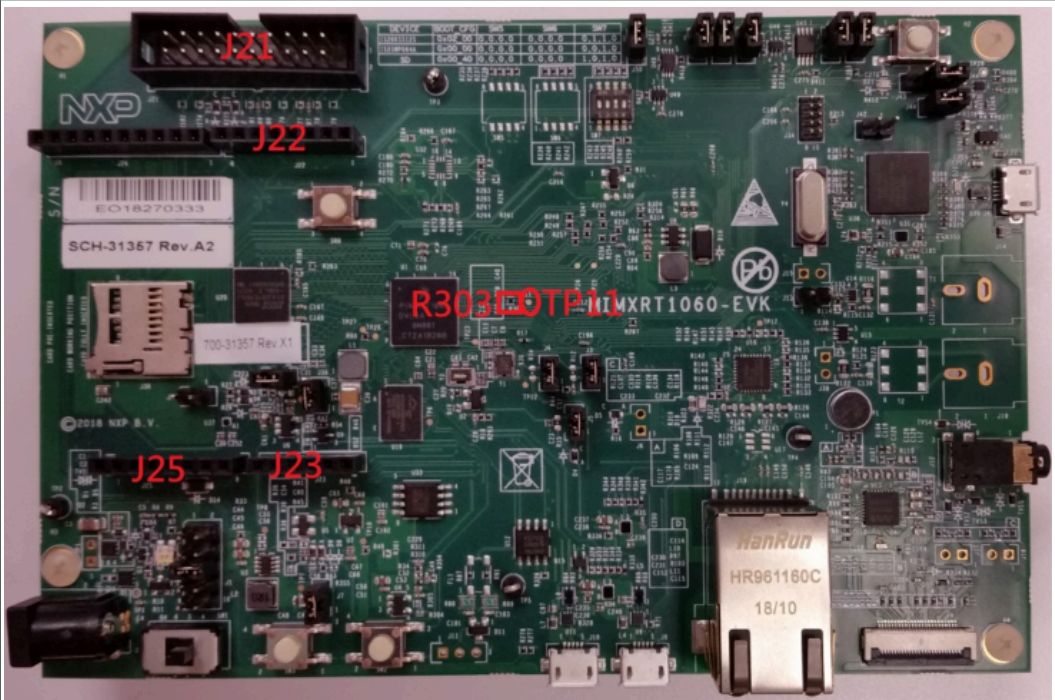


Figure 31. MIMXRT1060-EVK

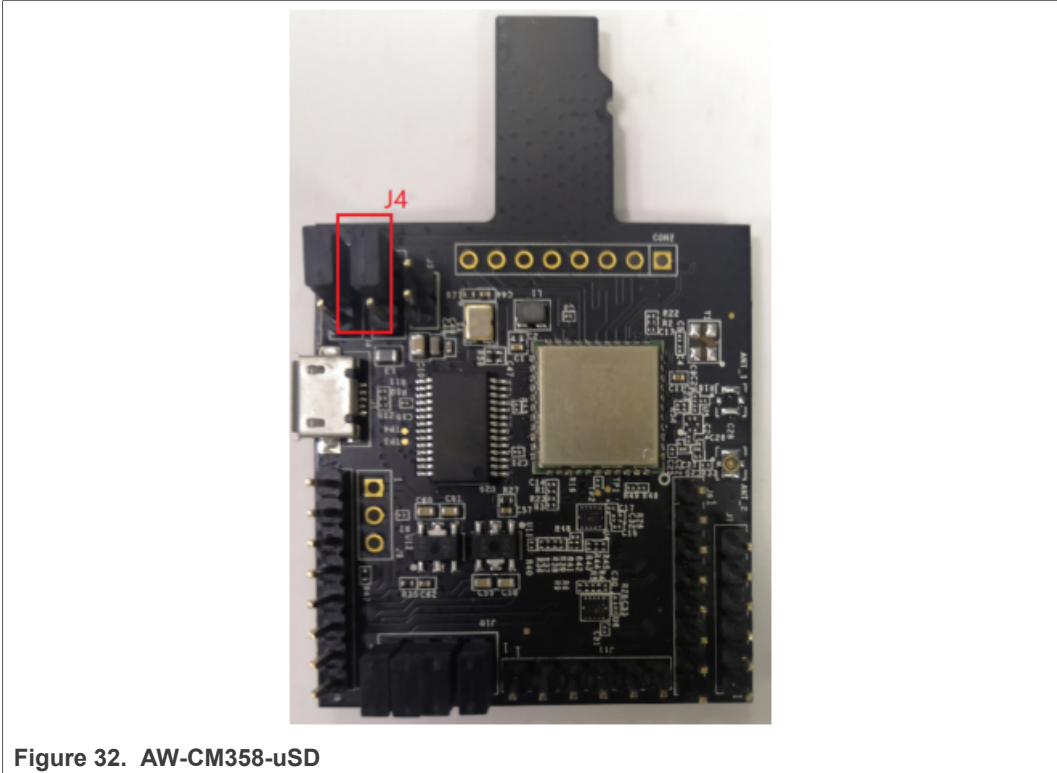


Figure 32. AW-CM358-uSD

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 port rework.

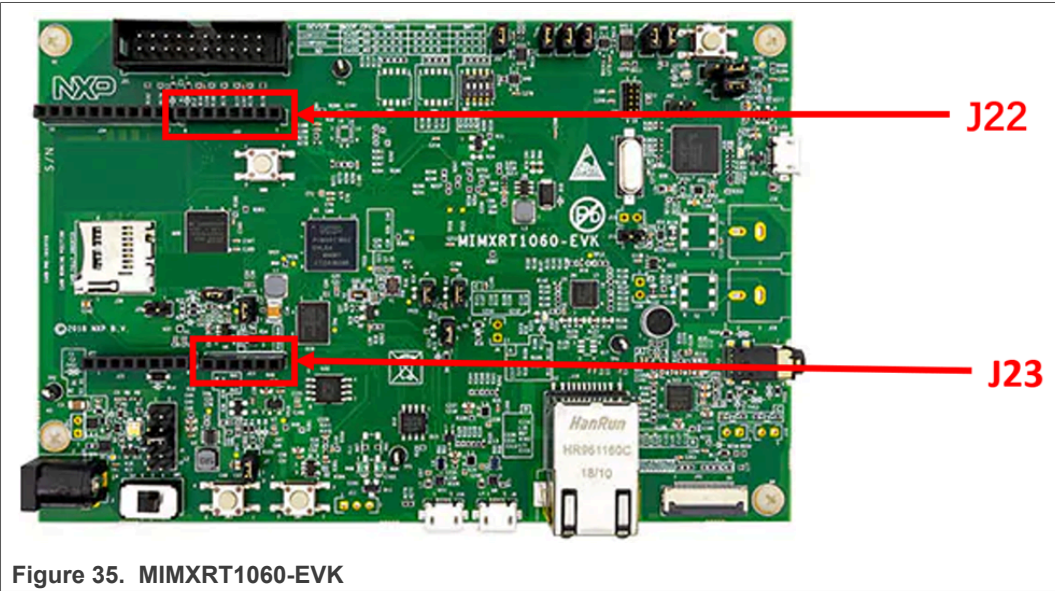
### 9.1 Hardware rework

- 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



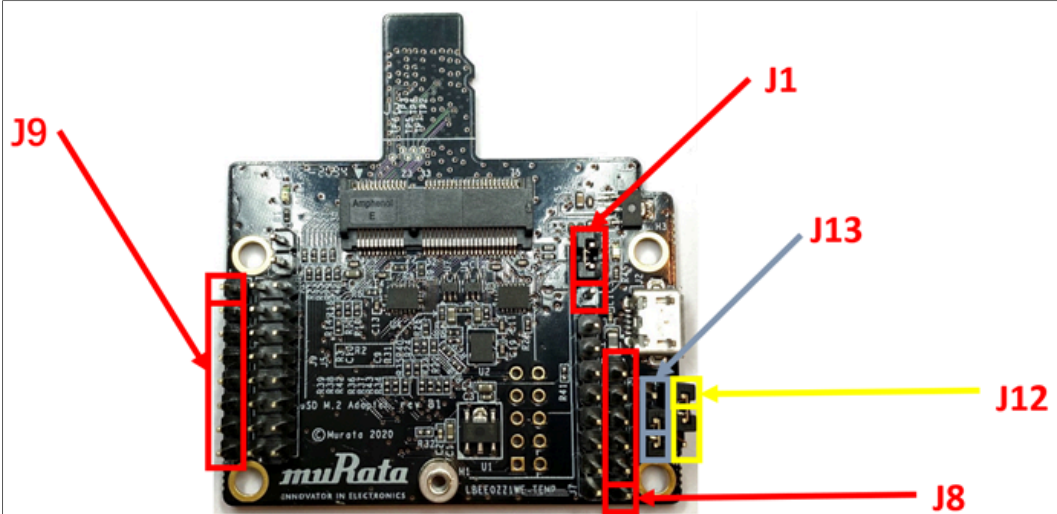


Figure 36. Murata uSD-M.2 adapter  
Murata uSD-M.2 jumper settings:

- 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)

## 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 port rework

### 10.1 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 14. 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



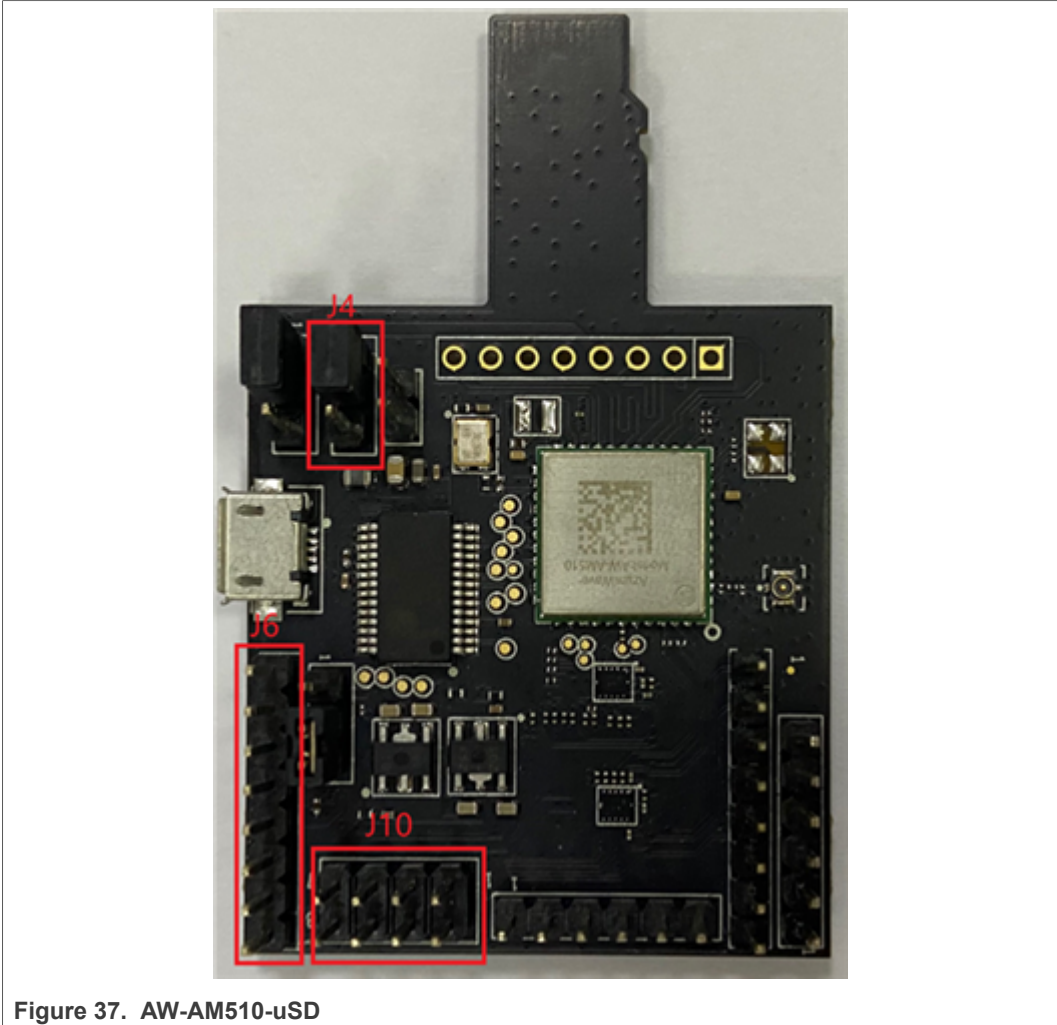


Figure 37. AW-AM510-uSD

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 15. 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

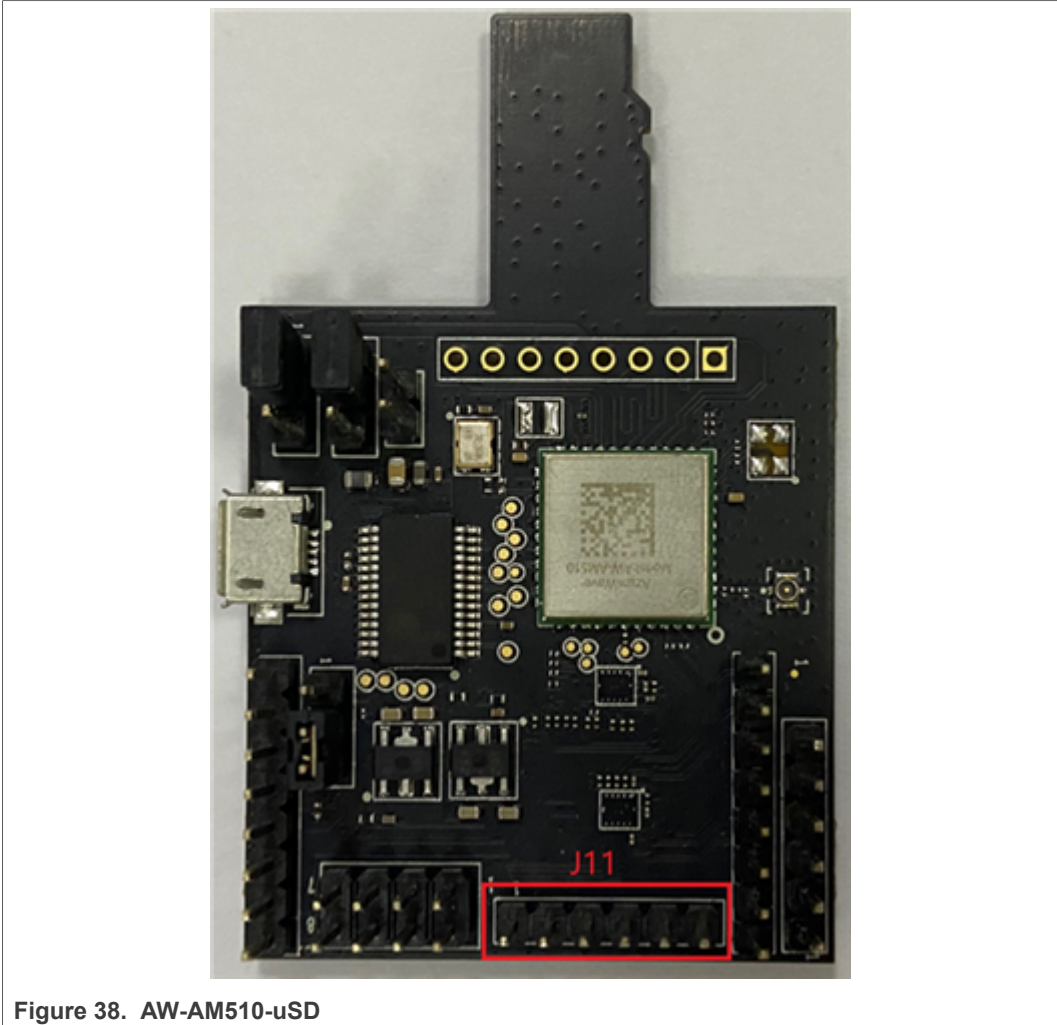


Figure 38. AW-AM510-uSD

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 port rework

11.1 Hardware rework

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

Table 16. 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

Table 16. Connect pins...continued

Pin Name	AW-AM457-uSD	i.MXRT1170	PIN NAME	GPIONAME of RT1170
UART_CTS	J10 (pin 8)	J25 (pin 9)	LPUART7_RTS	GPIO_AD_03
UART_RTS	J10 (pin 6)	J25 (pin 11)	LPUART7_CTS	GPIO_AD_02
GND	J6 (pin 7)	J26 (pin 1)	GND	GND

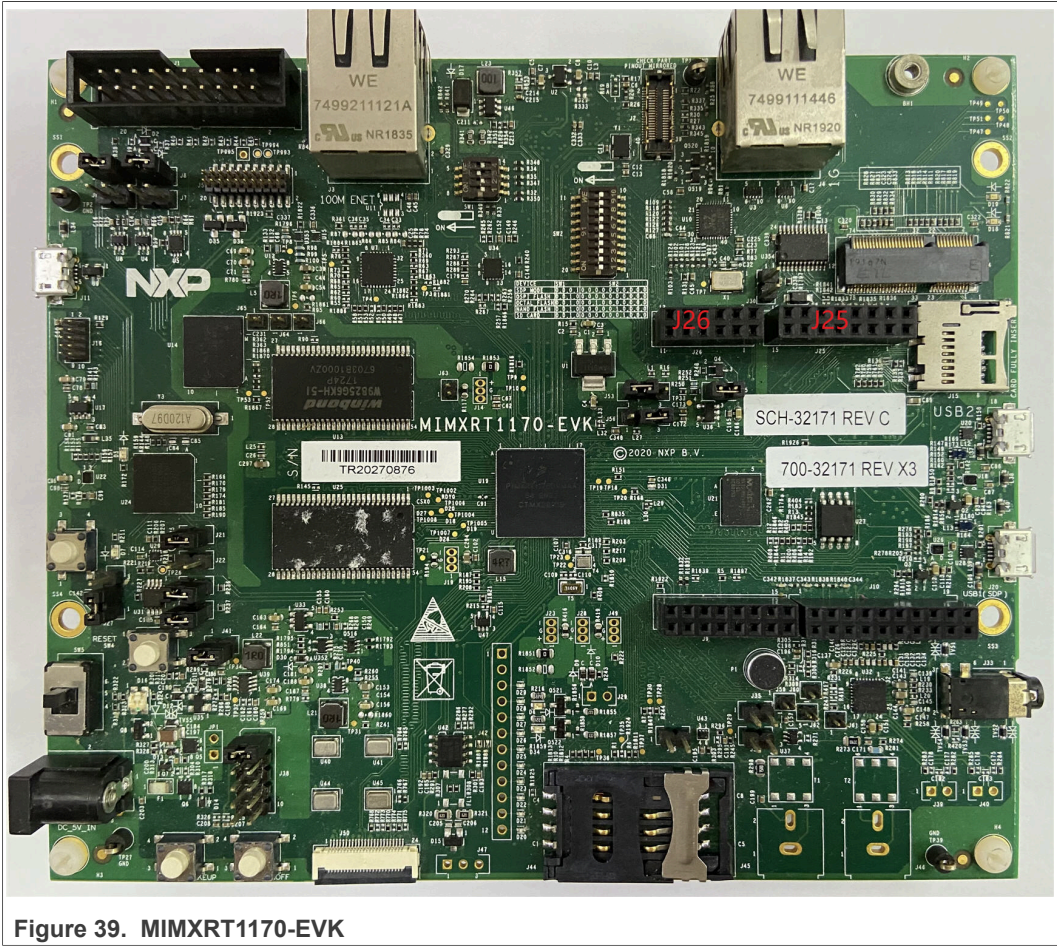


Figure 39. MIMXRT1170-EVK



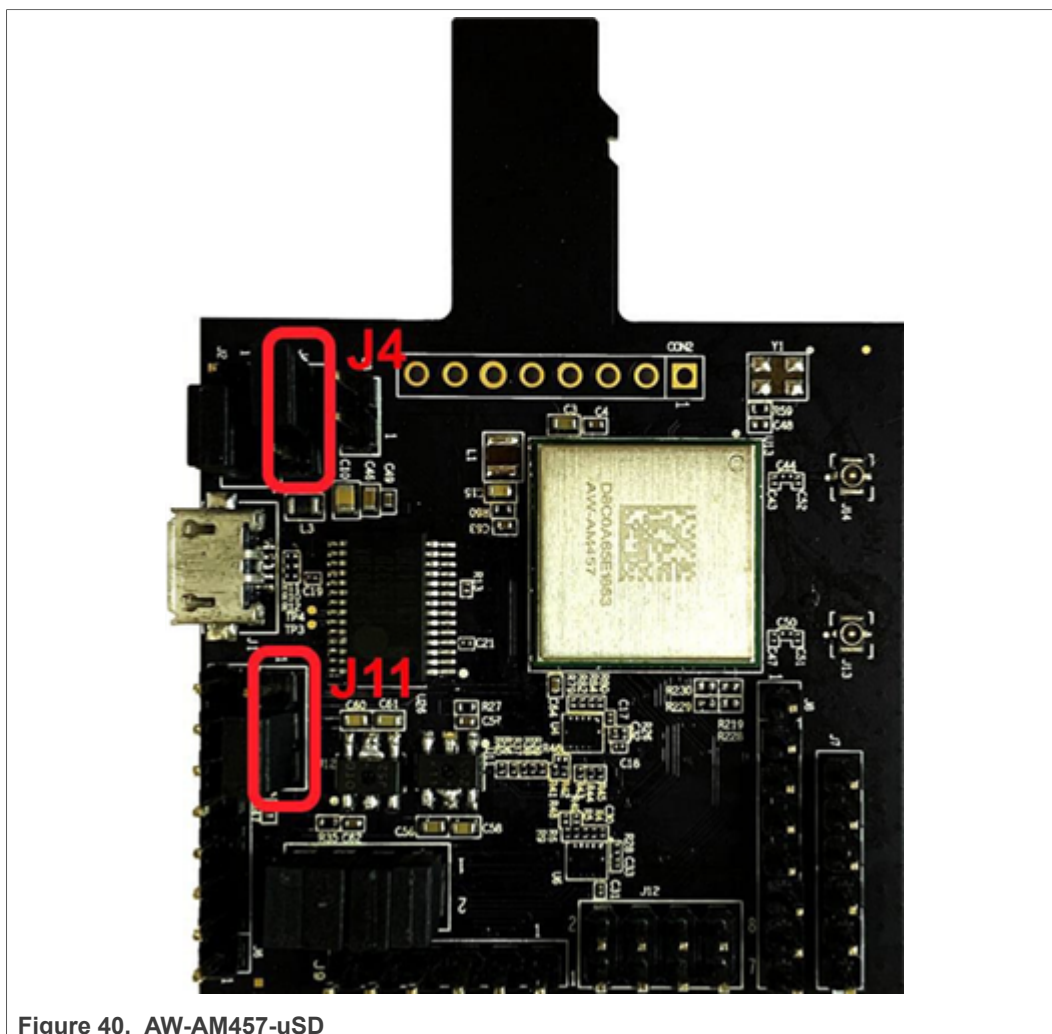


Figure 40. AW-AM457-uSD

**Jumper Setting:**

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

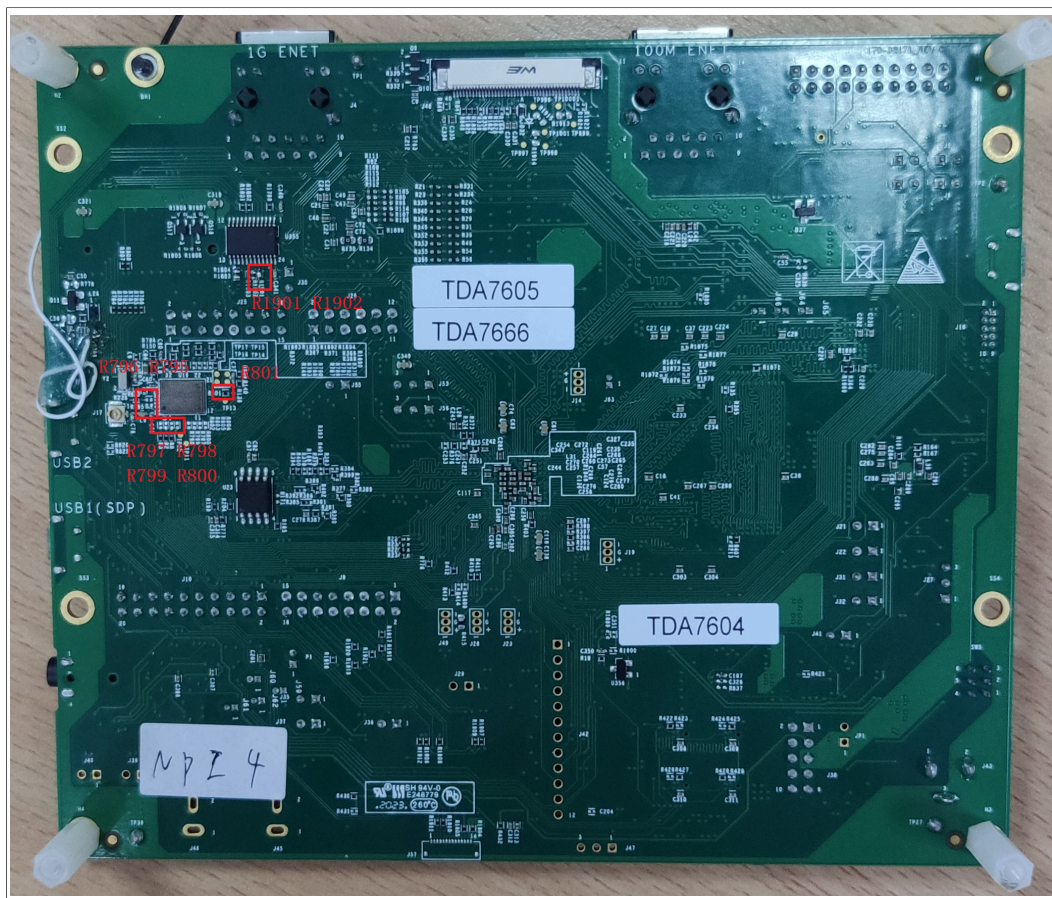
## 12 Hardware Rework Guide for MIMXRT1170-EVK and AW-CM358MA

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

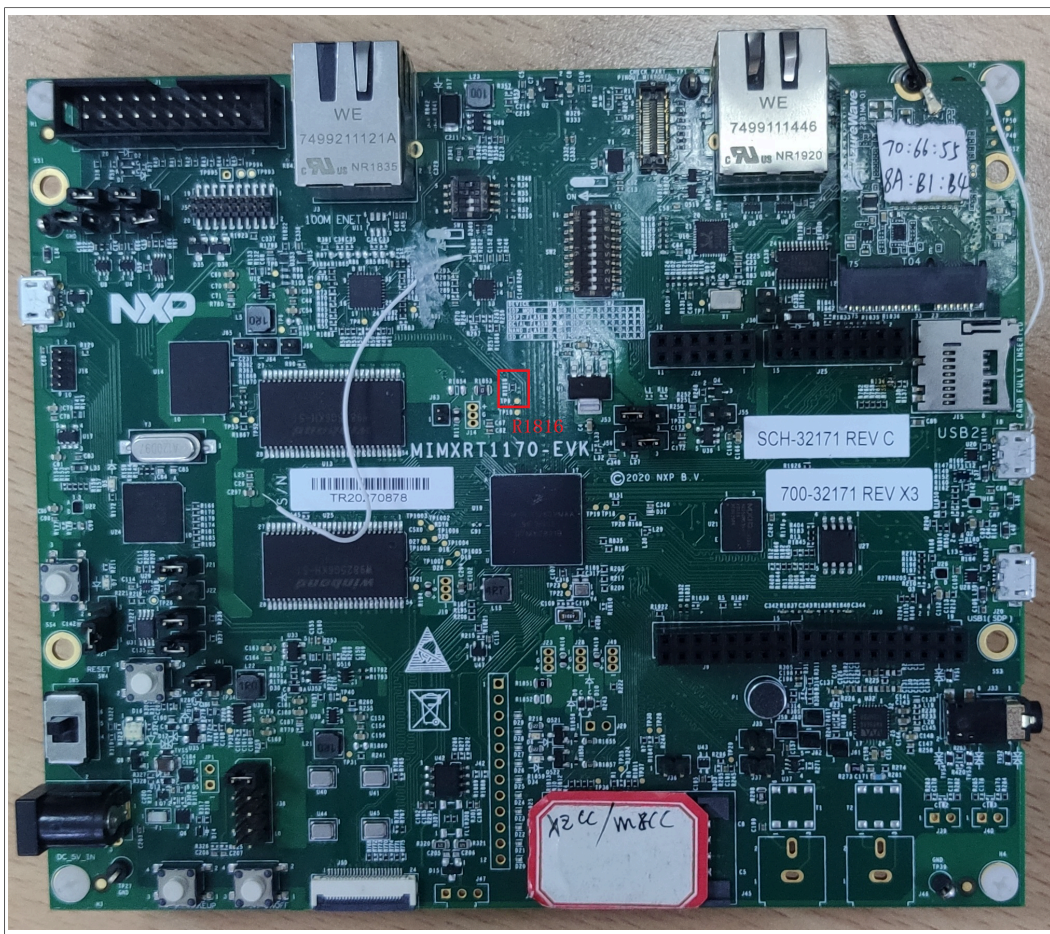
- **HCI UART rework**

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.





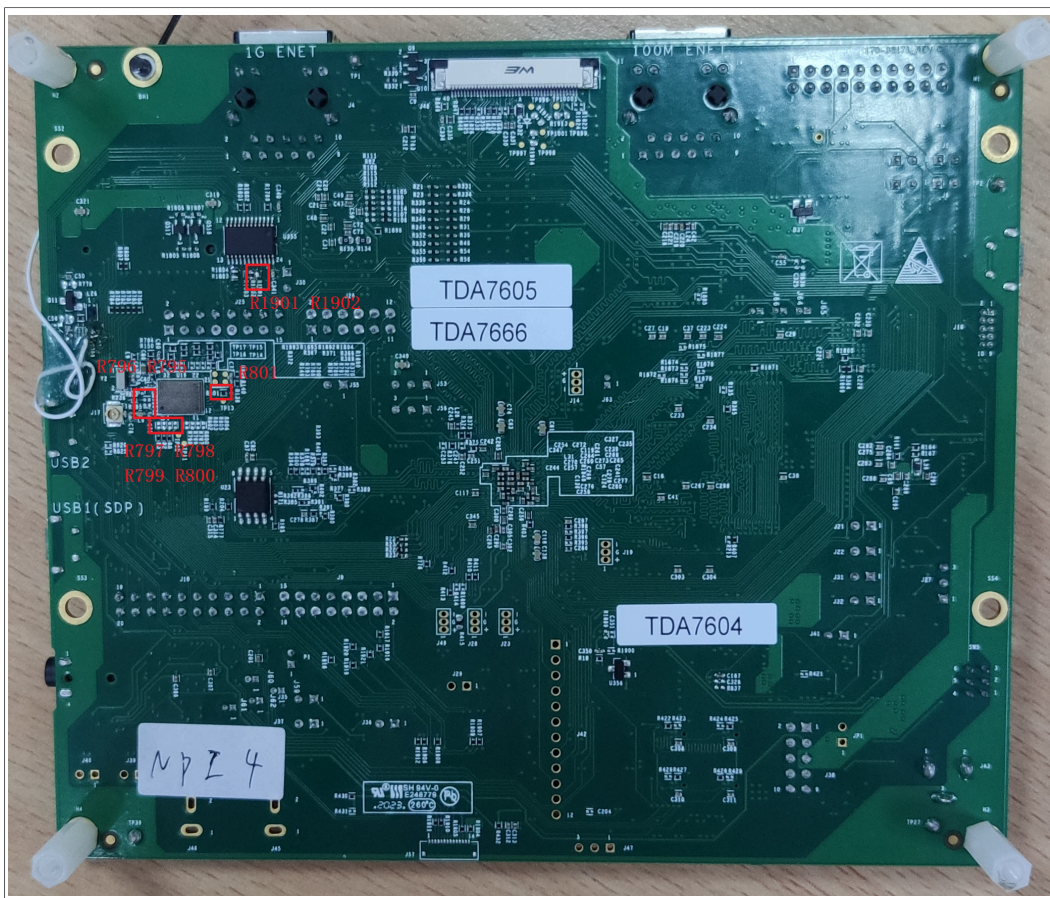
## 13 Hardware Rework Guide for MIMXRT1170-EVK and AW-AM510MA

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](#).

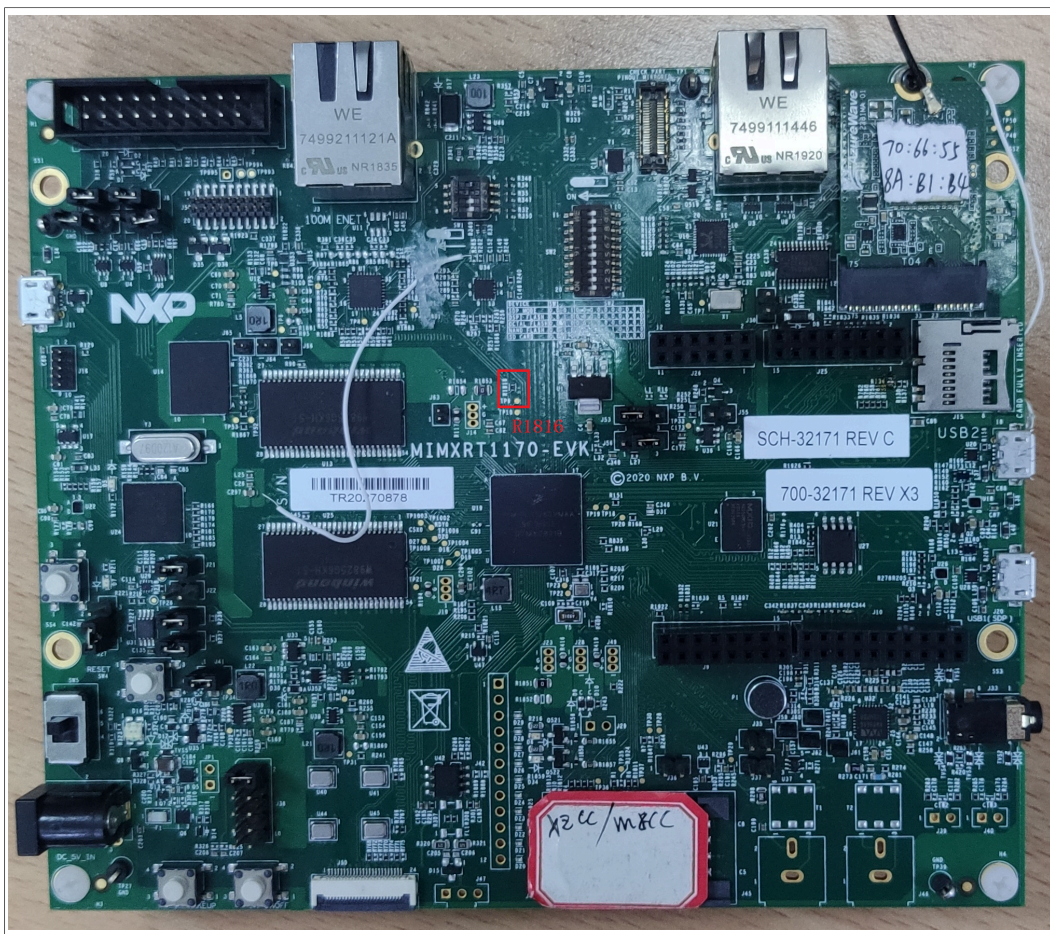
### 13.1 Hardware rework

- **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 with Direct 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 port 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 port 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 17. 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



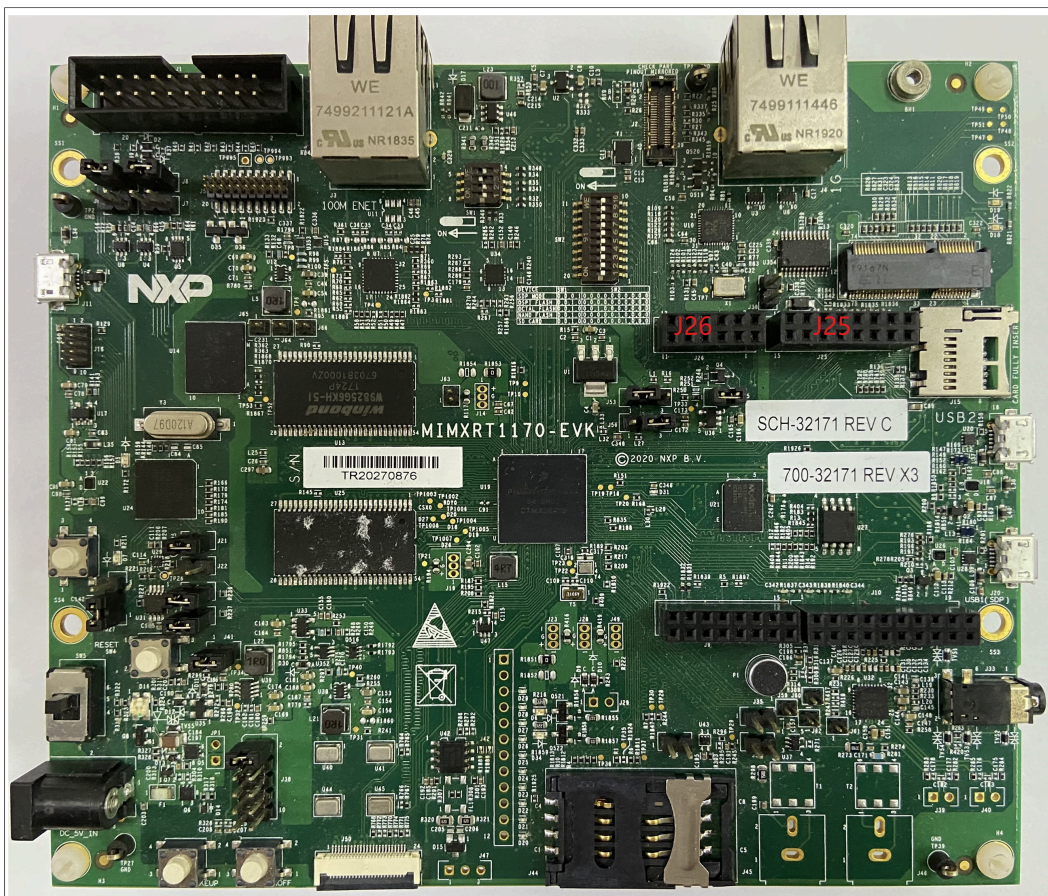


Figure 41. MIMXRT1170-EVK

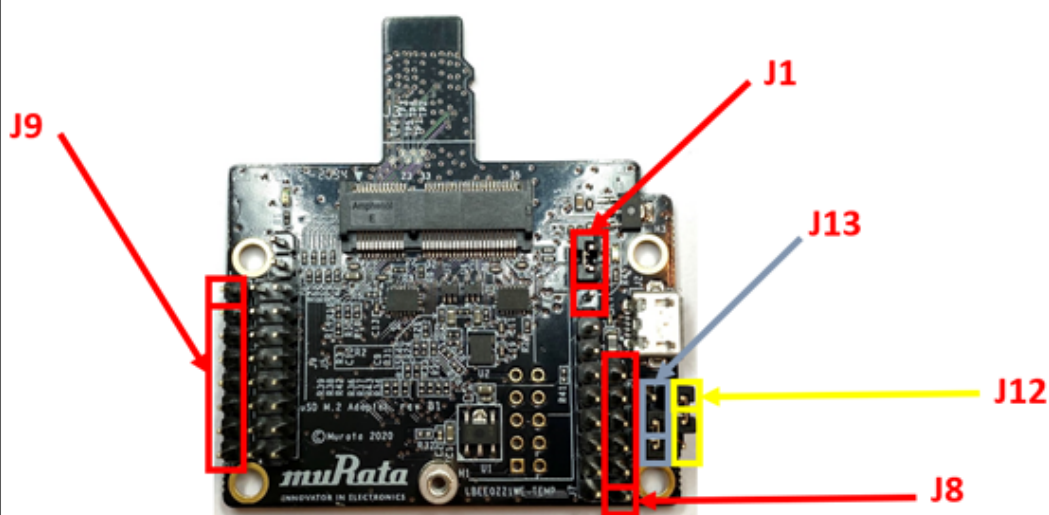


Figure 42. Murata uSD-M.2 adapter

**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 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 port rework

### 16.1 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 18. 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 43. MIMXRT685-EVK



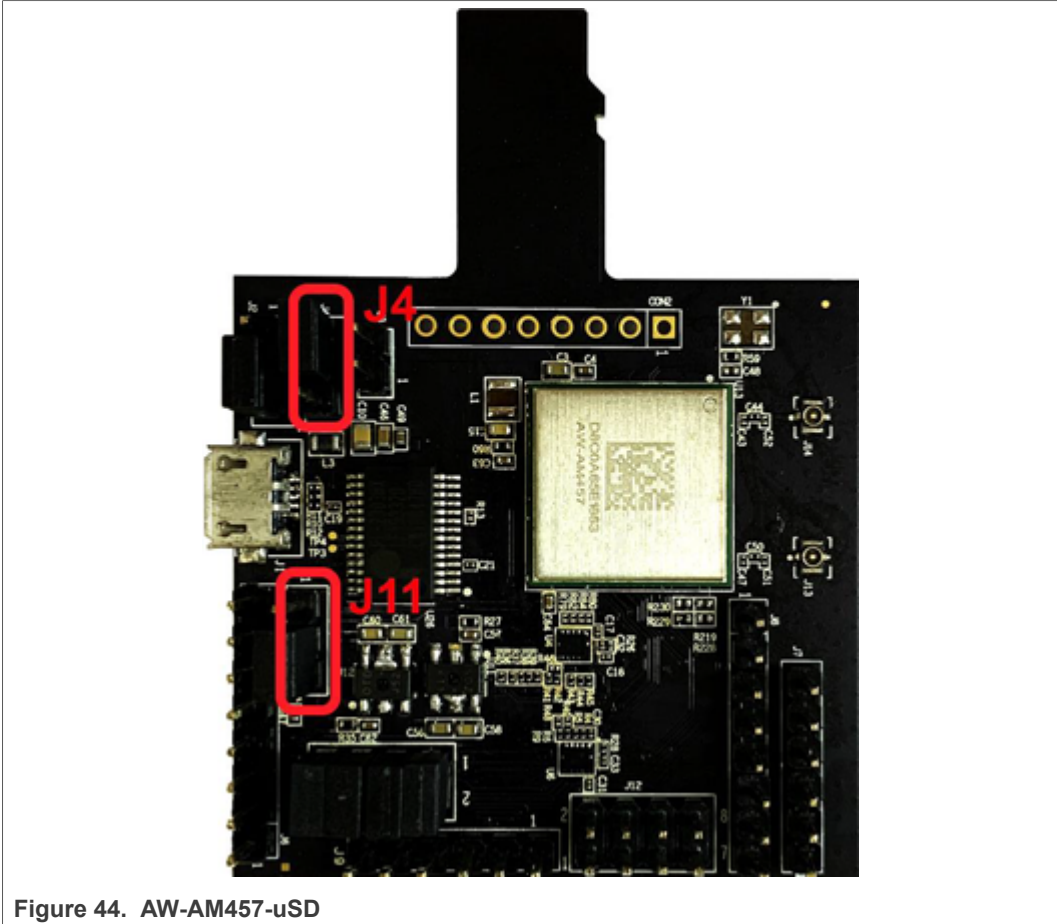


Figure 44. AW-AM457-uSD

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 19. 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



17 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 port rework

17.1 Hardware rework

HCI UART rework

R398 move from 1-2 to 2-3.

Connect the pins of two boards as the following table.

Table 20. 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 45. MIMXRT685-EVK

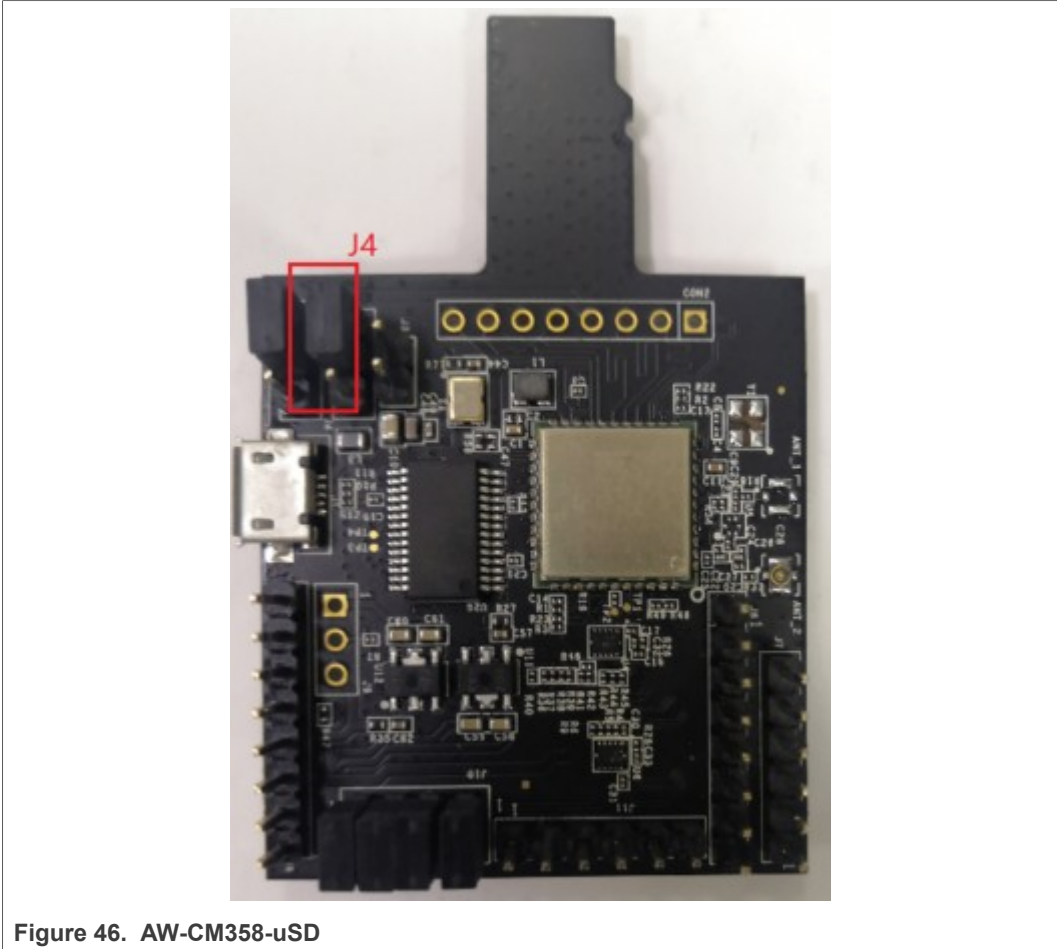


Figure 46. AW-CM358-uSD

**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 21. 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

## 18 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 port rework

### 18.1 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 22. 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



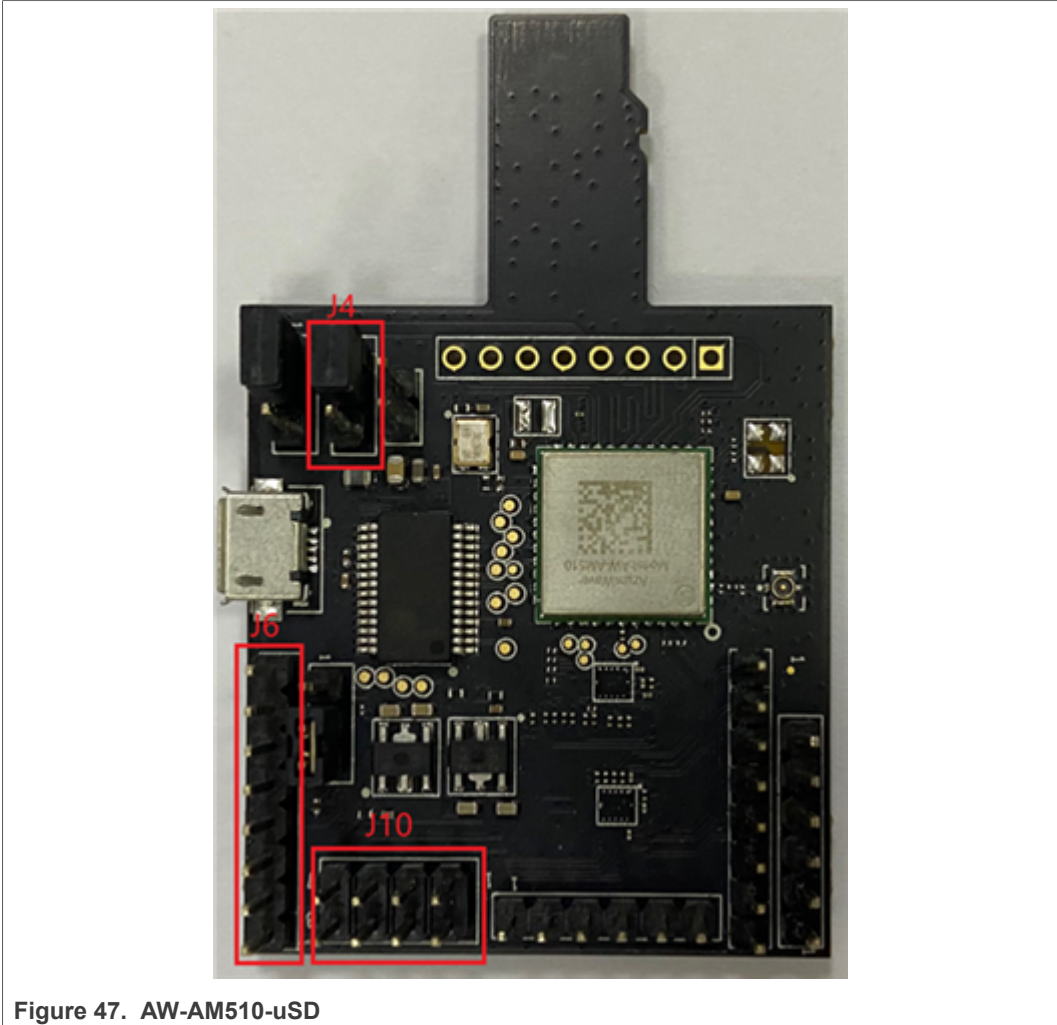


Figure 47. AW-AM510-uSD

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 23. 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

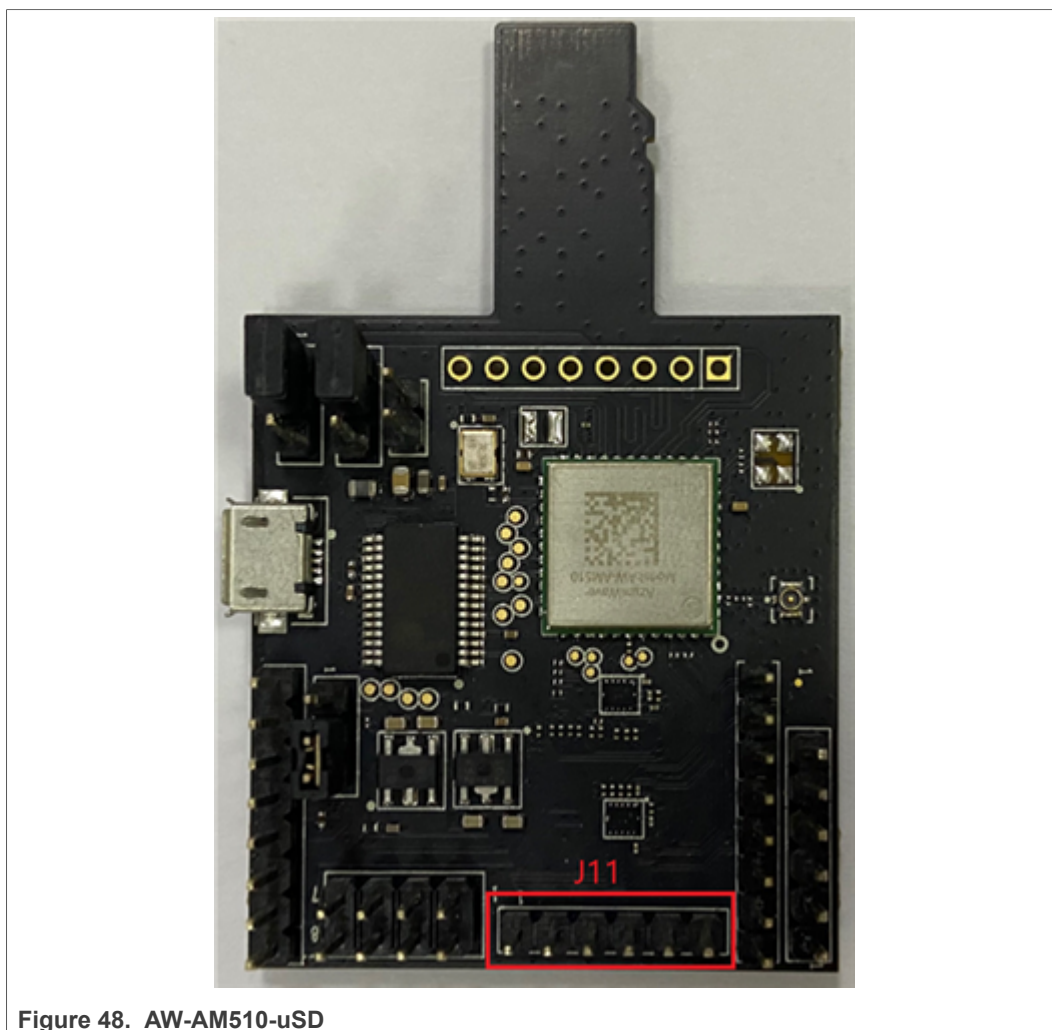


Figure 48. AW-AM510-uSD

## 19 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 port rework

### 19.1 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 24. 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

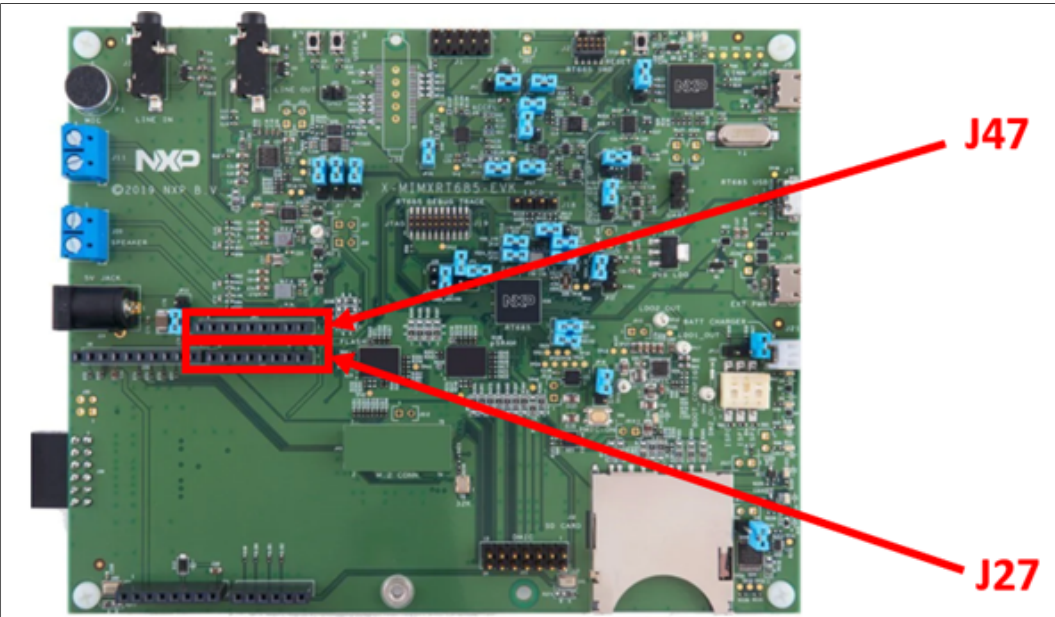


Figure 49. MIMXRT685-EVK

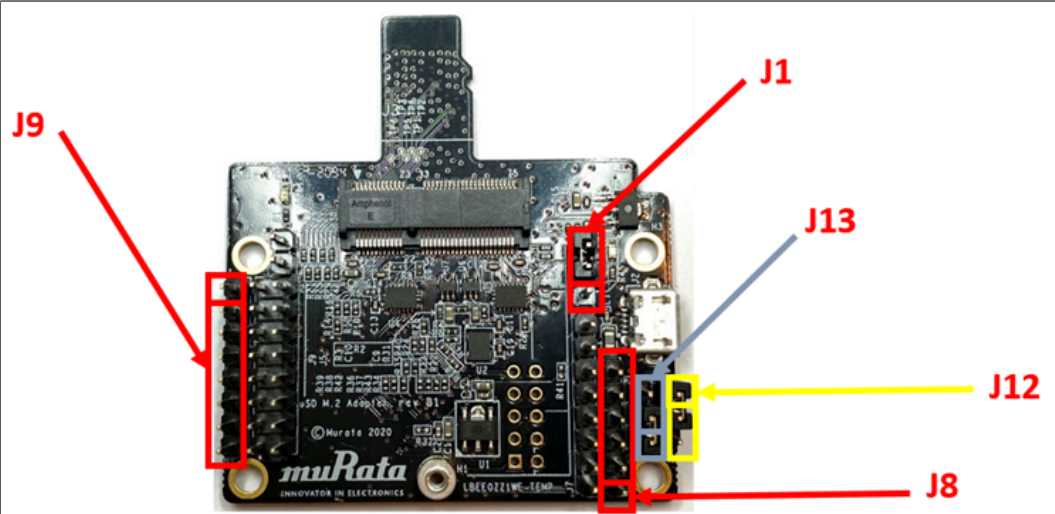


Figure 50. Murata uSD-M.2 adapter

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)

## 20 Hardware Rework Guide for MIMXRT595-EVK with Direct Murata M.2 Module

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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

### 20.1 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

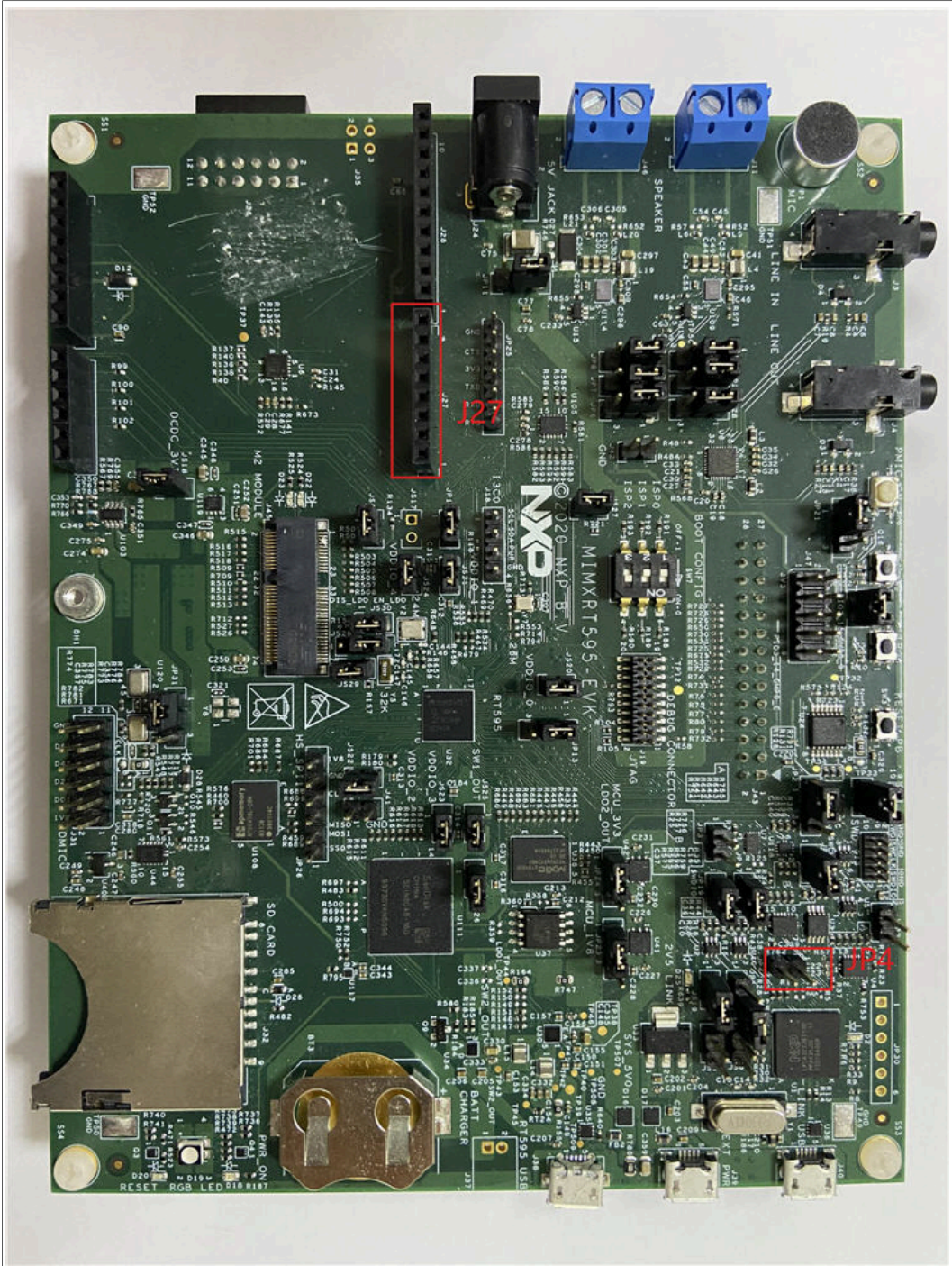


Figure 51. MIMXRT595

## 21 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

## 21.1 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.



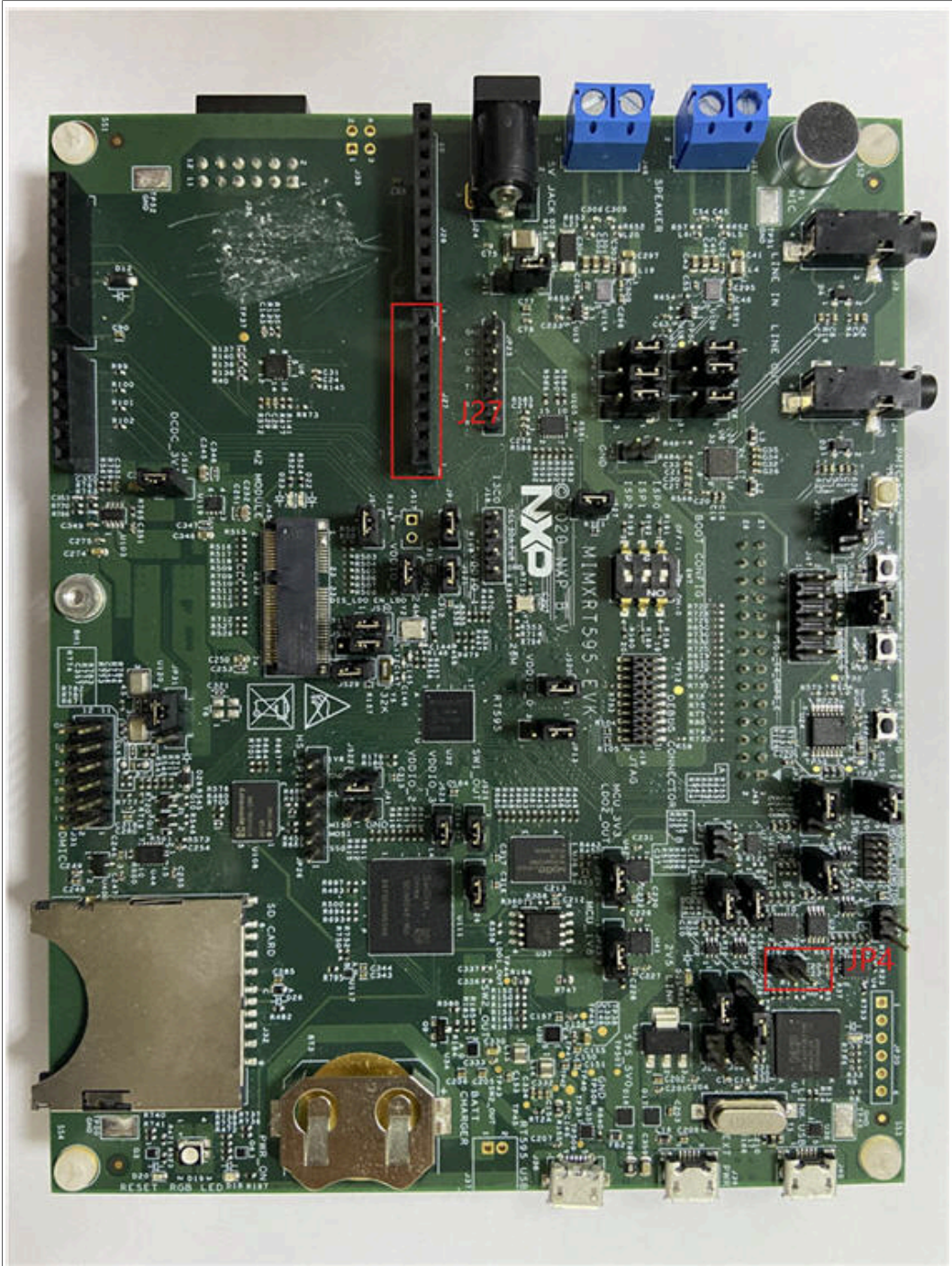


Figure 52. MIMXRT595-EVK

## 22 Hardware Rework Guide for MIMXRT595-EVK with 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



## 22.1 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

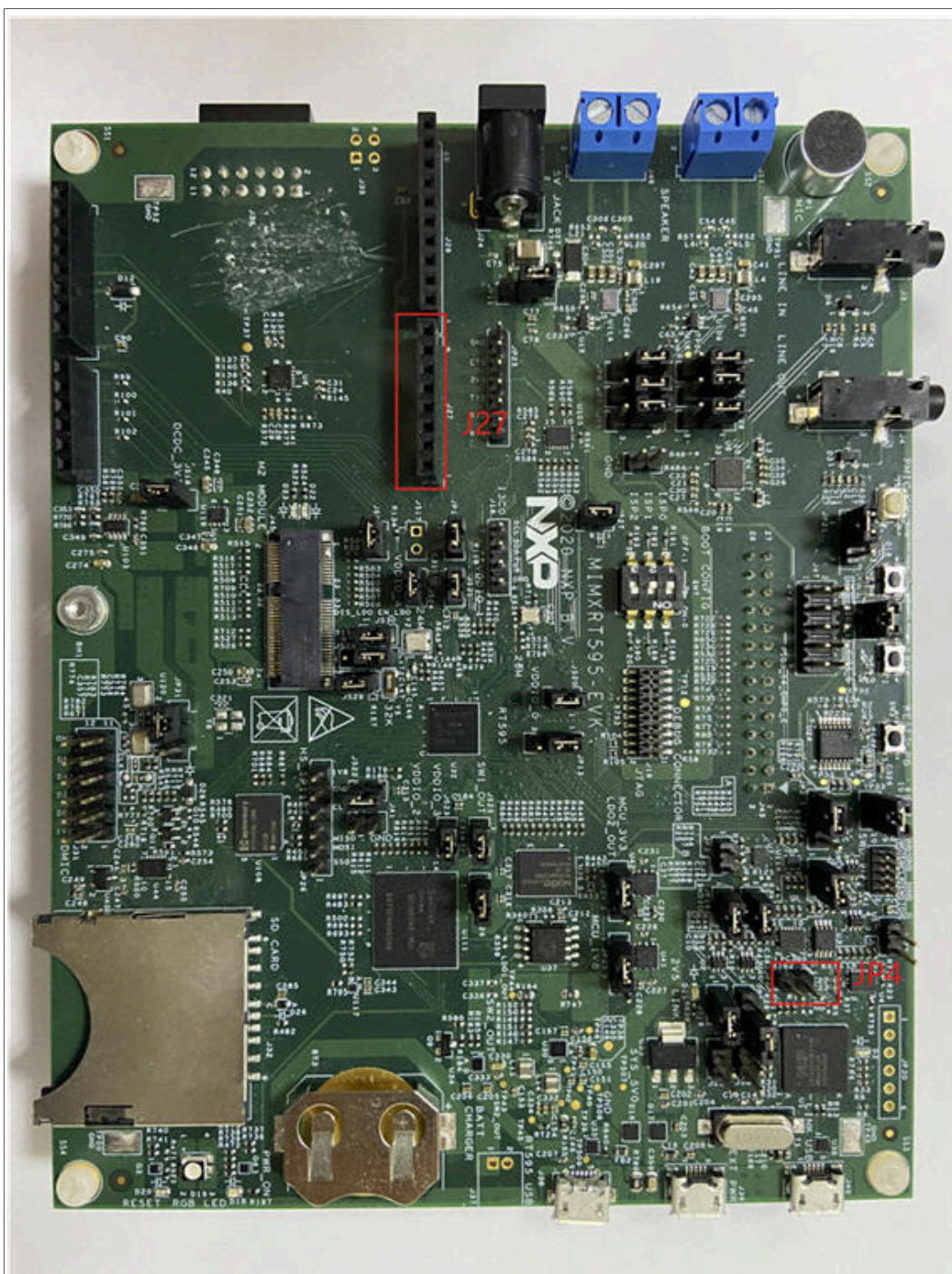


Figure 53. MIMXRT595-EVK

## 23 Hardware Rework Guide for MIMXRT1040-EVK with Direct 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

### 23.1 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.

## 24 Revision history

This table summarizes revisions to this document.

Table 25. Revision history

Revision number	Date	Substantive changes
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



## 25 Legal information

### 25.1 Definitions

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