



# **Compare CP830 DEV01 User Manual**

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This document define pin out of CP830 EVB.

Version 1.3



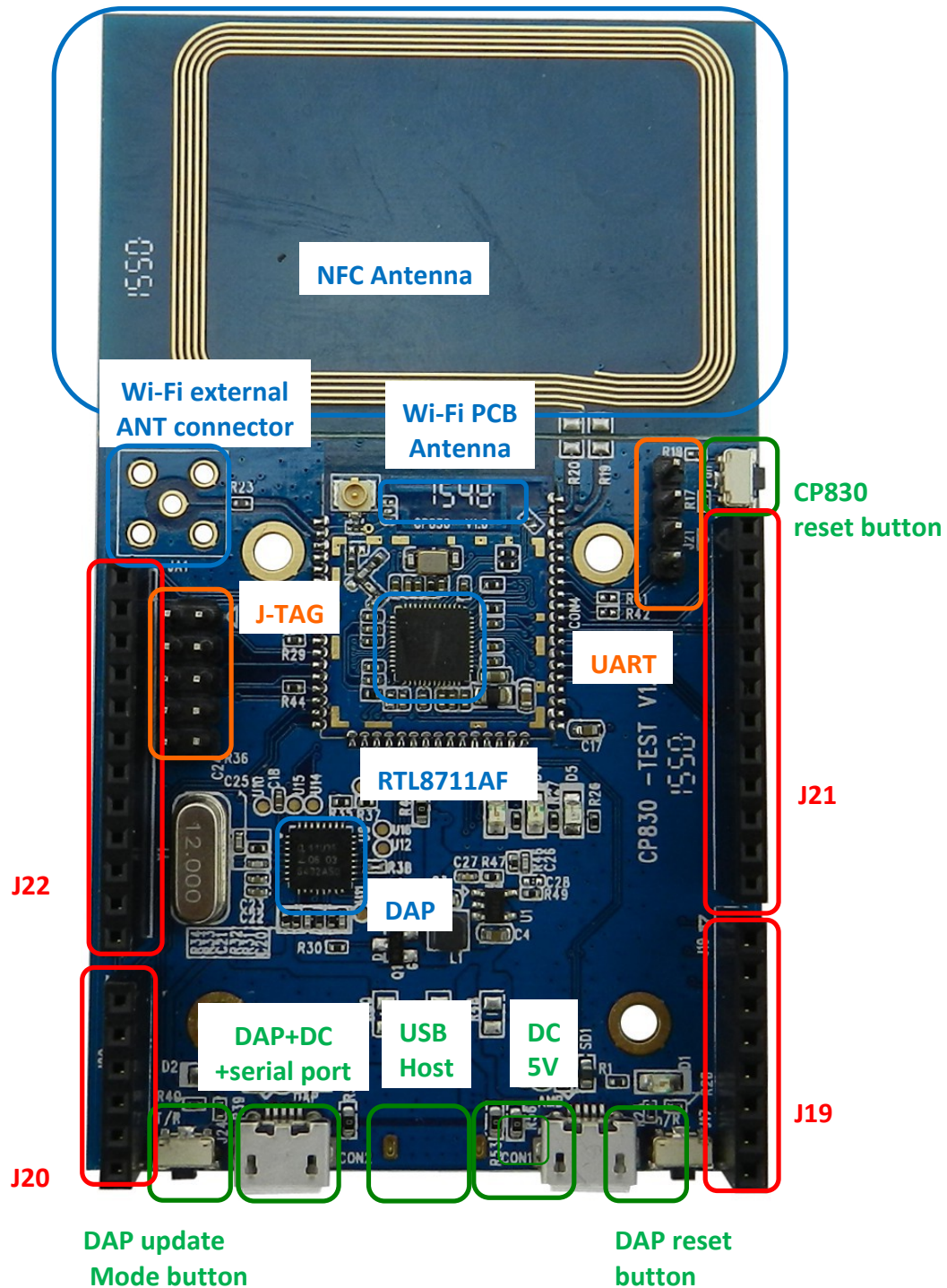
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# 1 Hardware block diagram

- IC: RTL8711AF
- EVB: compare CP830\_DEV01



## 2 System requirements

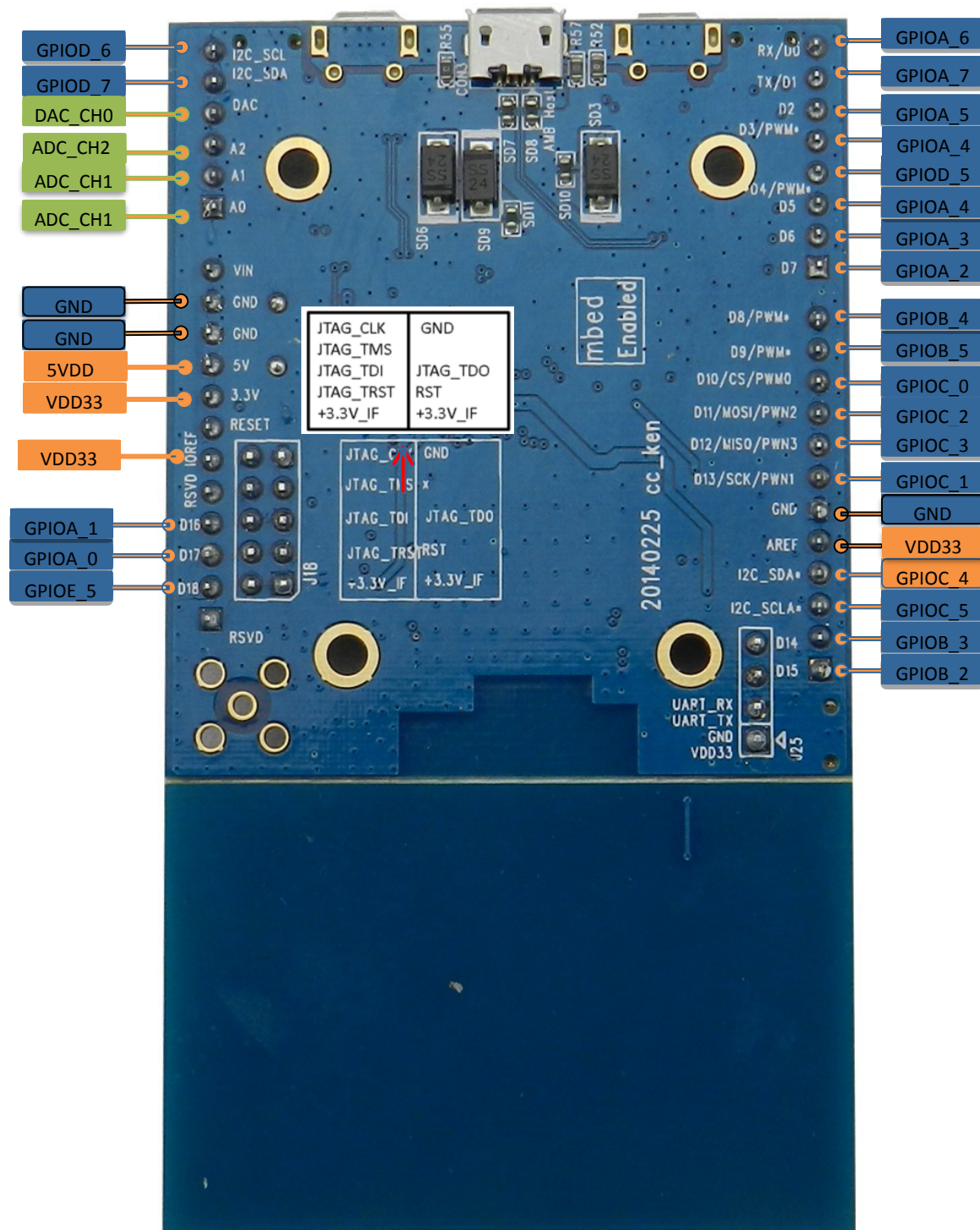
- Windows PC (XP, Vista, 7)
- USB type A to Micro-B USB cable x 1
- RS-232 to UART board(debug) x 1, JTAG cable x1 (option)

## 3 Pin out reference

### 3.1 Pin out table

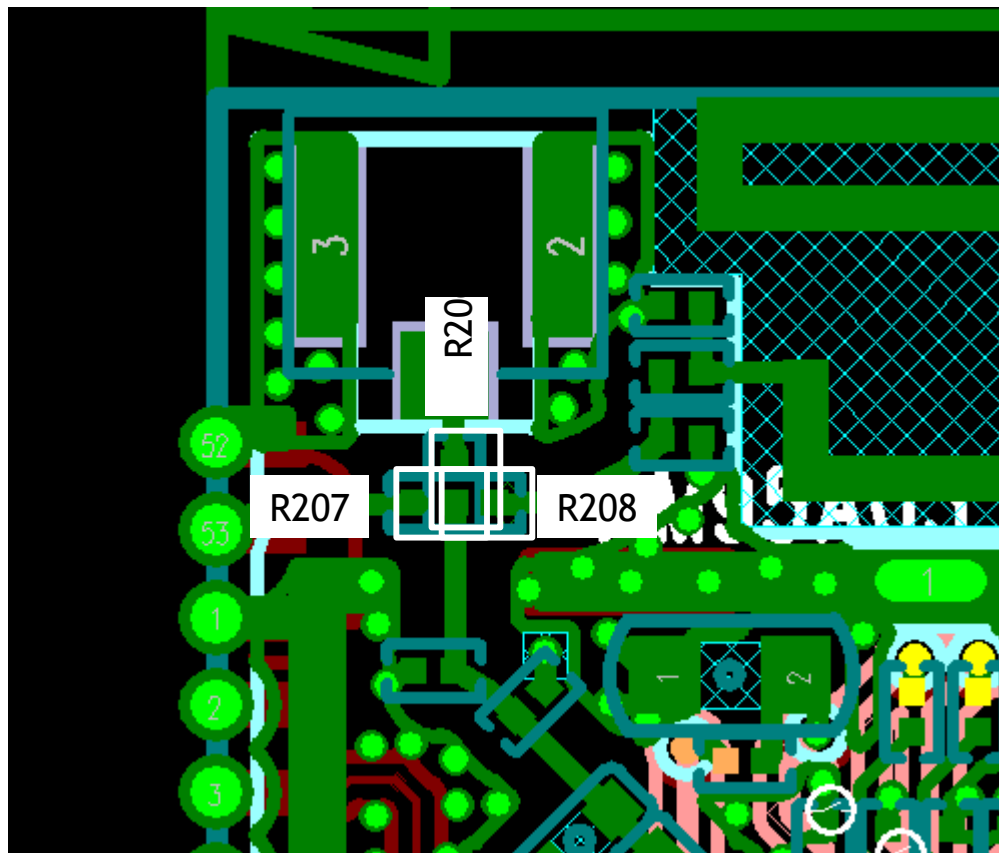
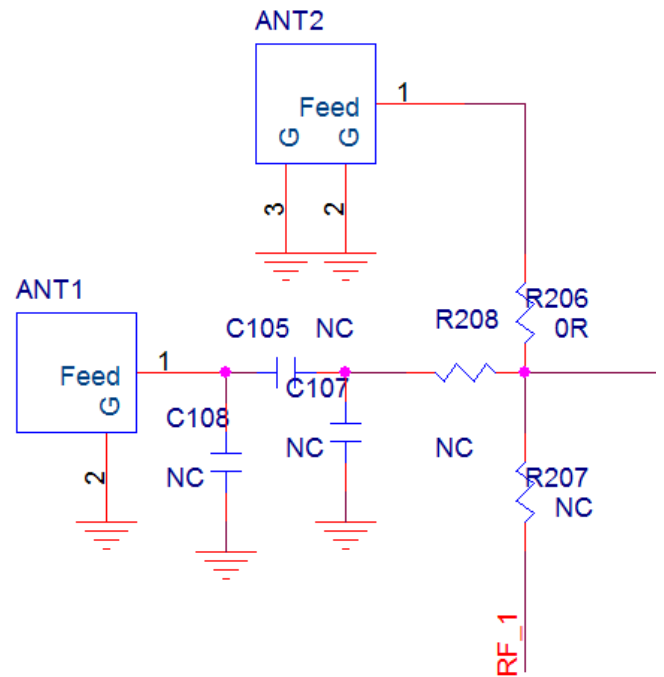
| Con  | EVB name | Pin | Net name | Con | EVB name      | Pin | Net name |
|------|----------|-----|----------|-----|---------------|-----|----------|
| J20  | I2C_SCL* | 6   | GPIOD_6  | J19 | RX/D0         | 8   | GPIOA_6  |
|      | I2C_SDA* | 5   | GPIOD_7  |     | TX/D1         | 7   | GPIOA_7  |
|      | 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

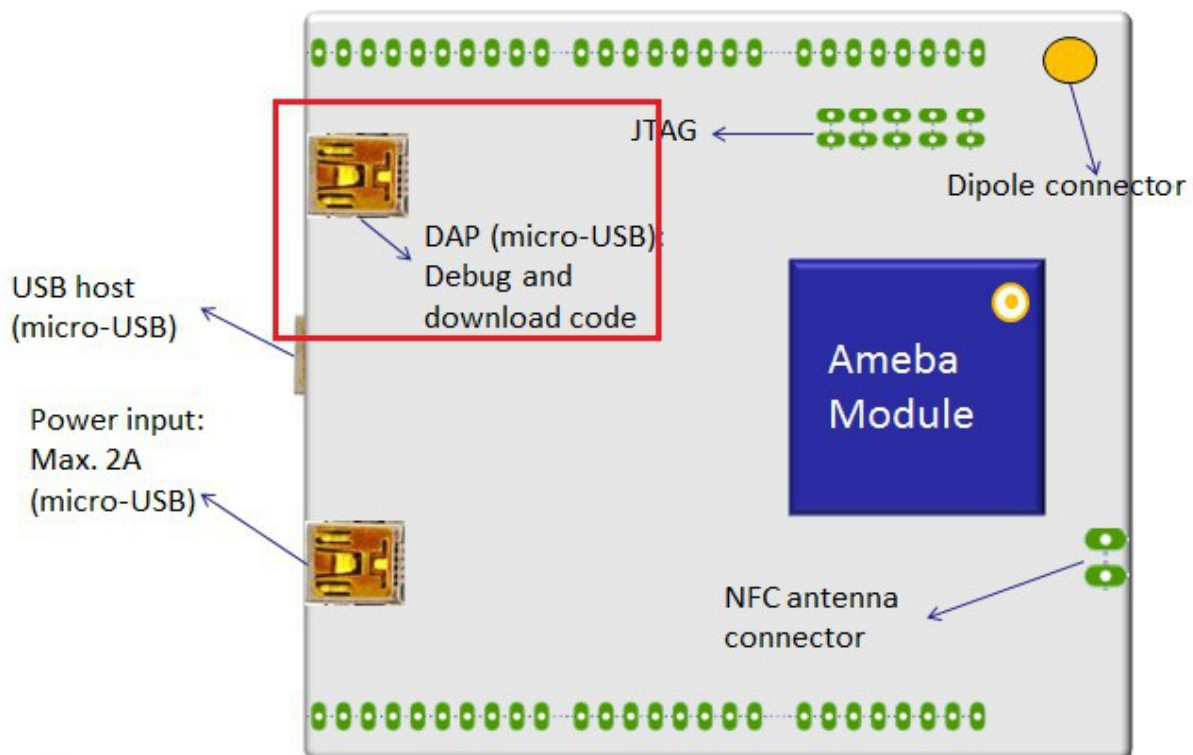
| PIN name | JTAG      | UART Functon | I2C Group | SPI Group | I2S GROUP  | PCM Group | WL_LED0 | PWM  | WKDT  | GPIO_INT |
|----------|-----------|--------------|-----------|-----------|------------|-----------|---------|------|-------|----------|
| GPIOA_0  |           | UART2_IN     |           | 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 |
| GPIOB_4  |           |              |           |           |            |           | WL_LED0 | PWM0 |       | GPIO_INT |
| GPIOB_5  |           |              |           |           |            |           | WL_LED0 | PWM1 |       |          |
| GPIOC_0  |           | UART0_IN     |           | SPIO_CS0  | I2S1_WS    | PCM1_SYNC |         | PWM0 |       |          |
| GPIOC_1  |           | UART0_CTS    |           | SPIO_CLK  | I2S1_CLK   | PCM1_CLK  |         | PWM1 |       | GPIO_INT |
| GPIOC_2  |           | UART0_RTS    |           | SPIO_MOSI | I2S1_SD_TX | PCM1_OUT  |         | PWM2 |       |          |
| GPIOC_3  |           | UART0_OUT    |           | SPIO_MISO | I2S1_MCK   | PCM1_IN   |         | PWM3 |       | GPIO_INT |
| GPIOC_4  |           |              | I2C1_SDA  | SPIO_CS1  | I2S1_SD_RX |           |         |      |       | GPIO_INT |
| GPIOC_5  |           |              | I2C1_SCL  | SPIO_CS2  |            |           |         |      |       | GPIO_INT |
| GPIOD_4  |           | UART2_IN     | I2C0_SDA  | SPI1_CS   |            | PCM1_SYNC |         | PWM0 |       | GPIO_INT |
| GPIOD_5  | JTAG      | UART2_CTS    | I2C0_SCL  | SPI1_CLK  |            | PCM1_CLK  |         | PWM1 | WKDT2 | GPIO_INT |
| GPIOD_6  |           | UART2_RTS    | I2C1_SCL  | SPI1_MOSI | I2S0_SD_RX | PCM1_OUT  |         | PWM2 |       | GPIO_INT |
| GPIOD_7  |           | UART2_OUT    | I2C1_SDA  | SPIO_MISO |            | PCM1_IN   |         | PWM3 |       | GPIO_INT |
| GPIOE_0  | JTAG_TRST | UART0_OUT    | I2C2_SCL  | SPIO_CS0  | I2S0_WS    | PCM0_SYNC |         | PWM0 |       |          |
| GPIOE_1  | JTAG_TDI  | UART0_RTS    | I2C2_SDA  | SPIO_CLK  | I2S0_CLK   | PCM0_CLK  |         | PWM1 |       | GPIO_INT |
| GPIOE_2  | JTAG_TDO  | UART0_CTS    | I2C3_SCL  | SPIO_MOSI | I2S0_SD_TX | PCM0_OUT  |         | PWM2 |       | GPIO_INT |
| GPIOE_3  | JTAG_TMS  | UART0_IN     | I2C3_SDA  | SPIO_MISO | I2S0_MCK   | PCM0_IN   |         | PWM3 | WKDT3 | GPIO_INT |
| GPIOE_4  | JTAG_CLK  |              | I2C3_SCL  | SPIO_CS1  |            |           |         |      |       |          |
| GPIOE_5  |           |              | I2C3_SDA  | SPIO_CS2  |            |           |         |      |       | GPIO_INT |

## 6 Hardware configuration

### 6.1 CMSIS-DAP

CP830\_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`.

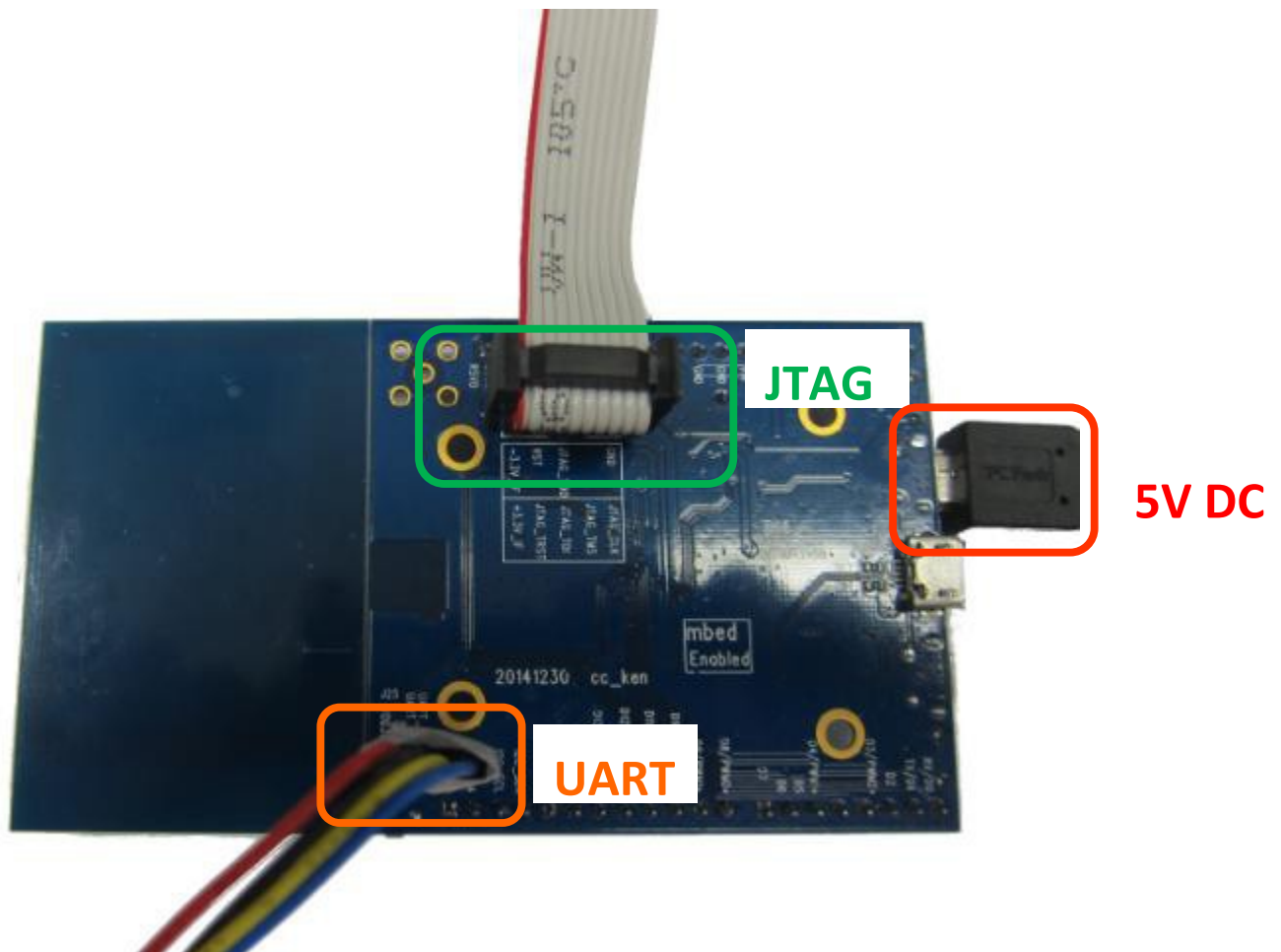
Connect board to the PC with micro-USB cable.





## 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.

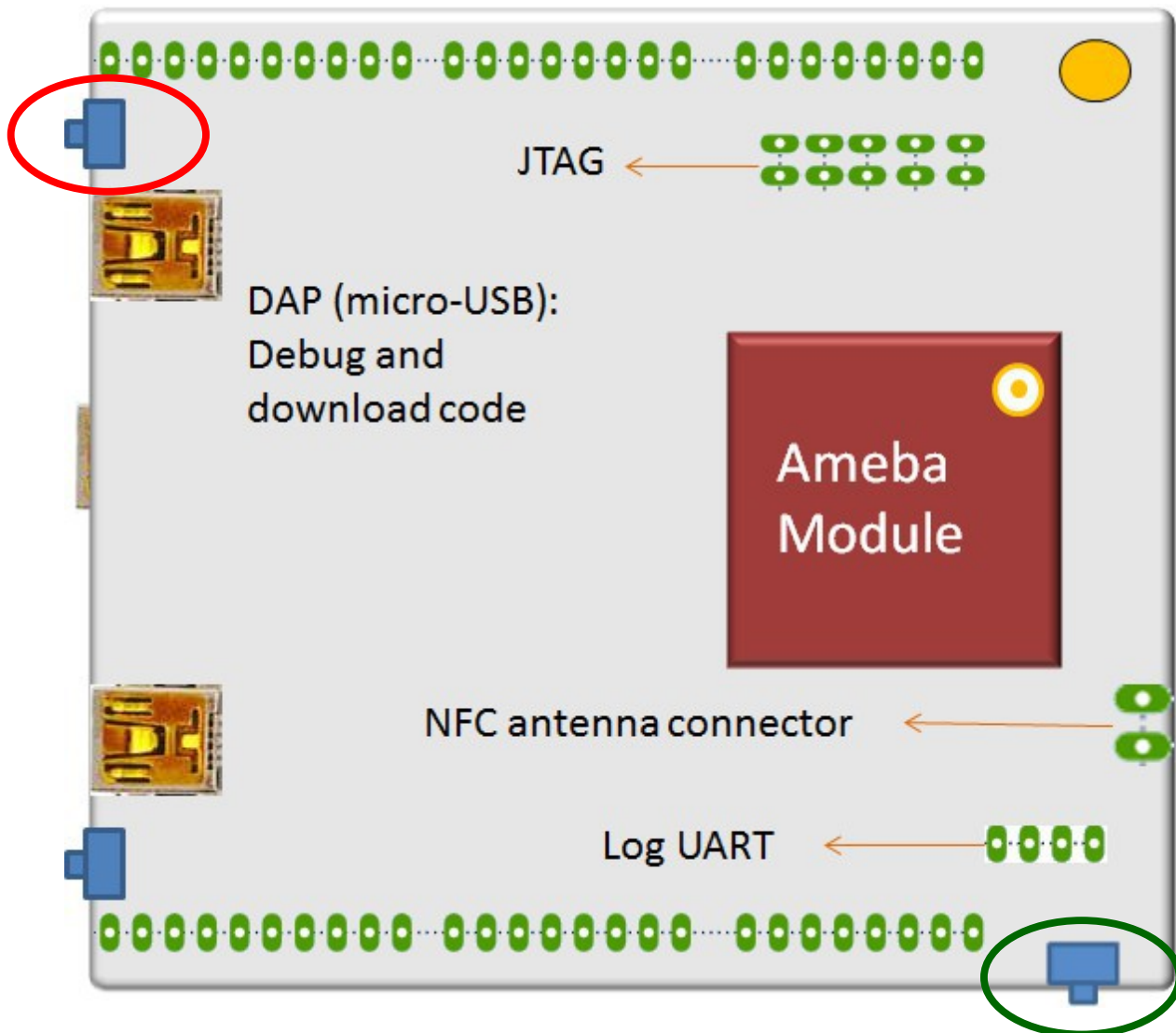


Dupont Line or 2.54mm 2x5 pins connector.



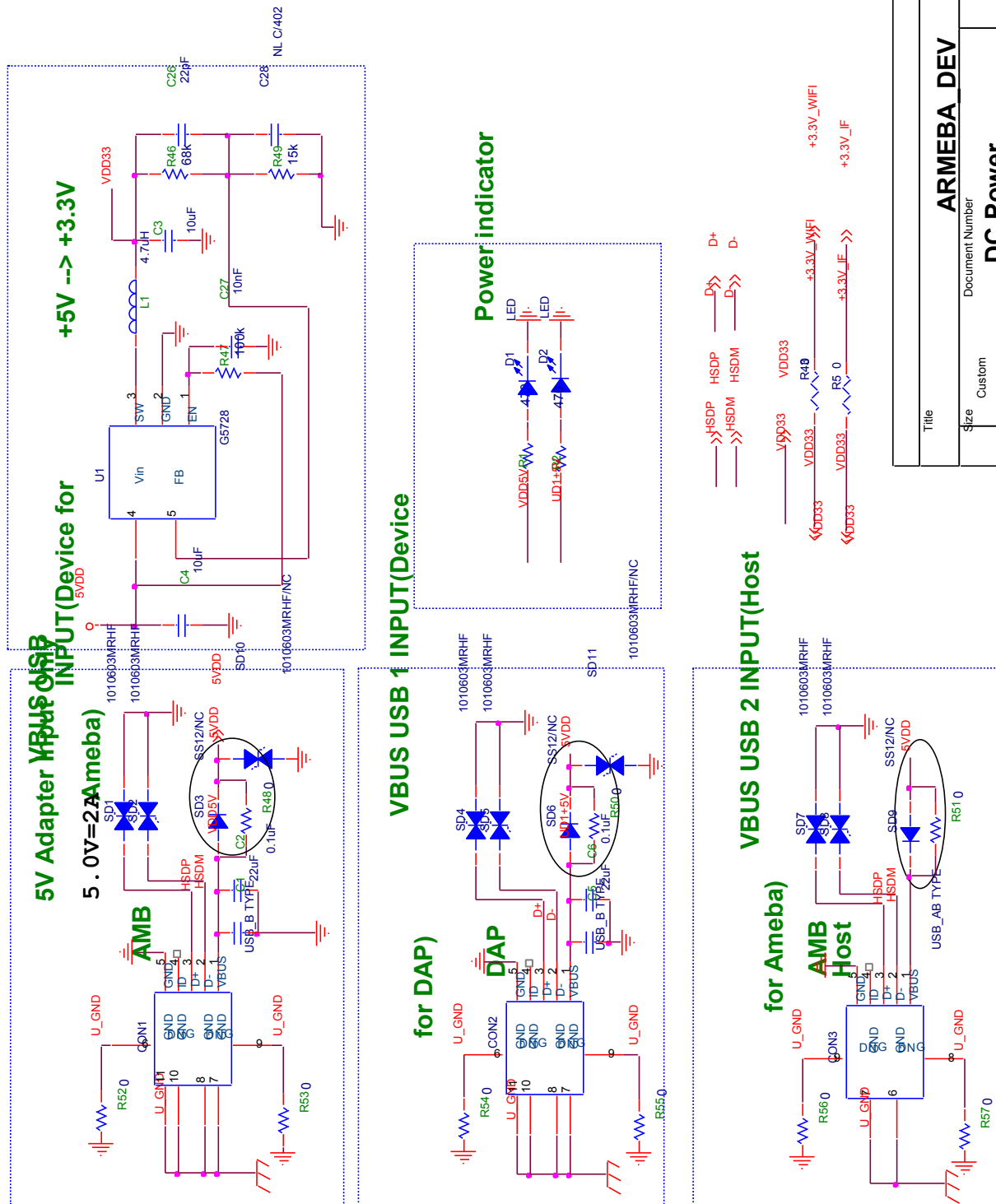
## Power On

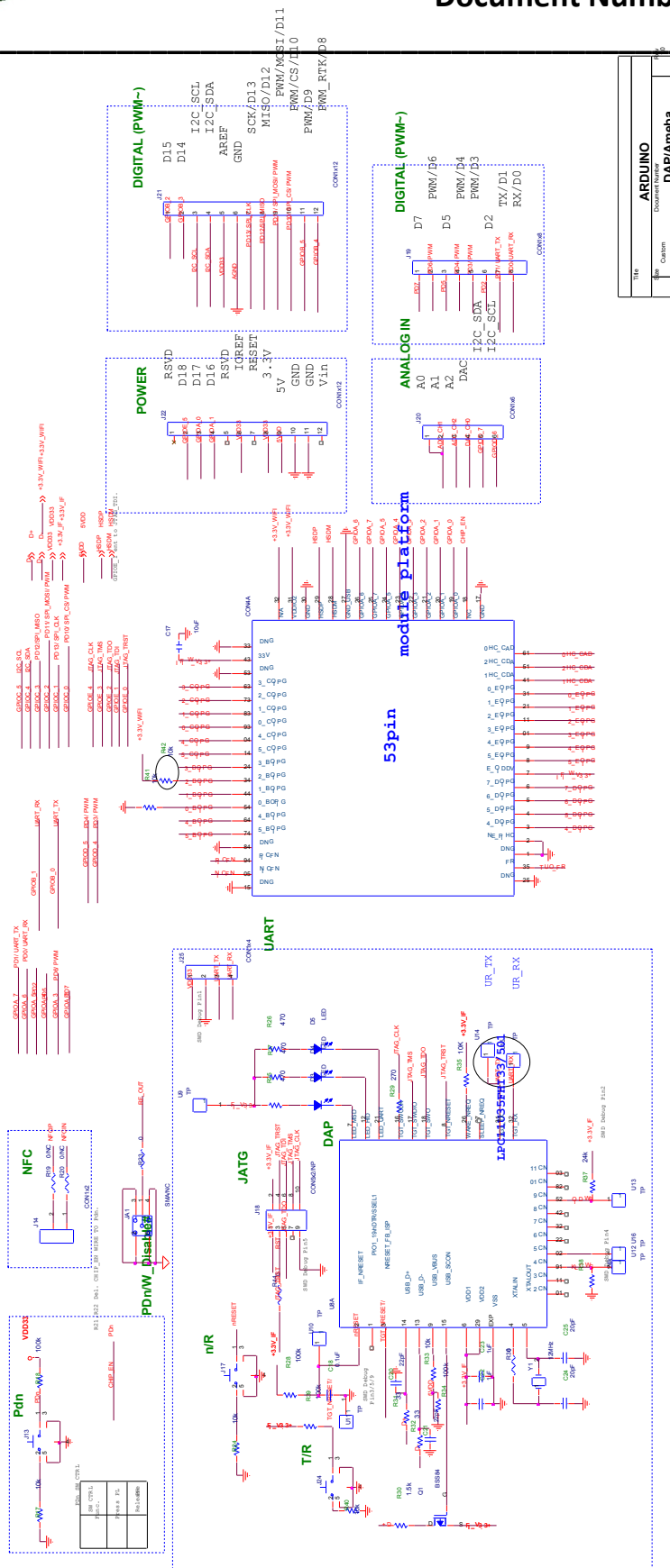
Holding button (red-circled) then plugging power to disable CMSIS-DAP function.  
Release the button after power on.



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





|            |            |
|------------|------------|
| Title      | ARDUINO    |
| Doc Number | DAP/Amesha |
| Rev        | 1.0        |
| Date       | 2015/04/08 |

## 8 CP830 DEV01 pin out

