Realtek Ameba1 DEV01 User Manual

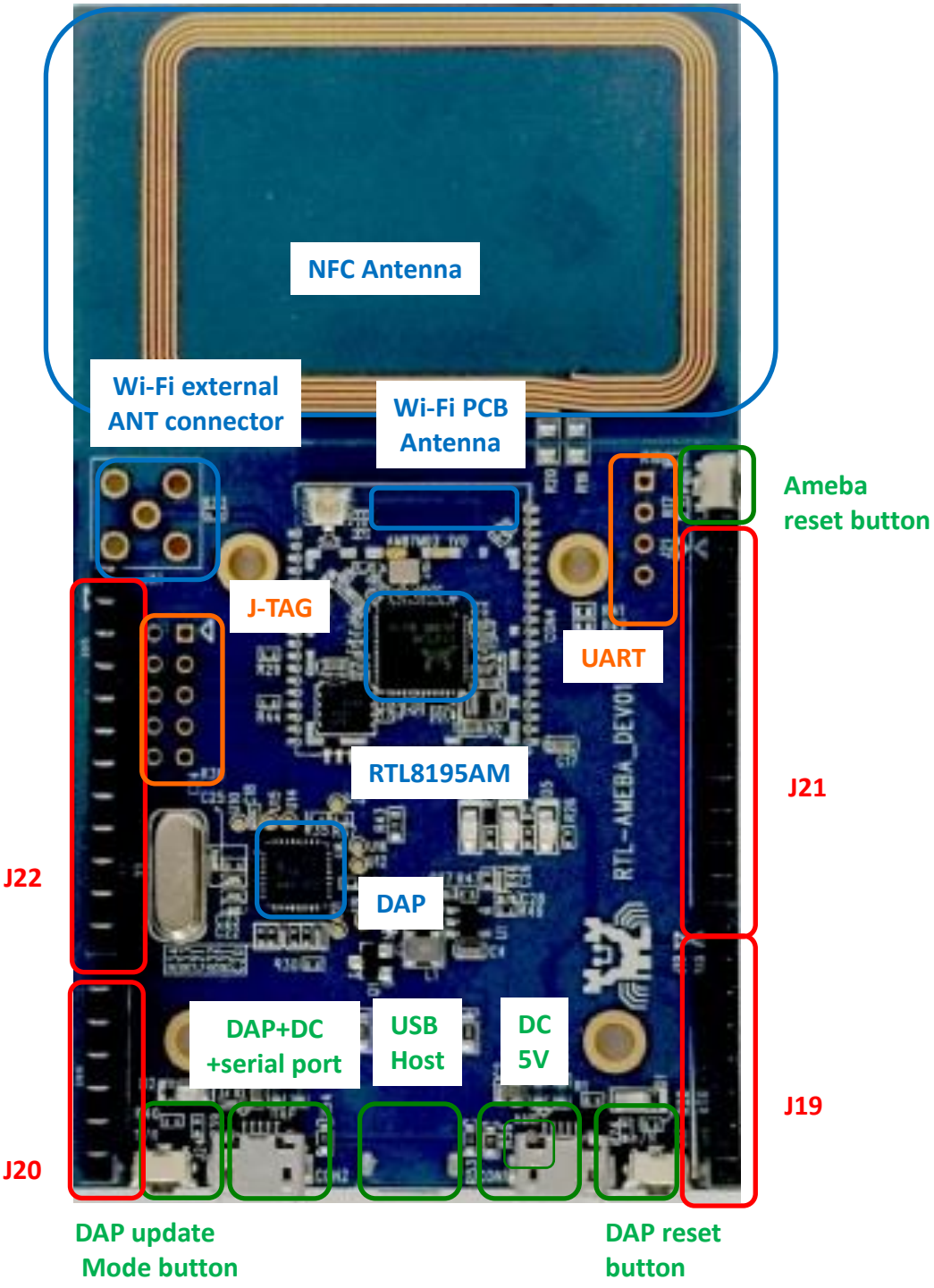
This document define pin out of Ameba EVB.

Version 1.3

Table of Contents

1 Hardware block diagram

- IC: RTL8195AM
- EVB: RTL-AMEBA_DEV01



2 System requirements

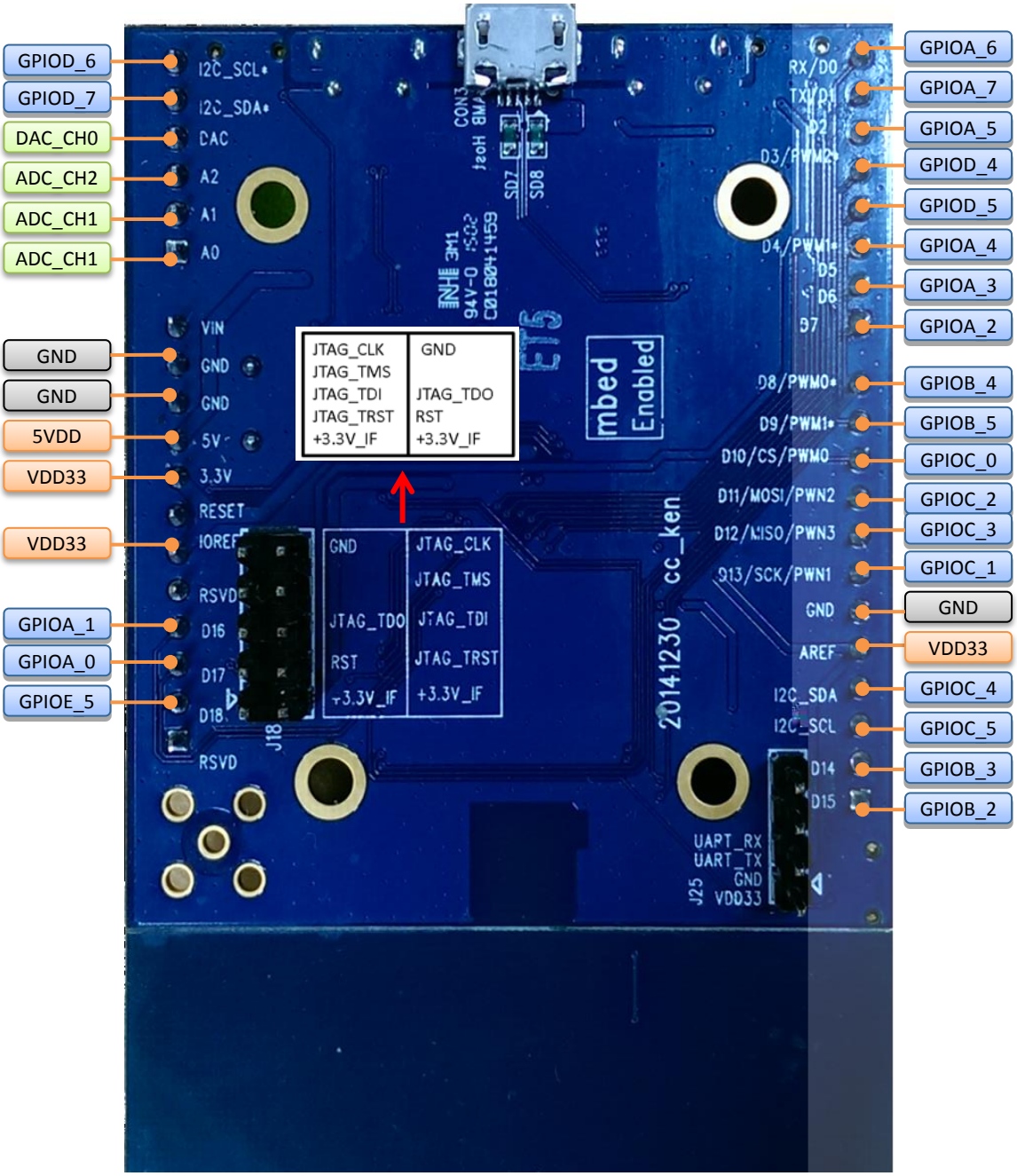
- Windows PC (XP, Vista, 7)
- USB type A to Micro-B USB cable x 1
- RS-232 to UART board(debug) x 1, JTAG cable x1 (option)

3 Pin out reference

3.1 Pin out table

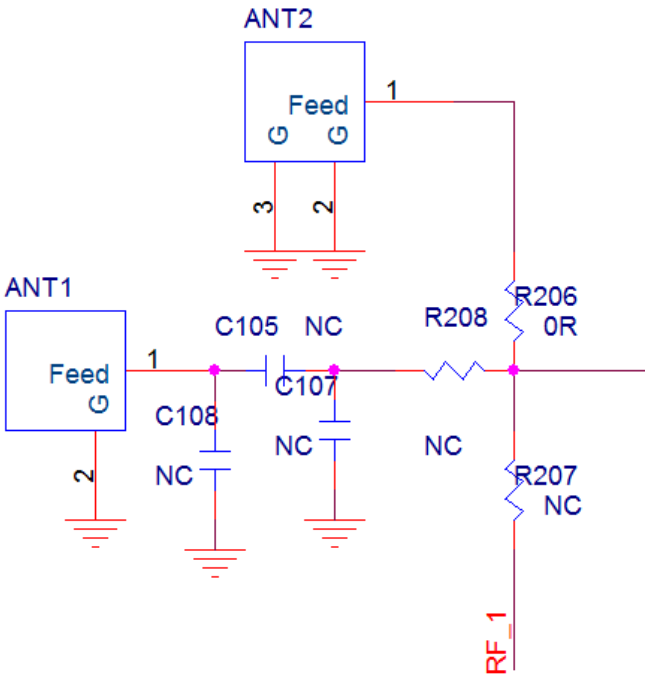
Con	EVB name	Pin	Net name	Con	EVB name	Pin	Net name
J20	I2C_SCL*	6	GPIOD_6	J19	RX/D0	8	GPIOA_6
	I2C_SDA*	5	GPIOD_7		TX/D1	7	GPIOA_7
	DAC	4	DAC_CH0		D2	6	GPIOA_5
	A2	3	ADC_CH2		D3/PWM2*	5	GPIOD_4
	A1	2	ADC_CH1		D4/PWM1*	4	GPIOD_5
	A0	1	ADC_CH1		D5	3	GPIOA_4
					D6	2	GPIOA_3
					D7	1	GPIOA_2
Con	**EVB name**	**Pin**	**Net name**	**Con**	**EVB name**	**Pin**	**Net name**
sJ22	VIN	12	NC	J21	D8/PWM0*	12	GPIOB_4
	GND	11	GROUND		D9/PWM1*	11	GPIOB_5
	GND	10	GROUND		D10/CS/PWM0	10	GPIOC_0
	5V	9	5VDD		D11/MOSI/PWM2	9	GPIOC_2
	3.3V	8	VDD33		D12/MISO/PWM3	8	GPIOC_3
	RESET	7	NC		D13/SCK/PWM1	7	GPIOC_1
	IOREF	6	VDD33		GND	6	GND
	RSVD	5	NC		AREF	5	VDD33
	D16	4	GPIOA_1		I2C_SDA	4	GPIOC_4
	D17	3	GPIOA_0		I2C_SCL	3	GPIOC_5
	D18	2	GPIOE_5		D14	2	GPIOB_3
	RSVD	1	NC		D15	1	GPIOB_2

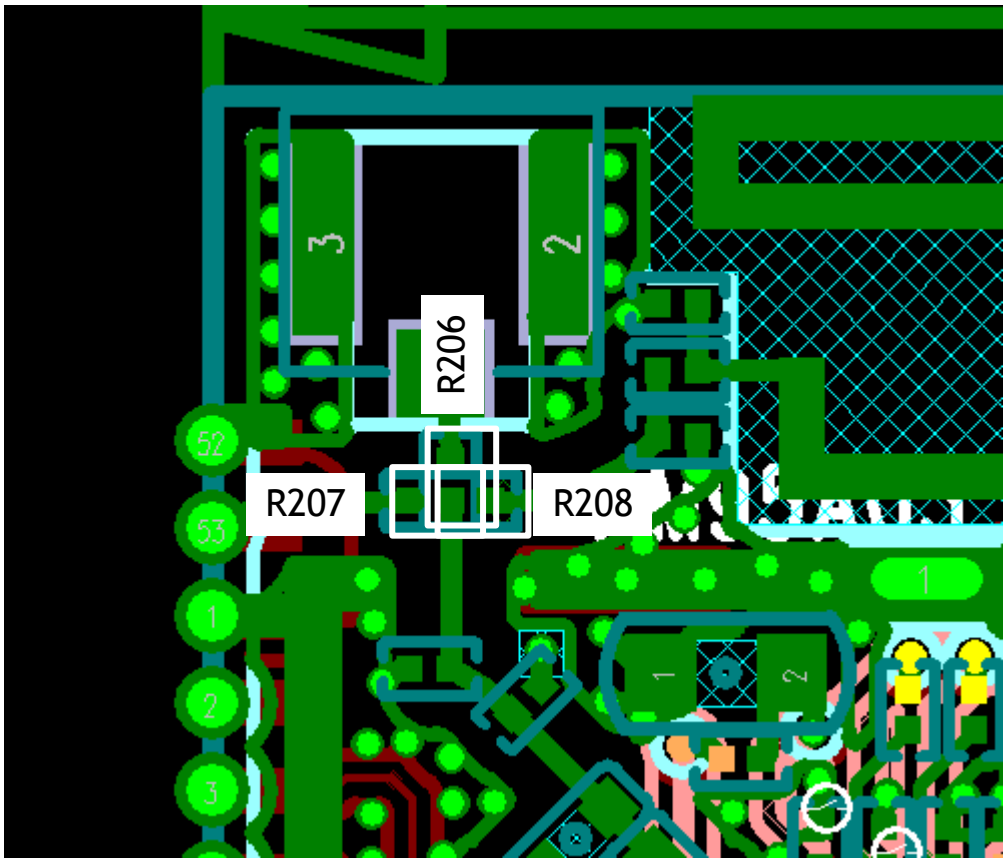
3.2 Pin out reference



4 Antenna hardware setup

- I-PEX/U.FL connector: R206
- External antenna: R207
- PCB antenna: R208



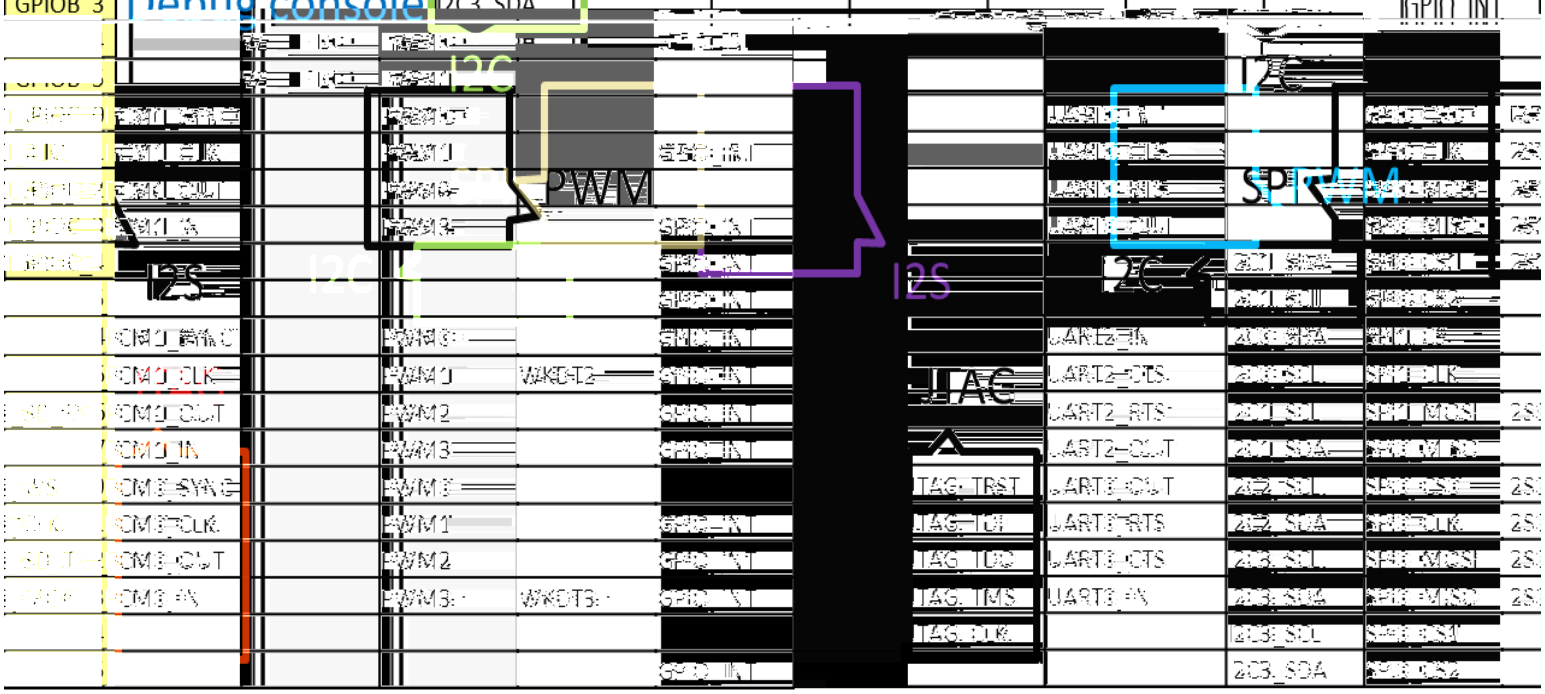


5 Peripherals support

- Debug UART: GPIOB_[0..1]
- JTAG: GPIOE_[0..4]
- UART
- I2C / I2S/SPI
- PWM/PCM

5.1 Reference setup

PIN name	JTAG	UART Funtion	I2C Group	SPI Group	I2S GROUP	PCM Group	WL_LED0	PWM	WKDT	GPIO_INT
GPIOA_0		UART2_IN		SPI1_MISO						GPIO_INT
GPIOA_1		UART2_CTS		SPI1_MOSI						GPIO_INT
GPIOA_2		UART2_RTS		SPI1_CLK						
GPIOA_3		UART0_RTS								
GPIOA_4		UART2_OUT		SPI1_CS						
GPIOA_5		UART0_CTS							WKDT0	
GPIOA_6		UART0_IN								
GPIOA_7		UART0_OUT								
GPIOB_0		UART_LOG_OUT								
GPIOB_1		UART_LOG_IN					WL_LED0			
GPIOB_2			I2C3_SCL							
GPIOB_3			I2C3_SDA							GPIO_INT

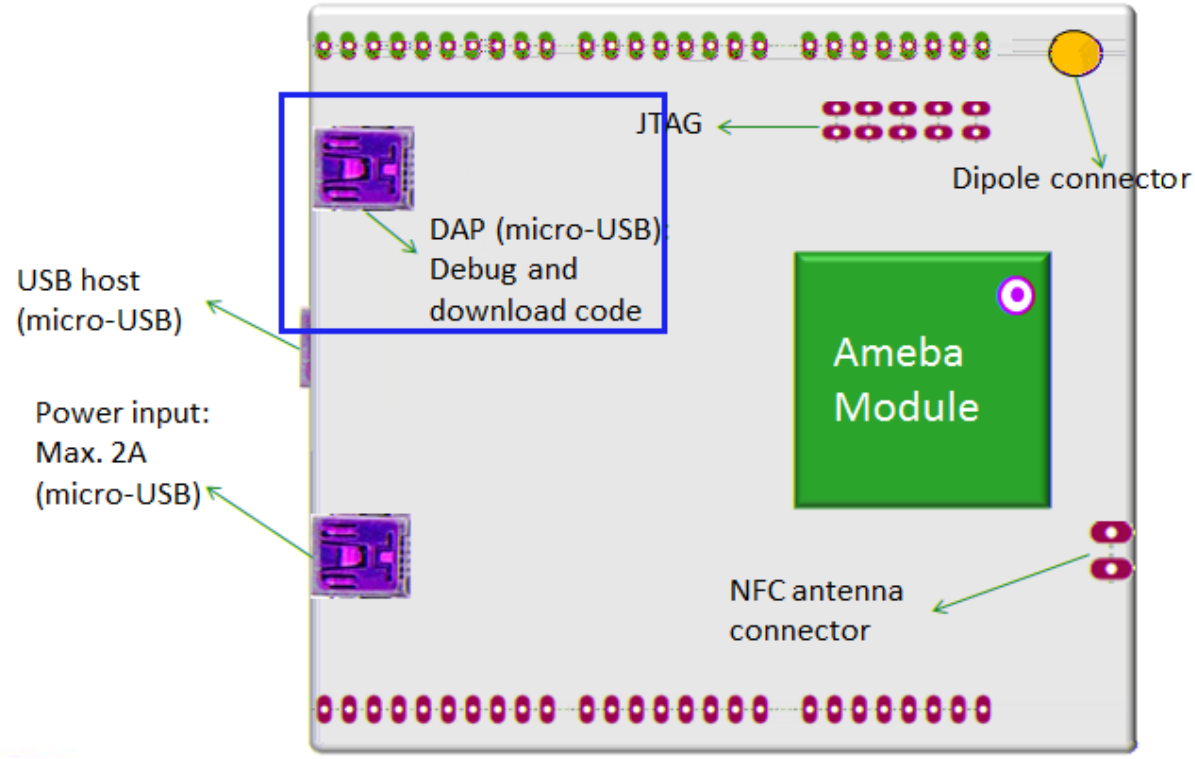


6 Hardware configuration

6.1 CMSIS-DAP

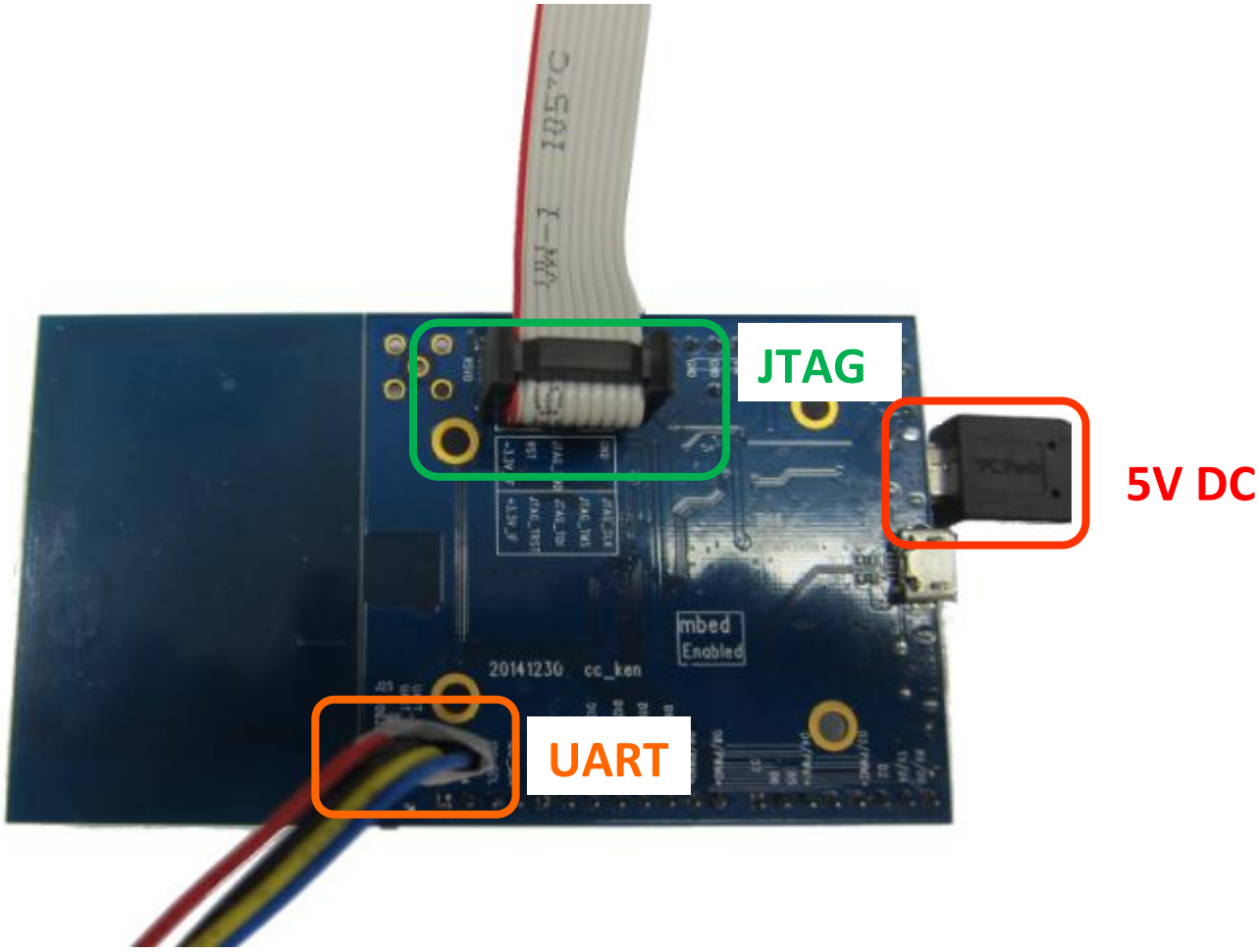
RTL-AMEBA_DEV01 supports CMSIS-DAP debugger. It requires installing “serial to USB driver”at first. Serial to USB driver can be found in tools\serial_to_usb\mbedWinSerial_16466.

Connect board to the PC with micro-USB cable.



6.2 J-Link/JTAG

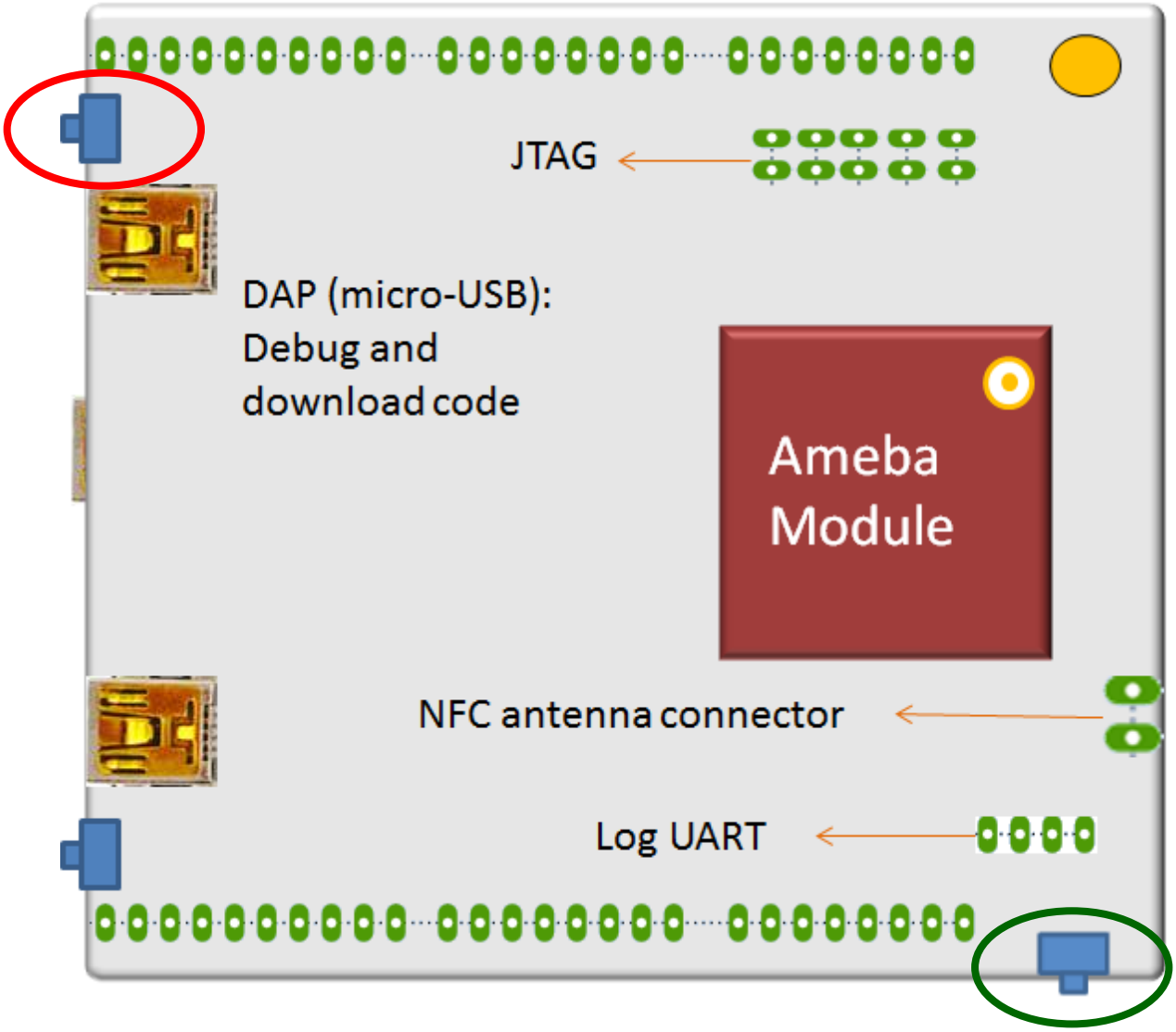
Weld JTAG and log UART connectors to HDK board and connect with pitch 2.54mm 2x5pins connector. It is recommended to weld the connector on the bottom side. Users can connect extension boards from top side.



Dupont Line or 2.54mm 2x5 pins connector.

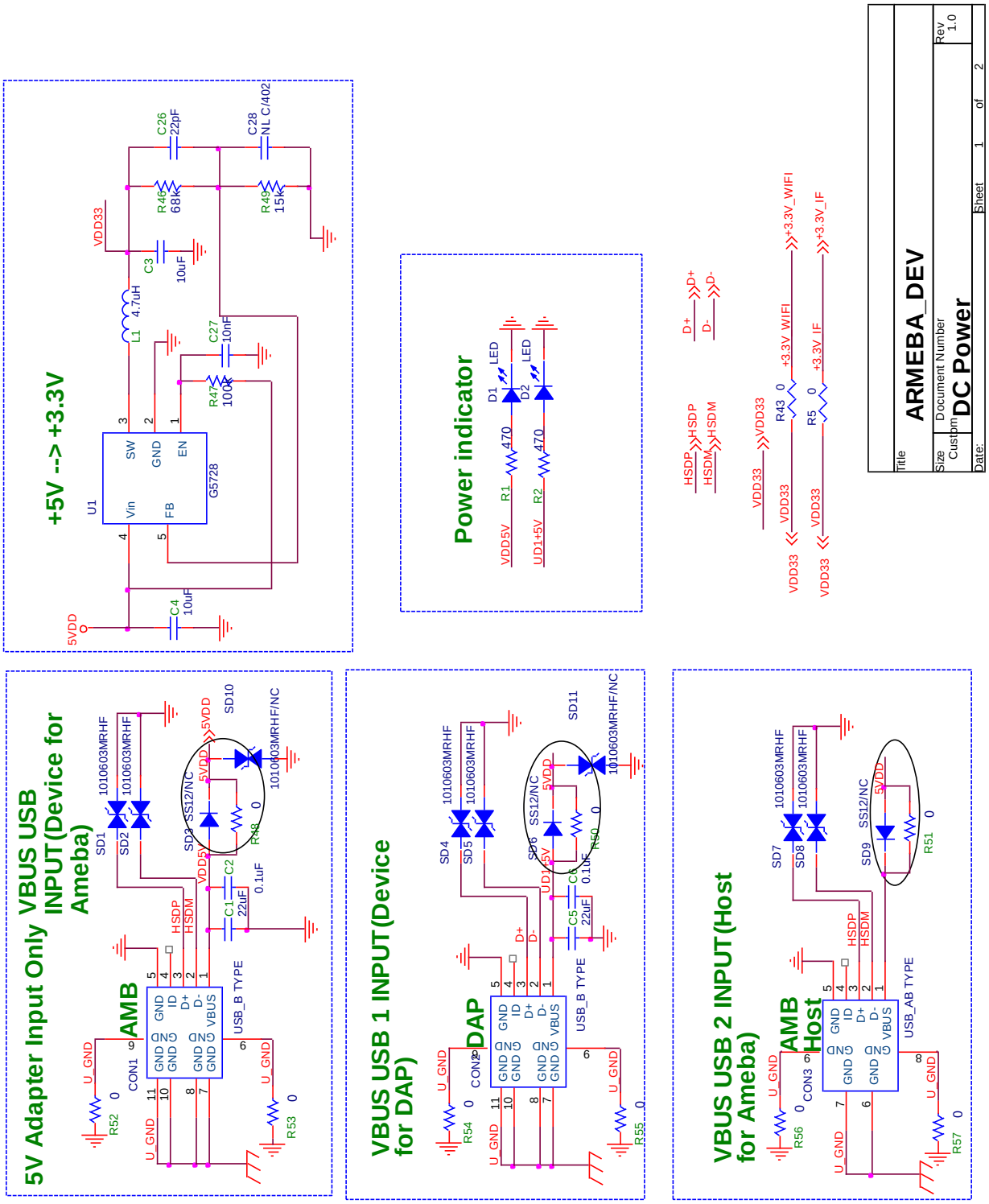
Power On

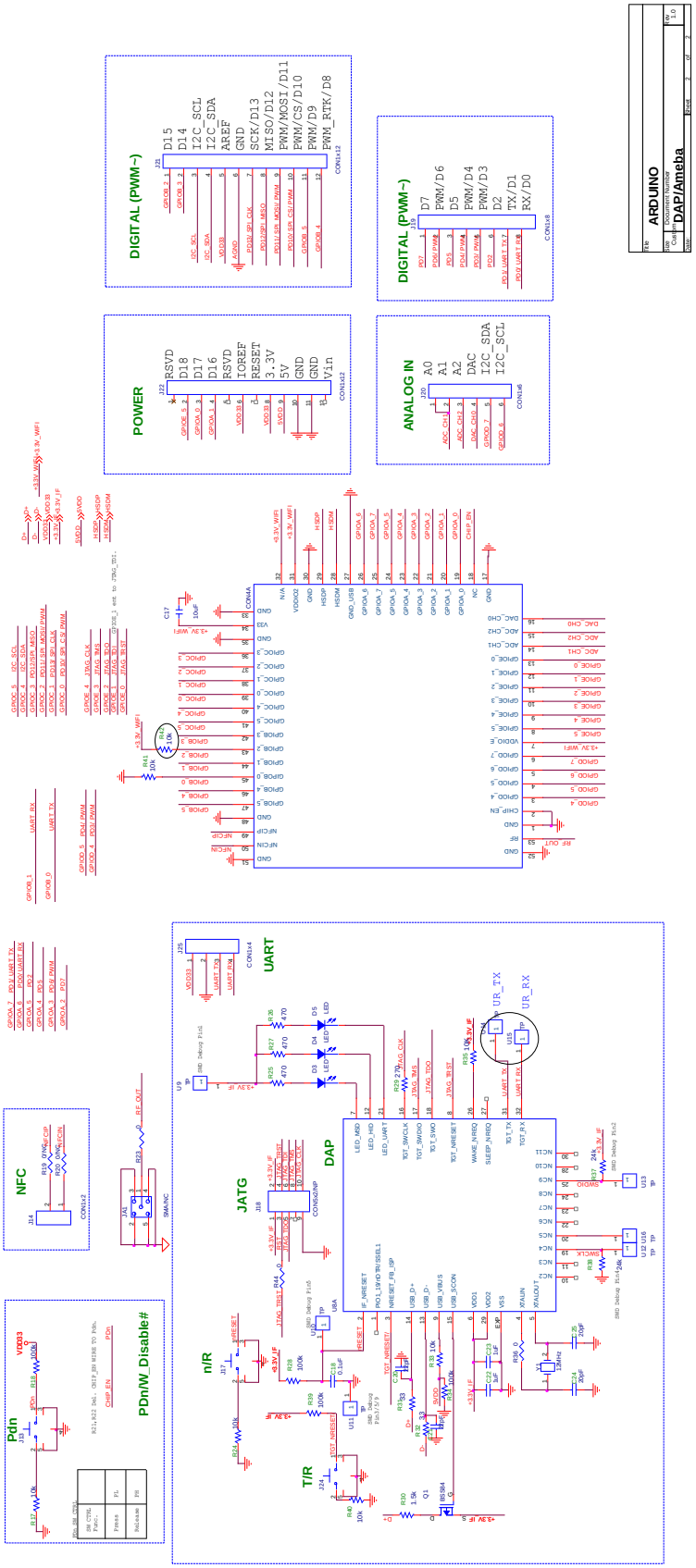
Holding button (red-circled) then plugging power to disable CMSIS-DAP function. Release the button after power on.



Note: To reset main chip, it is recommended to press Reset button (green-circled) instead of re-plugged in the power cable.

7 Reference electrical schematics




DIGITAL (PWM~)
D15
D14
I2C_SCL
I2C_SDA
AREF
GND
SCK/D13
MISO/D12
PWM/MOSI/D11
PWM/CS/D10
PWM/D9
PWM_RTK/D8
DIGITAL (PWM~)
D7
PWM/D6
D5
PWM/D4
PWM/D3
D2
TX/D1
RX/D0
POWER
RSVD
D18
D17
D16
RSVD
IOREF
RESET
3.3V
5V
GND
GND
Vin
ANALOG IN
A0
A1
A2
DAC
I2C_SDA
I2C_SCL
ARDUINO
DAP/Ameba
UART
JTAG
DAP
NFC
n/R
T/R
Pdn
PDn/W_Disable#

8 Ameba1 DEV01 pin out