正基科技股份有限公司

AMPAK Technology Inc.

AP12275_M2
Evaluation Board User Manual

Revision

Revision	Date	Description	Revised By
0.1	2024/09/27	Initial released	Gary

Contents

1. EVB Introduction

AP12275_M2 Evaluation board (EVB) likes as figure1. That is designed for IEEE802.11 a/b/g/n/ac/ax WLAN with integrated Bluetooth application. It is subject to provide a convenient environment for customer's verification on WiFi or Bluetooth function. There are many controller pins and reserved GPIO on Evaluation board which describes as below.
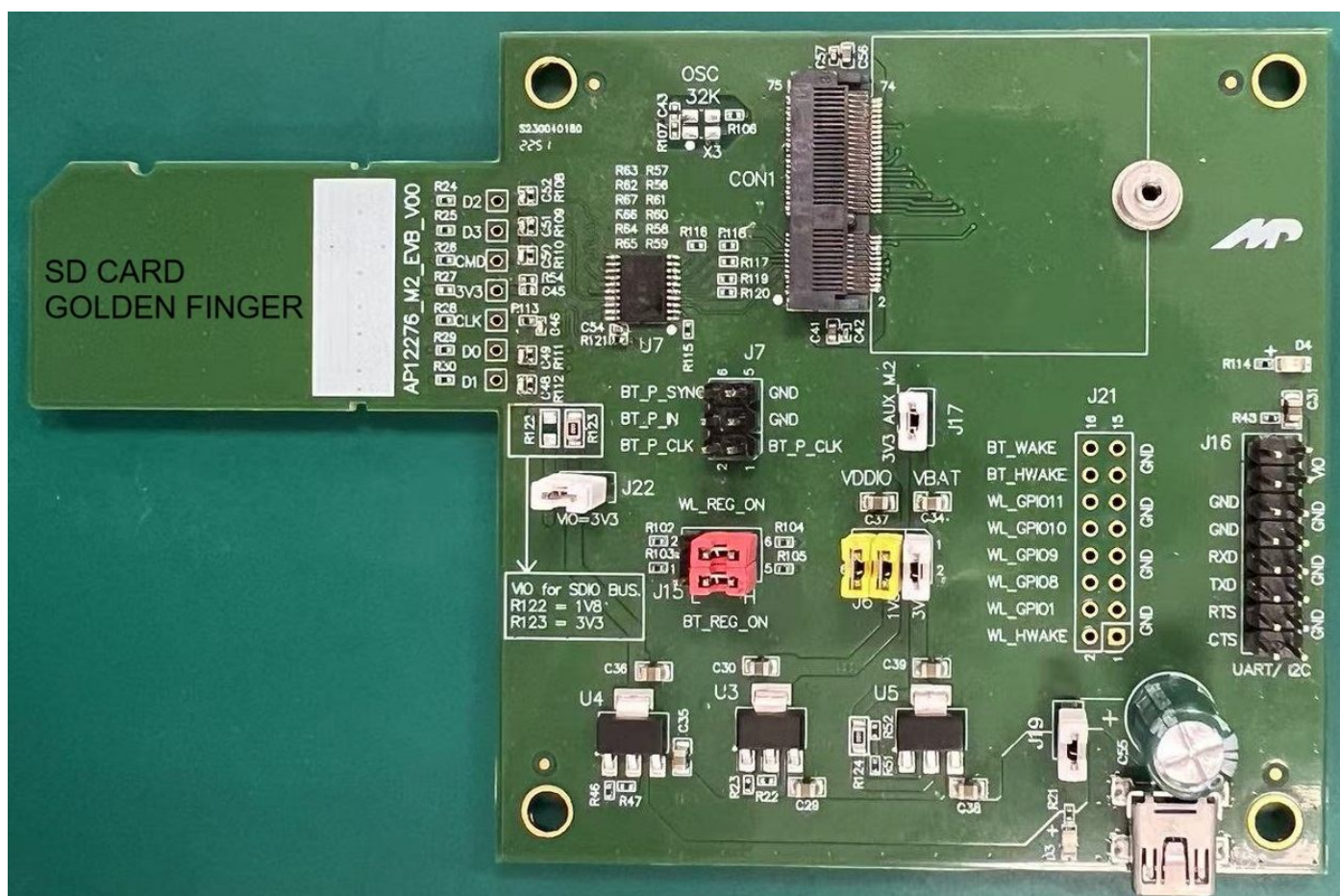

Figure1. Top view of AP12275_M2 EVB

Interface highlights:

1. CON1: AP12275_M2 SIP module.
2. J16: UART interface connects with UART transport board for BT measuring
3. J15: Enable(H) or disable(L) Bluetooth, WiFi function
4. J6: VBAT / WL_VIO / BT_VIO for main system I/O power path.
5. J20: 5V DC mini USB input connector.
6. J8: Standard SDIO interfaces for Wi-Fi performance measured.
7. J21: WL_HOST_WAKE/BT_HOST_WAKE/BT_DEV_WAKE/WL_GPIOs.
8. J7: BT_PCM interface.
9. J17: CON1 3.3V Power

2. WiFi Function Verification Step

2.1   WiFi SDIO

Using external pull up resistors depends on the SDIO supply voltage. The resistance range is 30 KΩ~40 KΩ on the four data lines and the CMD line as the following circuitry.

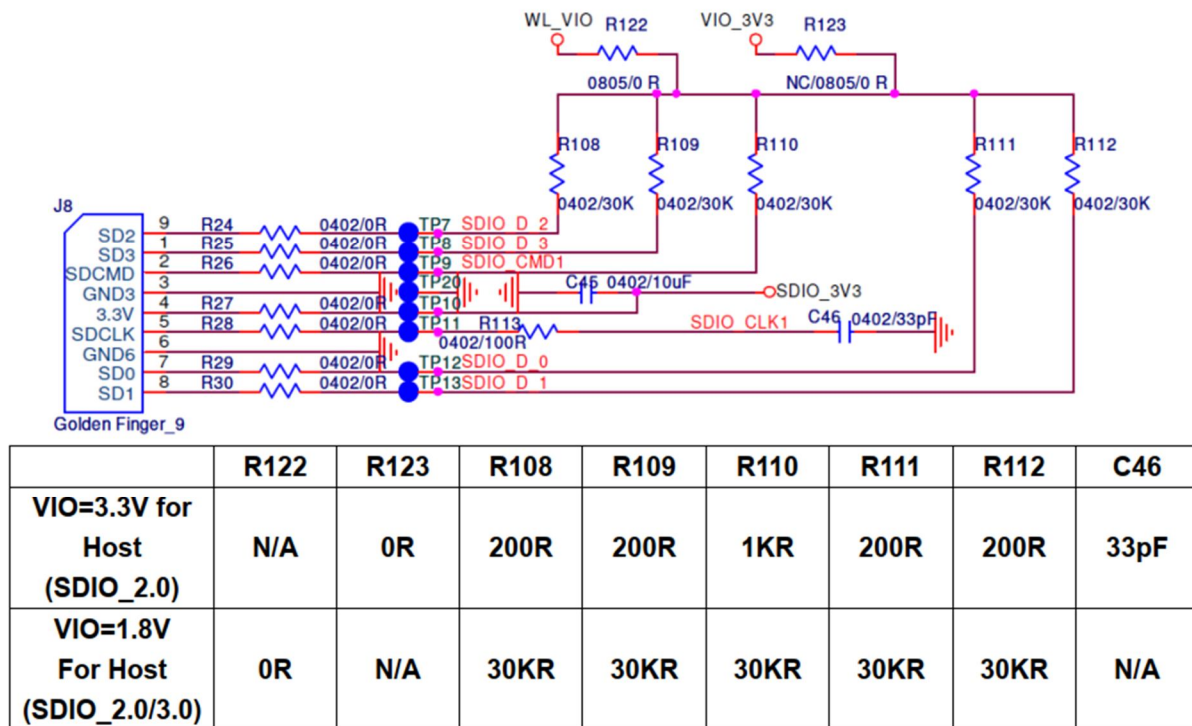|	R122	R123	R108	R109	R110	R111	R112	C46
VIO=3.3V for Host (SDIO_2.0)	N/A	0R	200R	200R	1KR	200R	200R	33pF
VIO=1.8V For Host (SDIO_2.0/3.0)	0R	N/A	30KR	30KR	30KR	30KR	30KR	N/A

Figure2. WiFi verification connection interface to Host SDIO as using SDIO2.0
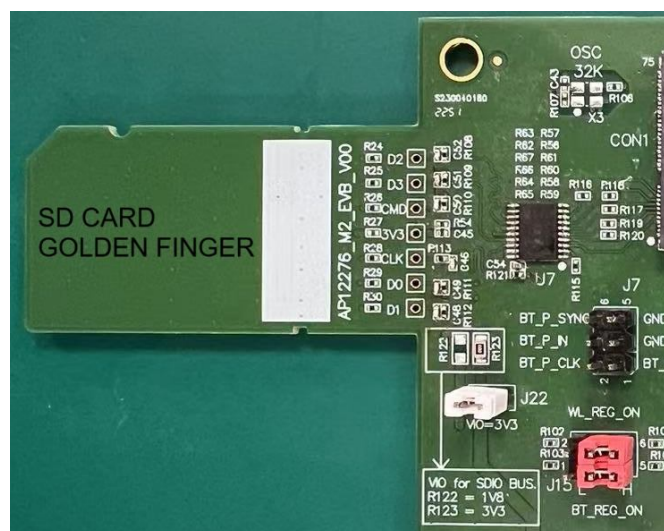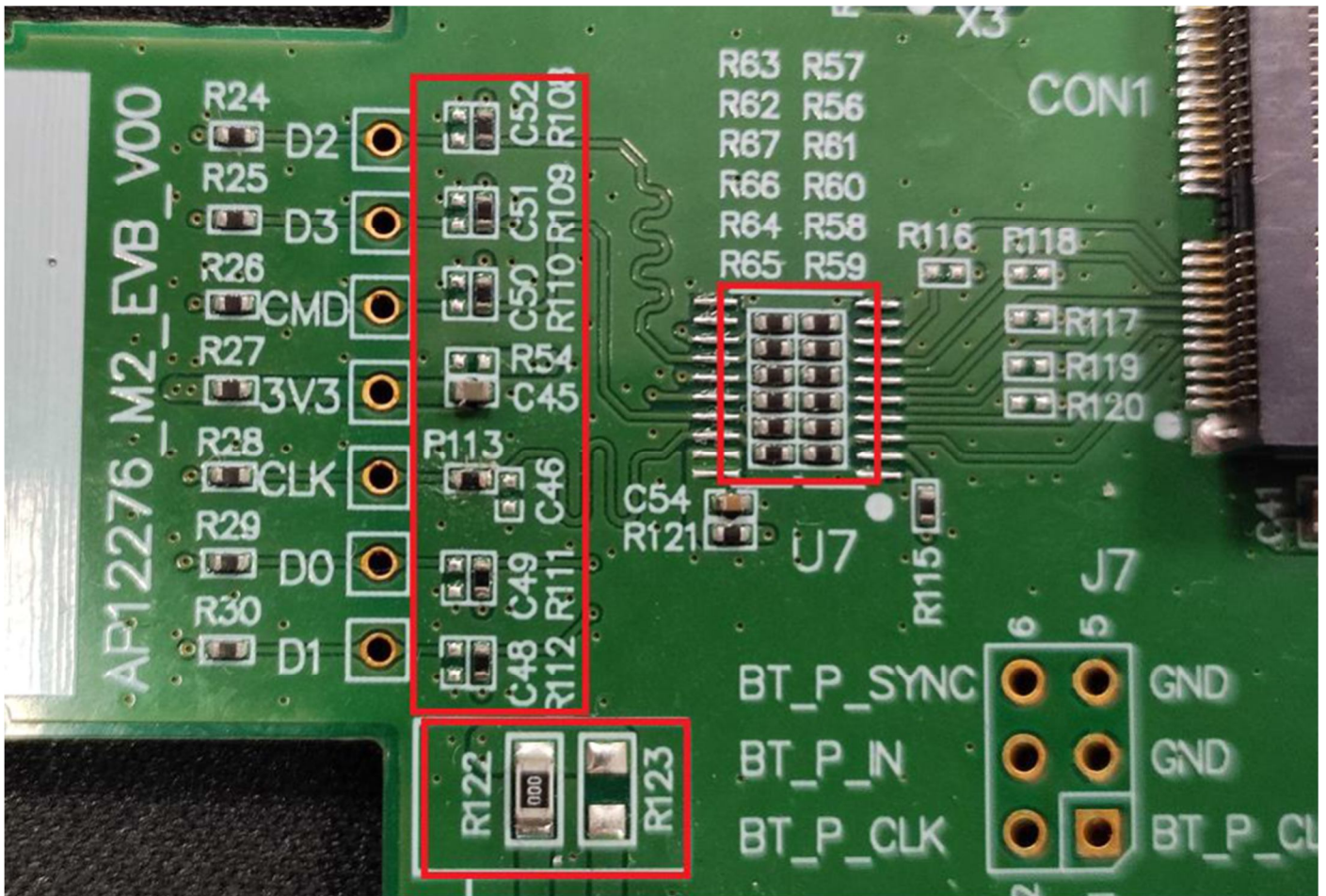

Figure3. EVB interface to HOST SDIO 2.0.

Figure4. EVB interface to HOST SDIO 3.0.

✧ SDIO 2.0 Hardware Setup:

✧ Pull up voltage should be 3.3V, so make sure R123 is existed.

✧ U7 placed, R56/ R57/ R58/ R59/ R60/ R61/ R62/ R63/ R64/ R65/ R66/ R67 NOP.

✧ SDIO 3.0 Hardware Setup:

✧ Pull up voltage should be 1.8V, so make sure R122 is existed.

✧ R56/ R57/ R58/ R59/ R60/ R61/ R62/ R63/ R64/ R65/ R66/ R67 placed, U7 NOP.

2.2   SDIO Hardware Setup

❖ Refer to Figure2 SDIO pin definition connects the J8 interface of AP12276_M2 evaluation board to Host SDIO control interface.

❖ Using pull high resistors (R108, R109, R110, R111, R112) that resistance is 30Kohm for 1.8V or 3.3V VDDIO pull up voltage. (Pull high resistors are un-necessary if at verification phase.)

❖ Connects an external antenna at SMA connector on the evaluation board.

❖ Note to the VDDIO voltage level should be the same with GPIO voltage level of Host CPU.

2.3   WiFi Software Setup

❖   Please follow up software guideline of Ampak official released.
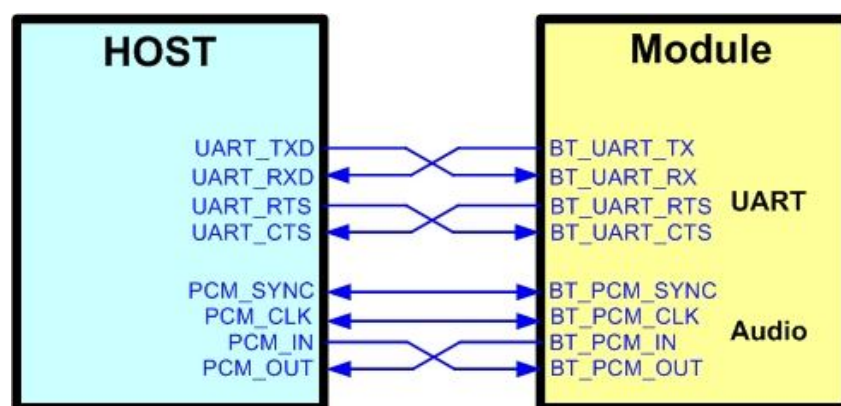
3. Bluetooth Function Verification Step

Figure5. Bluetooth verification connection interface to Host UART

Hardware Setup:

❖ Refer to Figure5 UART pin definition connects the J16 interface of AP12275_M2 evaluation board to Host UART control interface.

❖ Connects an external antenna at SMA connector on the evaluation board.

❖ Note to the VDDIO voltage level should be the same as GPIO voltage level of Host CPU.

WiFi and Bluetooth software setup:

❖ Please follow up software guideline of Ampak official released.