Communication Cape for Beaglebone Black (RS485 / WiFi)

P9 — BeagleBone Black Header

- SYS_5V +5V +3V3 / +3V3 +5V SYS_5V
- GNDD
- PWR_FLAG
- PWR_FLAG
- PWR_BUT (9) / (12) SYS_RESETN — GPIO_60
- UART4_RXD (11)
- UART4_TXD (13)
- GPIO_48 (15)
- SPI0_CS0 (17) / (18) SPI0_D1
- SCL (19) / (20) SDA
- SPI0_D0 (21) / (22) SPI0_SCLK
- (24) UART1_TXD
- (26) UART1_RXD
- GPIO_125 (27)
- (28) VDD_ADC
- (30) GPIO_122
- (32) PWR_FLAG
- (34) PWR_FLAG
- GNDA_ADC
- GPIO_20 (41)
- (45) (46)
- GNDD

P8 — BeagleBone Black Header

- GNDD
- LED0 (7) / (8) LED1
- LED2 (9) / (10) LED3
- LED4 (11) / (12) LED5
- LED6 (13) / (14) LED7
- LED8 (15) / (16) LED9
- LED10 (17) / (18) LED11
- LED12 (19)

ESP32 — File: esp32.kicad_sch

- GPIO_60 — GPIO_60
- GPIO_20 — GPIO_20
- SPI0_D0 — MISO
- SPI0_D1 — MOSI
- SPI0_SCLK — SCLK
- SPI0_CS0 — CS0
- UART4_RXD — RX / EN — GPIO_125
- UART4_TXD — TX / BOOT — GPIO_122

U101 SP3485EN

- VCC (8) +3V3
- UART1_RXD — RO (1) / A (6)
- GPIO_48 — RE (2) / B (7) — J101 RS485
- DE (3)
- UART1_TXD — DI (4)
- GND (5) — GNDD

J102 PWR — D114 MRA4004T3G — PWR_FLAG
U102 WPMDH1100xx1S — Vin Vout +5V — GND (2) — GNDD

U103 AT24C512C-SSHD-T

- +3V3
- R114 1k, R115 1k, R116 1k
- A0 (1), A1 (2), A2 (3), GND (4)
- VCC (8), SDA (5), SCL (6), WP (7)
- SDA, SCL
- R117 1k
- C101 100n
- JP101 A2, JP102 A1, JP103 A0, JP104 WP
- GNDD

LEDs

- D101 LED / R101 1k — LED0
- D102 LED / R102 1k — LED1
- D103 LED / R103 1k — LED2
- D104 LED / R104 1k — LED3
- D105 LED / R105 1k — LED4
- D106 LED / R106 1k — LED5
- D107 LED / R107 1k — LED6
- D108 LED / R108 1k — LED7
- D109 LED / R109 1k — LED8
- D110 LED / R110 1k — LED9
- D111 LED / R111 1k — LED10
- D112 LED / R112 1k — LED11
- D113 LED / R113 1k — LED12

(each +3V3)

SW101 Reset — SYS_RESETN — GNDD
SW102 PWR — PWR_BUT — GNDD

Benedikt Spranger

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U202
ESP32-S3-WROOM-1

ESP32-S3-WROOM-1

Pins and labels:

- EN
- 3V3
- GPIO15/U0RTS/ADC2_CH4/XTAL_32K_P — 8
- GPIO16/U0CTS/ADC2_CH5/XTAL_32K_N — 9
- MTCK/GPIO39/CLK_OUT3/SUBSPICS1 — 32 (TCK)
- MTDO/GPIO40/CLK_OUT2 — 33 (TDO)
- MTDI/GPIO41/CLK_OUT1 — 34 (TDI)
- MTMS/GPIO42 — 35 (TMS)
- SPIIO6/GPIO35/FSPID/SUBSPID — 28
- SPIIO7/GPIO36/FSPICLK/SUBSPICLK — 29
- SPIDQS/GPIO37/FSPIQ/SUBSPIQ — 30
- GND — 1 (GNDD)

- U0TXD/GPIO43/CLK_OUT1 — 37
- U0RXD/GPIO44/CLK_OUT2 — 36
- GPIO20/U1CTS/ADC2_CH9/CLK_OUT1/USB_D+ — 14 (D+)
- GPIO19/U1RTS/ADC2_CH8/CLK_OUT2/USB_D- — 13 (D-)
- GPIO0/BOOT — 27 (BOOT)
- GPIO1/TOUCH1/ADC1_CH0 — 39
- GPIO2/TOUCH2/ADC1_CH1 — 38
- GPIO3/TOUCH3/ADC1_CH2 — 15
- GPIO4/TOUCH4/ADC1_CH3 — 4
- GPIO5/TOUCH5/ADC1_CH4 — 5
- GPIO6/TOUCH6/ADC1_CH5 — 6
- GPIO7/TOUCH7/ADC1_CH6 — 7
- GPIO8/TOUCH8/ADC1_CH7/SUBSPICS1 — 12
- GPIO9/TOUCH9/ADC1_CH8/FSPIHD/SUBSPIHD — 17
- GPIO10/TOUCH10/ADC1_CH9/FSPICS0/FSPIIO4/SUBSPICS0 — 18 (CS0)
- GPIO11/TOUCH11/ADC2_CH0/FSPID/FSPIIO5/SUBSPID — 19
- GPIO12/TOUCH12/ADC2_CH1/FSPICLK/FSPIIO6/SUBSPICLK — 20 (SCLK)
- GPIO13/TOUCH13/ADC2_CH2/FSPIQ/FSPIIO7/SUBSPIQ — 21
- GPIO14/TOUCH14/ADC2_CH3/FSPIWP/FSPIDQS/SUBSPIWP — 22
- GPIO17/U1TXD/ADC2_CH6 — 10 (GPIO_60)
- GPIO18/U1RXD/ADC2_CH7/CLK_OUT3 — 11 (GPIO_20)
- GPIO21 — 23
- GPIO38/FSPIWP/SUBSPIWP — 31
- GPIO45 — 26
- GPIO46 — 16
- GPIO47/SPICLK_P/SUBSPICLK_P_DIFF — 24
- GPIO48/SPICLK_N/SUBSPICLK_N_DIFF — 25

JP203 JTAG — 3, 2, 3, 1 — RST
J202 JTAG — +3V3
- 1, 2 TMS, 3, 4 TCK, 5, 6 TDO, 7, 8 TDI, 9, 10 RST — GNDD

JP201 TX — TX, RX
JP202 RX — TX

USBLC6-2SC6 U201
J201 USB_B_Micro
- VBUS 1
- D+ 2
- D- 3
- ID 4
- GND 5
- Shield 6
- FB201 FerriteBead_Small
- GNDD

JP204 VSPIQ — MISO, MOSI
JP205 VSPID — MISO

D201 SK6812MINI
- DIN, DOUT, VDD, VSS, RGB
- +3V3
- GNDD

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