ESP-PROG UART

J2
Conn ESP-Prog UART
ESP_EN 1 — 2 VDD_U
ESPPROG_TX 3 — 4
ESPPROG_RX 5 — 6 ESP_BOOT

UART Configuration Jumpers

ESPPROG RX JUMP
JP1A
ESP_RXD0 — RX0 — TX0 — ESP_TXD0
ESPPROG_RX — RX→TX — JP6

ESPPROG TX JUMP
JP1B
ESP_RXD0 — RX0 — TX0 — ESP_TXD0
TX→RX — ESPPROG_TX — JP5

In case you mix up the UART directions on your board, these allow you to fix it. Use the jumpers to configure as desired; the bolded connection is the default.

J8
SOICBite connector numbering order

J7
SOICBite IDC UART
VDD_U 1 — 2 ESP_EN
ESP_BOOT 3 — 4 CH_PD
5 — 6 ESP_TXD0
7 — 8 ESP_RXD0
JP2 VDD_U / CH_PD EN

The numbering order of the SOICBite connector is counterclockwise (above), but the IDC connector uses Odd/Even.

The red circle on the symbol shows the position of the red wire (pin 1) on the clip relative to the pinout.

J5
SOICBite connector UART Loopback
VCC 1
GPIO0 2
GPIO2 3
GND 4
RX 5
TX 6
CH_PD 7
RST 8

ESP-PROG JTAG

J1
Conn ESP-Prog JTAG
JTAG_VDD 1 — 2 ESP_TMS
3 — 4 ESP_TCK
5 — 6 ESP_TDO
7 — 8 ESP_TDI
9 — 10

J9
SOICBite IDC JTAG
JTAG_VDD 1 — 2 ESP_EN
ESP_TMS 3 — 4
ESP_TCK 5 — 6 ESP_TDO
7 — 8 ESP_TDI

There is no nRST on the ESP-PROG's JTAG header - but instead of just pulling it high, it's connected to the EN pin on the ESP prog, which is the ESP's RST pin.

J3
DebugHeader_Cortex-M_JTAG_10p_TagConnect
TagConnect 2050
Cortex-M JTAG
JTAG_VDD 1 — VTREF
ESP_TMS 2 — TMS
3 — GND
ESP_TCK 4 — TCK
5 — GND(5v)
RESET — 10
TRST — 9 — 8 ESP_TDI
RTCK — 7
TDO — 6 ESP_TDO
JTAG RST
JP7
ESP_EN

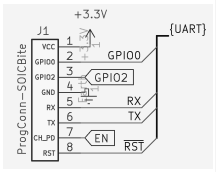
ESP_EN is connected to the RESET pin here just like in J9.

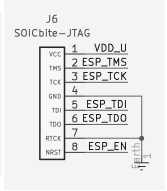
However, if you want the UART and JTAG interfaces to be completely separate this can be disabled by cutting the jumper.

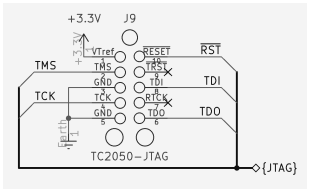
Links & Info

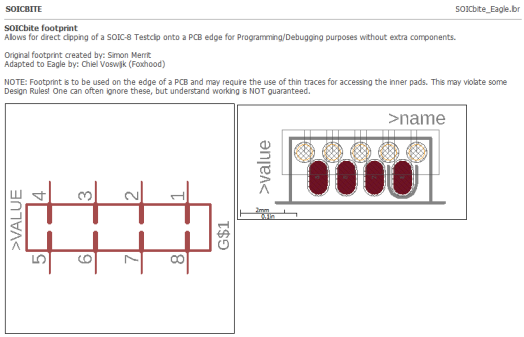
ESP-PROG HW-Reference from Espressif (Link)
SOICbite connector Github (Link)
ESP-PROG-Adapter Github (Link)

Below symbols for integrating SOICBite and TC2050 connector footprints into your ESP-based designs (jmux-kicad-things Link)









Project Github:
https://github.com/0xjmux/ESP-PROG-Adapter

jacobbokor.com

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File: ESPPROG-Adapter.kicad_sch

Title: ESP-PROG Universal Adapter

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