VBUS

D1
CUHS20S30

3.3V

U2
NCP1117-3.3
IN    OUT
GND

C14 10uF x 10V
C15 100nF x 50V
C16 22uF x 6.3V
C17 100nF x 50V

CN1
USB Type C Receptacle
VBUS
D+
D-
CC1
CC2
GND

U1
CP2102N
8  VBUS        RST  9
4  D+          SUSPEND  12
5  D-          SUSPEND  11
                RI  2
6  VDD
                DCD  1
                DTR  28  USB_DTR
                DSR  27
7  REGIN        TXD  26  USB_TX
                RXD  25  USB_RX
                RTS  24  USB_RTS
                CTS  23
3*3  GND

3.3V
USB Self-Powered mode with internal 3.3V LDO bypassed

R3 5k1 (1%)
R4 5k1 (1%)
C4 100nF x 50V
C5 10uF x10V

3.3V
C6 100nF x 50V
C8 1uF x 6.3V
C9 100nF x 50V

R1 1M (5%)
C1 4.7nF x 100V

Serial Bootloader Programmer Interface

3.3V    3.3V

R5 10k (5%)
R7 10k (5%)

ESP32_PROG_ENABLE
ESP32_PROG_MODE

USB_DTR
R2 4k7 (5%)
Q1 BC817

R6 4k7 (5%)

USB_RTS
Q2 BC817

3.3V
C10 10uF x 6.3V
C11 100nF x 50V

3.3V
R8 4k7 (5%)

SOC1
ESP32-WROOM-32E
2  VDD
                VSPI (SPI3)
                IO18  30
                IO23  37
                IO19  31
                IO5   29
                IO2   24
                IO4   26
                IO21  33
                IO22  36
1*12  VSS
                I2C
                UARTs
35  IO1(TXD0)   IO17(TXD2)  28
34  IO3(RXD0)   IO16(RXD2)  27
                IO25  10
                IO26  11
                IO27  12
                IO32  8
                IO33  9
                IO34  6
                IO35  7
                IO36  4
                IO39  5
                HSPI (SPI2)
13  IO14
16  IO13
23  IO15
14  IO12
3   EN
25  IO0

USB_RX
USB_TX

In-Circuit JTAG Programmer and Debugger Interface

3.3V
CN2
JTAG
1  2   JTAG_TMS
3  4   JTAG_TCK
5  6   JTAG_TDO
7  8   JTAG_TDI
9  10  JTAG/RST

ESP32_PROG_ENABLE
ESP32_PROG_MODE

C2 10uF x 6.3V
C3 1nF x 50V
C7 1nF x 50V

★ Only input: 3.2 chapter from datasheet v1.3
★ Strapping pins: 3.3 chapter from datasheet v1.3
★ Built-in hall effect sensor: 29.4 chapter from Technical Reference Manual v4.6

3.3V
C12 100nF x 50V

U3
MSP430FR4133
15  DVCC
14  DVSS           P3.2/L10  48
1   P3.1/L9        P3.3/L11  47
2   P3.0/L8        P3.4/L12  46
3   P7.3/L3        P3.5/L13  45
4   P7.2/L2        P3.6/L14  44
6   P7.0/L0        P3.7/L15  43
7   P4.7/R13       P6.0/L16  42
8   P4.6/R23       P6.1/L17  41
9   P4.5/R33       P6.2/L18  40
10  P4.4/LCDCAP1   P6.3/L19  39
11  P4.3/LCDCAP0   P2.0/L24  38
12  P4.2/XOUT      P2.1/L25  37
13  P4.1/XIN       P2.2/L26  36
18  P4.0/TA1.1     P2.3/L27  35
19  P1.7/TA0.1/TDO/A7  P2.4/L28  34
20  P1.6/TA0.2/TDI/TCLK/A6  P2.5/L29  33
21  P1.5/TA0CLK/TMS/A5  P2.6/L30  32
22  P1.4/MCLK/TCK/A4/VREF+  P2.7/L31  31
25  P1.1/UCA0RXD/UCA0SOMI/A1/VREF+  P5.0/UCB0STE/L32  30
26  P1.0/UCA0TXD/UCA0SIMO/A0/VREF-  P5.1/UCB0CLK/L33  29
16  RST/NMI/SBWTDIO  P5.2/UCB0SIMO/UCB0SDA/L34  28
17  TEST/SBWTCK    P5.3/UCB0SOMI/UCB0SCL/L35  27
                P1.2/UCA0CLK/A2  24
                P1.3/UCA0STE/A3  23

3.3V
R9 47k (5%)

C13 1nF x 50V

3.3V
R11 100R (5%)

LED1 >FAMILY<

R10 4k7 (5%)
Q3 BC817

DESIGN BY:
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open hardware

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SHEET TITLE: COMPLETE SCHEMATIC    SHEET: 1/1
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