Realtek Ameba1 DEV01 User Manual

This document define pin out of Ameba DEV.

Version 1.9

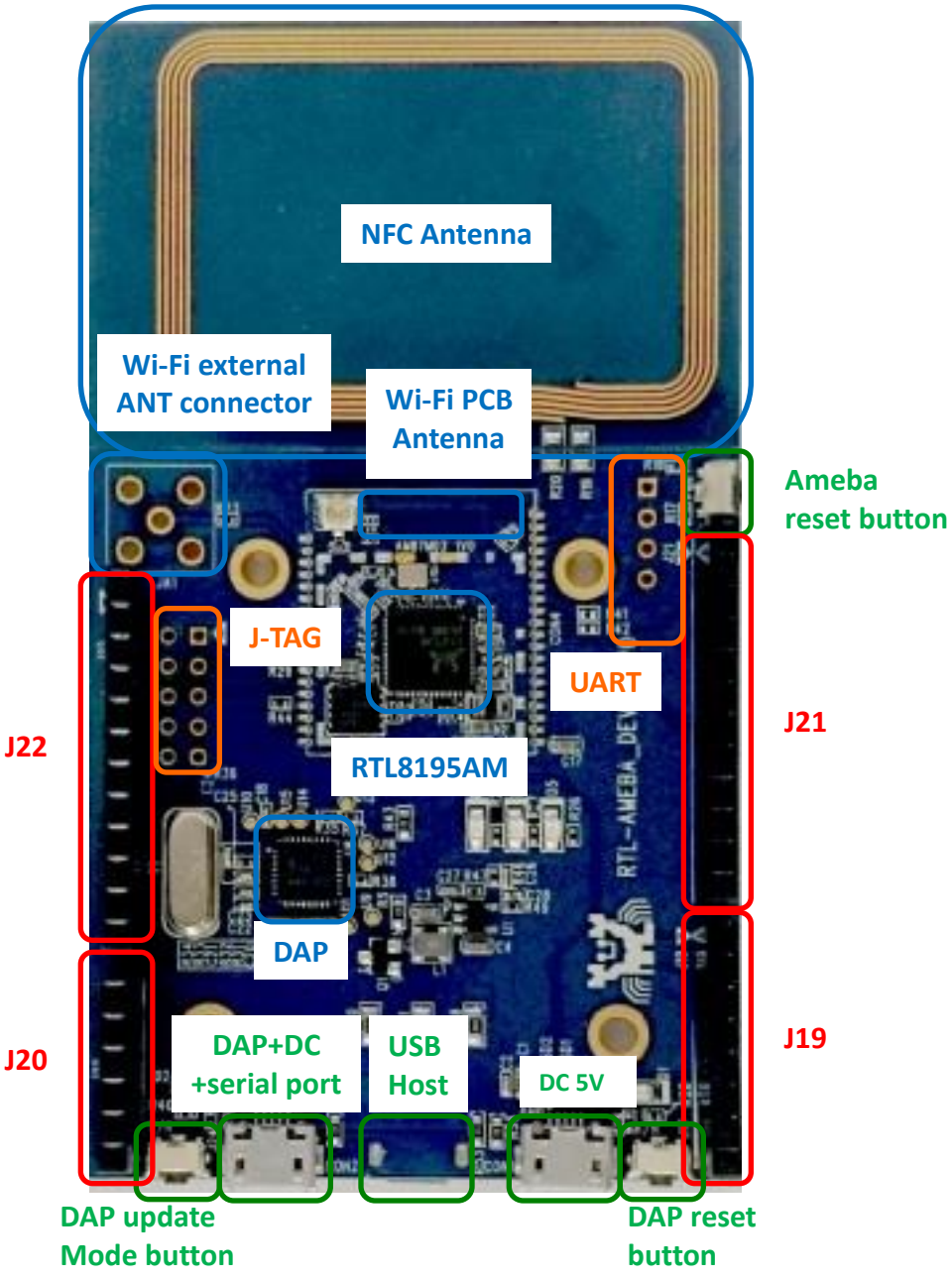
Table of

1 System requirements

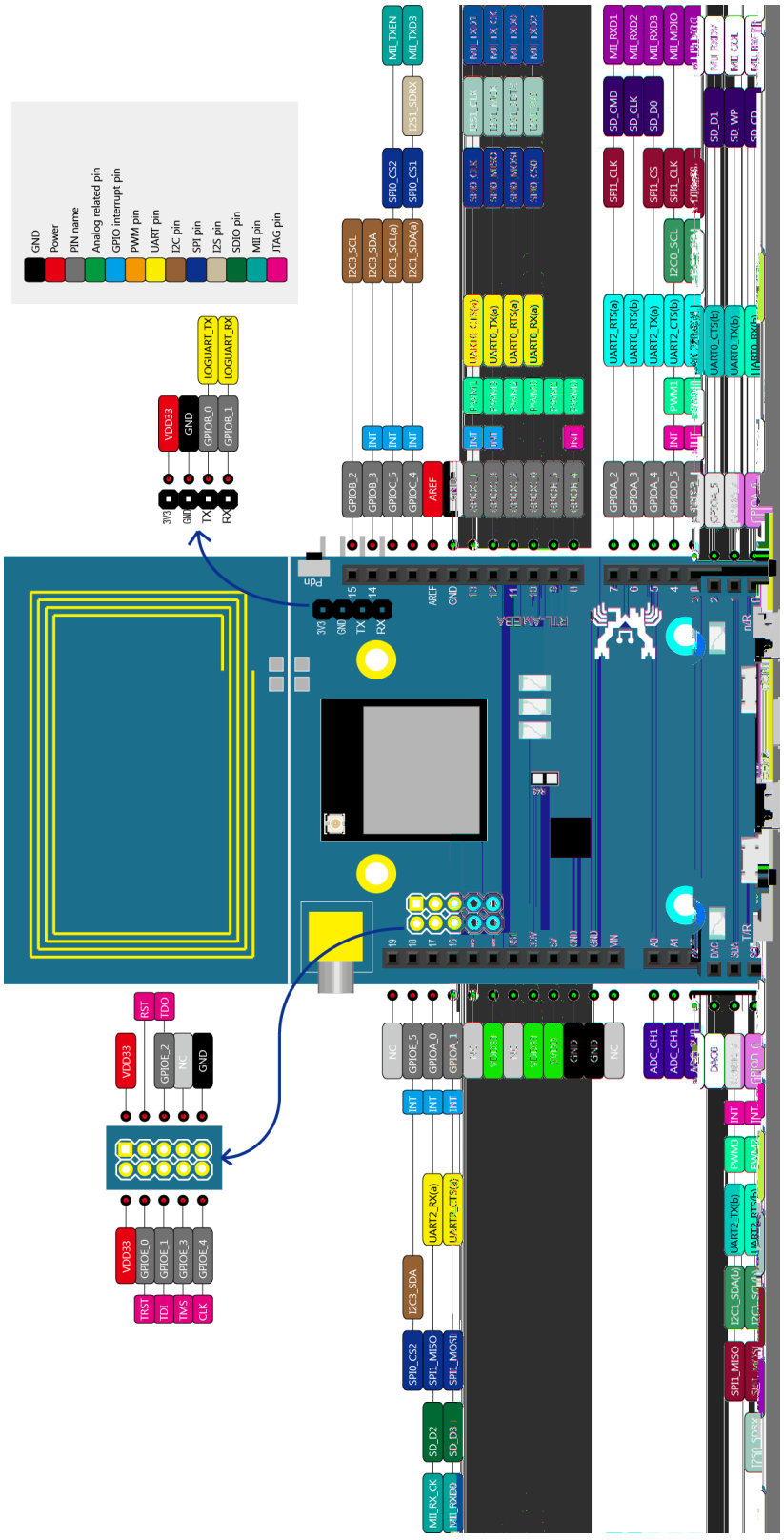
- Windows PC (XP, Vista, 7)
- USB type A to Micro-B USB cable x 1
- RS-232 to UART board(debug) x 1, JTAG cable x1 (option)

2 Hardware block diagram

- IC: RTL8195AM
- Module HDK version: HDK-AM95A03_1V0
- DEV HDK version: RTL-AMEBA_DEV01_1v1

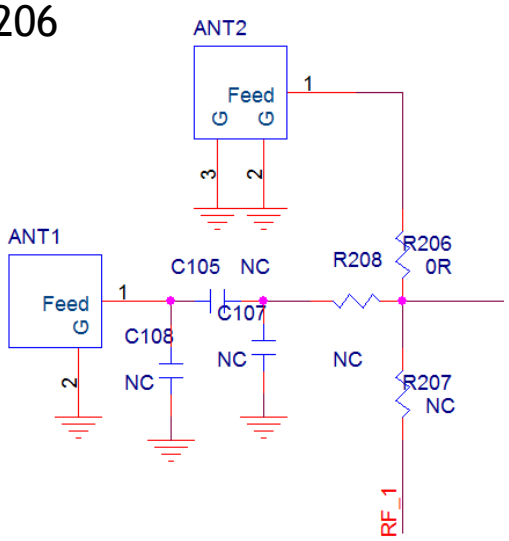


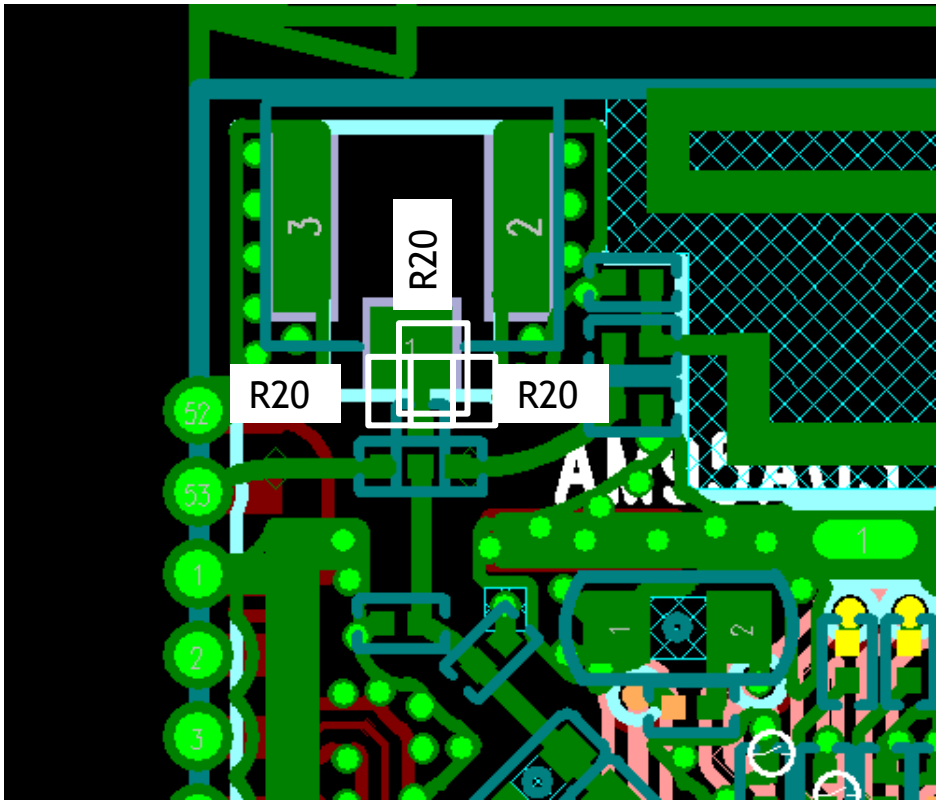
3 Pin out reference



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]

5.1 Pin function table setup

- Multiple functions are supported by group setup.
- For example: GPIOA_6(Rx), GPIOA_7(Tx), GPIOA_3(RTS) and GPIOA_5(CTS) are used if UART0 function. GPIOA_3(RTS) and GPIOA_5(CTS) can not be used as other functions.
- For example: GPIOC_0, GPIOC_1, GPIOC_2, GPIOC_2, GPIOC_3 are used if PWM is occupied. GPIOC_1(PWM1) and GPIOC_2(PWM2) can not be used as other functions.

NOTE1: PH = Pull-

5.2 Peripheral Descriptions

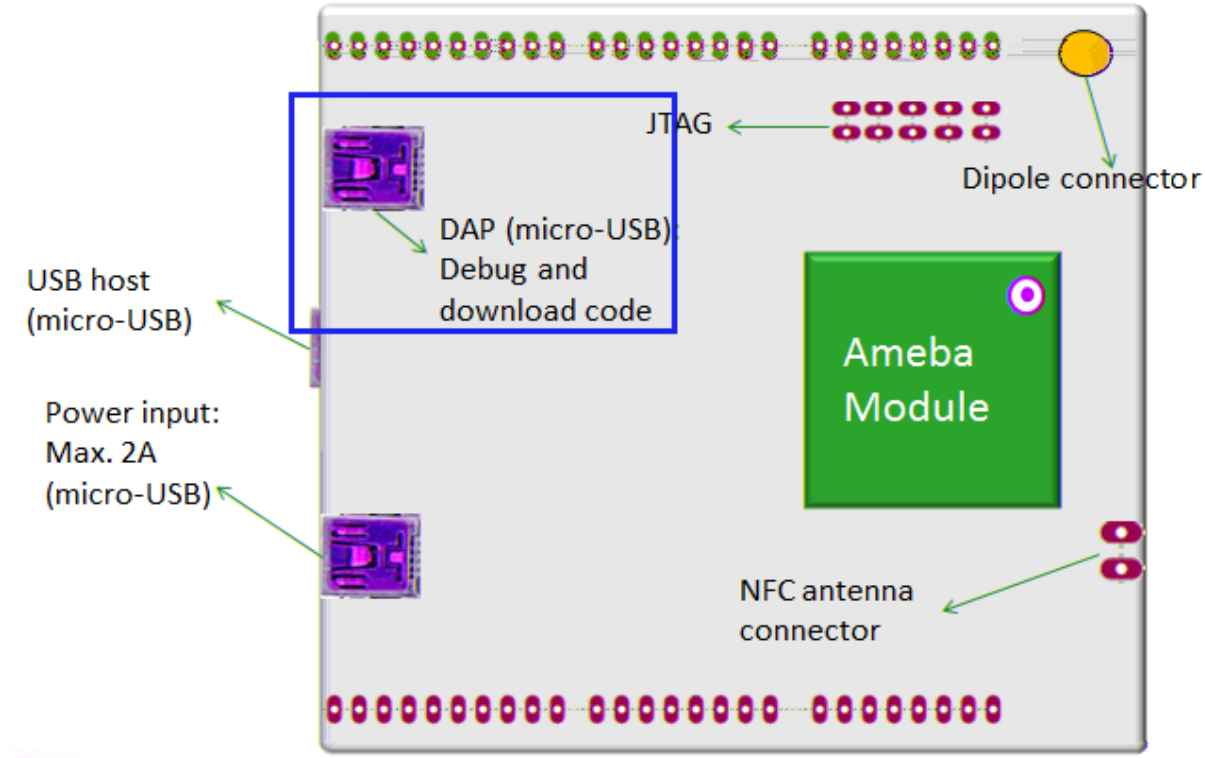
		Baud rate
UART	UART_LOG	38400 Hz
	UART0	4 MHz
	UART2	4 MHz
		Clock rate
SPI	SPI0_Master	20.8 MHz
	SPI0_Slave_TRx	4.1 MHz
	SPI1_Master	41.6 MHz
	SPI1_Slave_TRx	--
		Clock rate
I2C	Standard mode	0~100 kb/s
	Fast mode	<400 kb/s
	High-speed mode	<3.4Mb/s

6 Hardware configuration

6.1 CMSIS-DAP

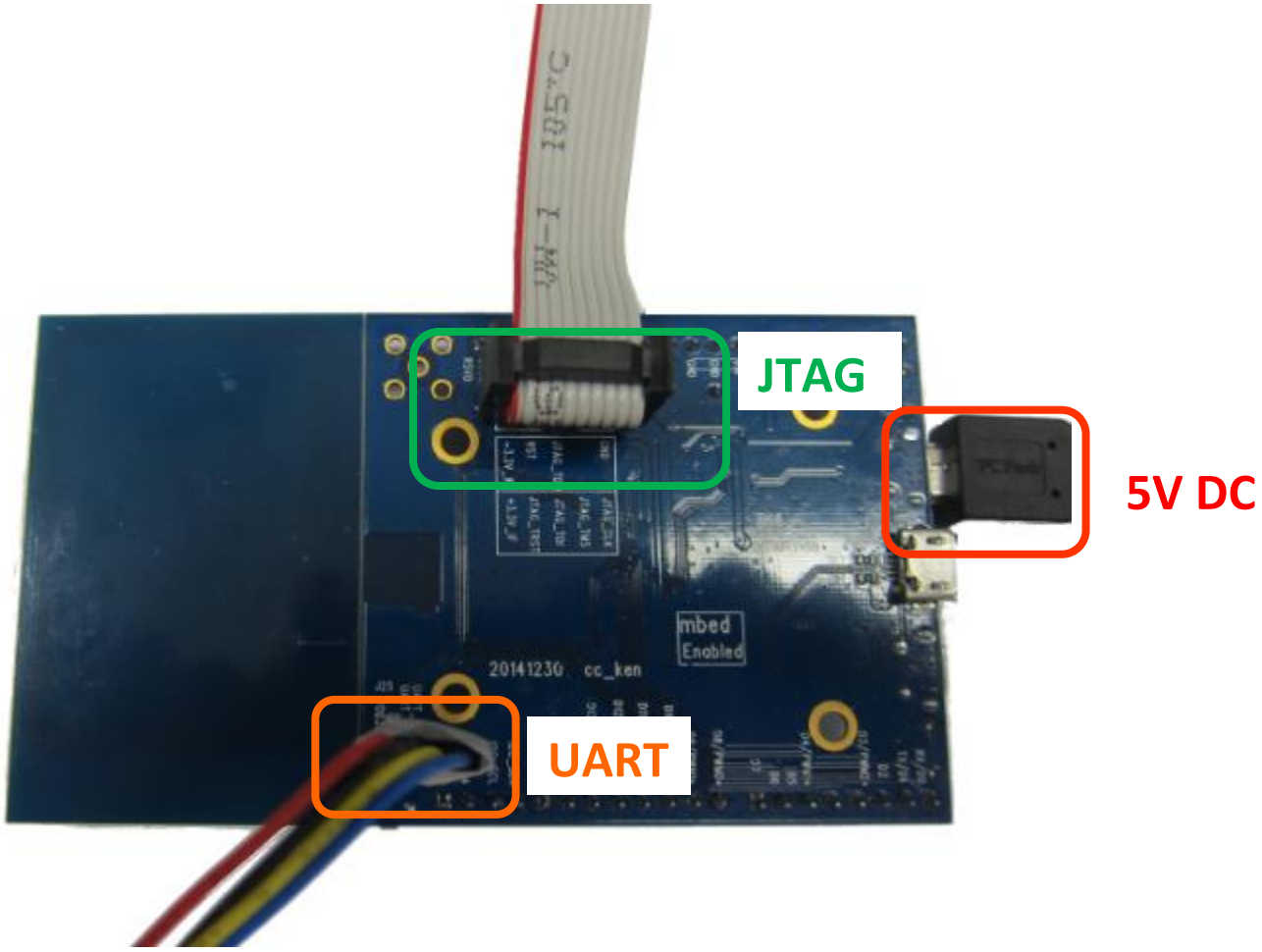
RTL-AMEBA_DEV01 supports CMSIS-DAP debugger. It requires installing f XG i f first. Serial to USB driver can be found in tools\serial_to_usb\mbedWinSerial_16466.

Connect board to the PC with micro-USB cable.



6.2 J-Link/JTAG

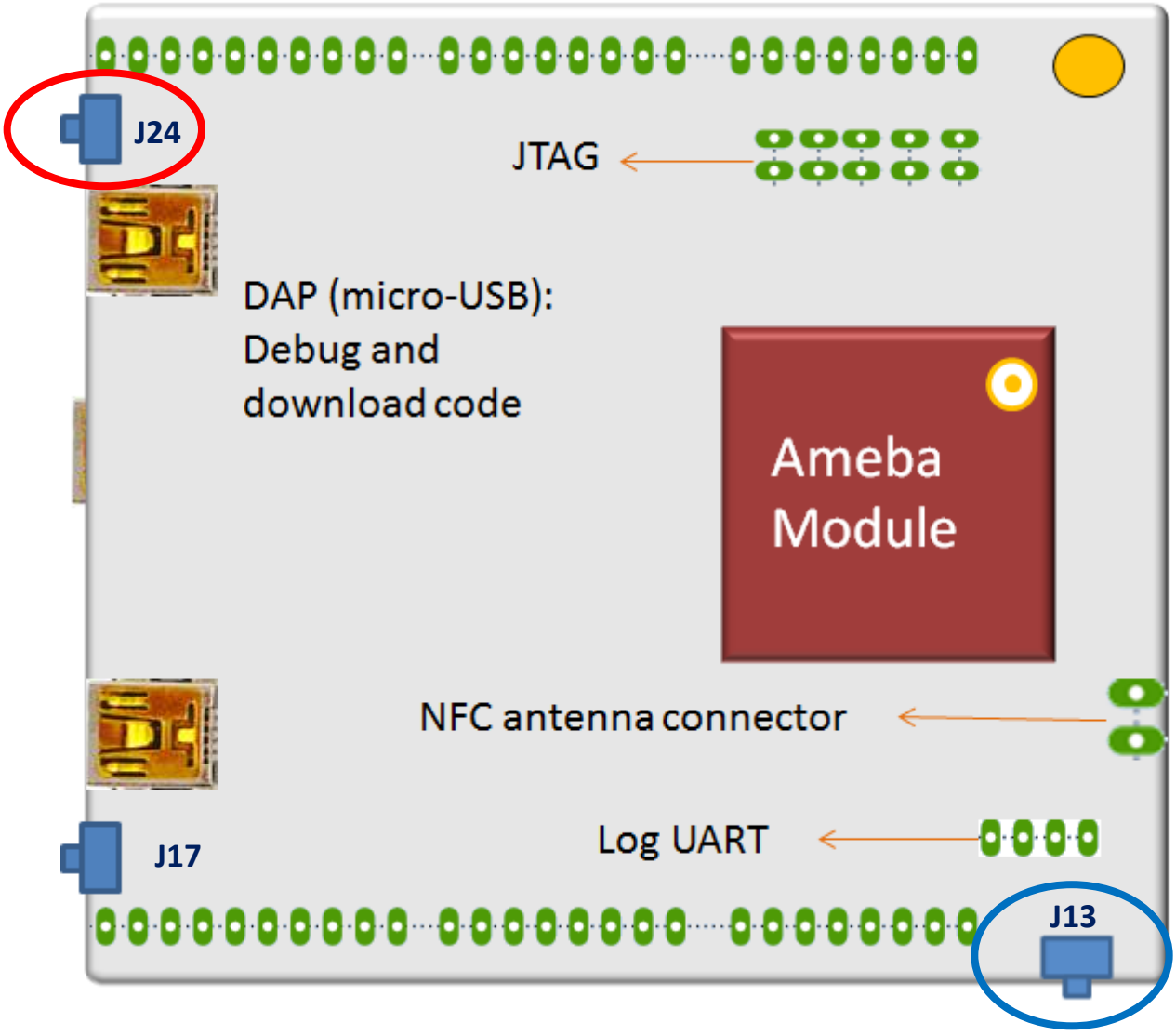
Weld JTAG and log UART connectors to HDK board and connect with pitch 2.54mm 2x5pins connector. It is recommended to weld the connector on the bottom side. Users can connect extension boards from top side.



Dupont Line or 2.54mm 2x5 pins connector.

Power On(Disable DAP mode)

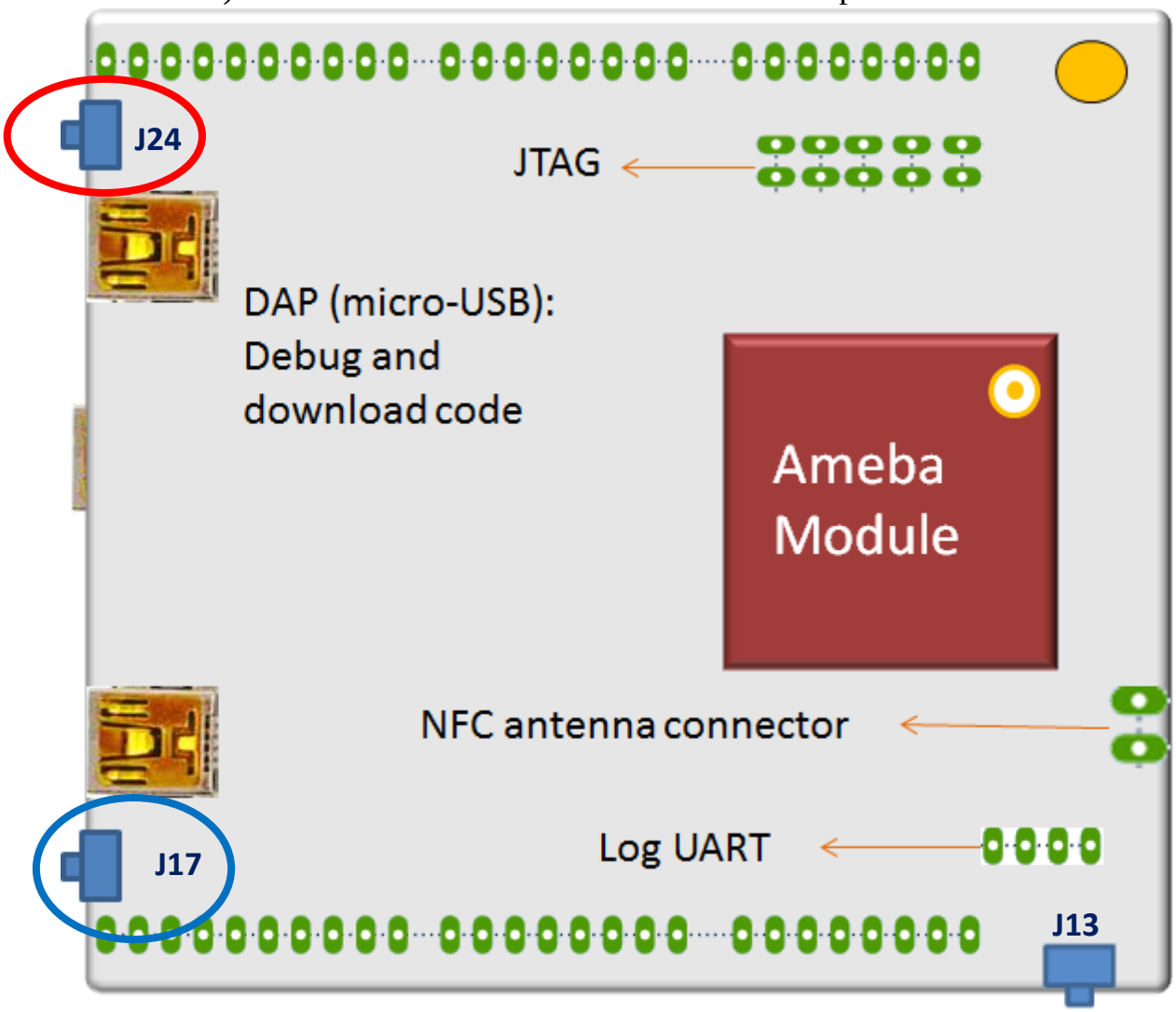
Holding TGT_NRESET button (J24, red-circled) then press Pdn button (J13, blur-circled). Release the button after power on.



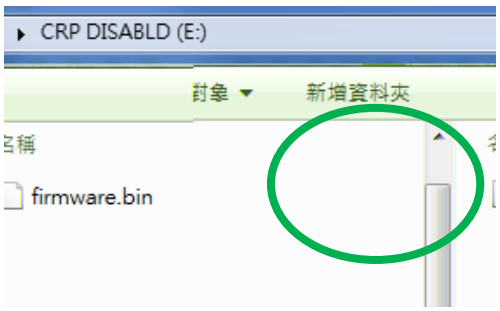
6.3 DAP mode

In DAP mode, the DAP firmware can be updated.

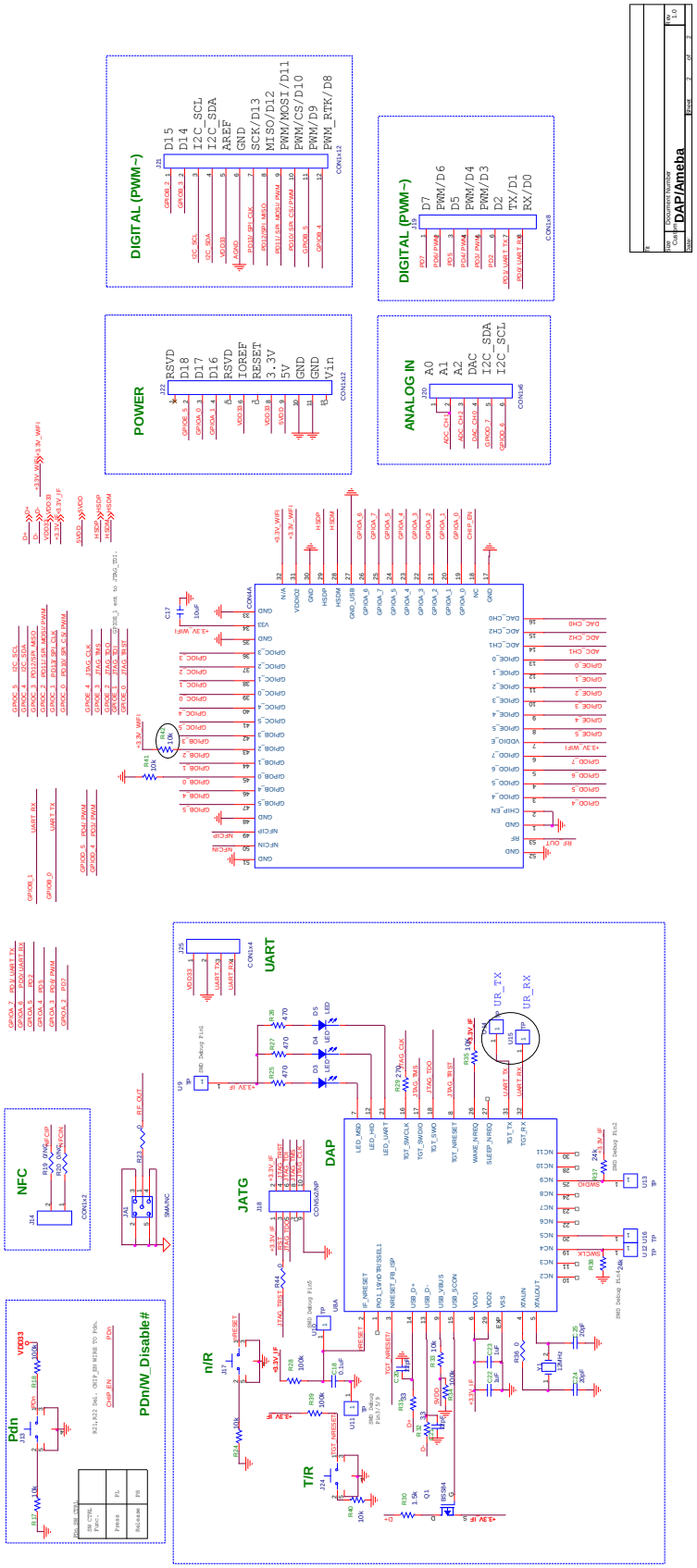
Holding TGT_NRESET button (J24, red-circled) then press nRESET button (J17, blur-circled). Then the DAP mode window will show up.



DAP window will show up when entering DAP mode.



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
DAP/Ameba
UART
JTAG
DAP
NFC
n/R
T/R
Pdn
PDn/W_Disable#

8 Sensor board

- Extension board: RTL-AMEBA_EXT B2_2V0