Power Supply

LiPo Charger

ESP-WROOM-32 MODULE

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ESP-WROOM-32

Buttons

SD/MMC Card

MICRO_SD1
TFC-9P-1.7H(ATFFS150A01BR016)

Ethernet

The PHY is setted up as follows:
MODE: All capable(10/100Base)
—Auto-negotiation enabled
—RMII Configuration
—SMI address: 0x00

LAN_CON1
RJP-003TC1(LPJ4112CNL)
Single 10/100 BASE-TX Filter Connector Module

U4
LAN8710A-EZC(QFN32)

PoE Power Supply

The input filter capacitor must be >5 μF for to MPS!

250mW(50mA@5V) minimal power consumption on the PD required for to Maintain Power Signature(MPS)!

VOUT=1.35*(1+Ra/Rb)

U8
Si3402-B-GM(QFN-20,5x5mm)

Extensions

EXT1
NS(HN1x10)

EXT2
NS(HN1x10)

UEXT

UEXT1
B-V-10-LF(GBH254SMT-10)

USB to UART

USB-UART1
MISB-SWMM-5B-LF(USB_MICRO)

U1
CH340T(SSOP20W)

Auto program
DTR	RTS→>EN	IO0
1	1	1	1
0	0	0	1
1	0	1	0
0	1	0	1

!!!WARNING!!!
When the board is powered via PoE, don't include the USB cable for to programming it!!!
In case this is required, USB-ISO must be used for to guarantee galvanic isolation!
See: https://www.olimex.com/Products/USB-Modules/USB-ISO/

Notes:

Software Selectable Pins

Interface	Signal	Pin
EMAC	EMAC_MDC_out	
	EMAC_MDI_in	
	EMAC_MDO_out	Any GPIO
	EMAC_CRS_out	
	EMAC_COL_out	
I2C	I2CEXT0_SCL_in	
	I2CEXT0_SDA_in	
	I2CEXT1_SCL_in	
	I2CEXT1_SDA_in	
	I2CEXT0_SCL_out	Any GPIO
	I2CEXT0_SDA_out	
	I2CEXT1_SCL_out	
	I2CEXT1_SDA_out	
General Purpose SPI	HSPIQ_in/_out	
	HSPID_in/_out	
	HSPICLK_in/_out	
	HSPICS0_in/_out	
	HSPICS1_in/_out	
	HSPICS2_in/_out	Any GPIO
	VSPIQ_in/_out	
	VSPID_in/_out	
	VSPICLK_in/_out	
	VSPICS0_in/_out	
	VSPICS1_in/_out	
	VSPICS2_out	

For more information refer to esp_wroom_32_datasheet_en.pdf.

Internal Bootstrapping Resistors

MTDI/GPIO12:	Pull-Down
GPIO0:	Pull-Up
GPIO2:	Pull-Down
GPIO4:	Pull-Down
MTDO/GPIO15:	Pull-Up
GPIO5:	Pull-Up

Bootstrapping Pins Settings

Voltage of Internal LDO(VDD_SDIO)
Pin	Default	3.3V	1.8V
GPIO12/MTDI	Pull-Down	0	1

Booting Mode
Pin	Default	SPI Flash Boot	Download Boot
GPIO0	Pull-Up	1	0
GPIO2	Pull-Down	Don't-care	0

Debugging Log on U0TXD During Booting
Pin	Default	U0TXD Toggling	U0TXD Silent
GPIO15/MTDO	Pull-Up	1	0

Timing of SDIO Slave
Pin	Default	Falling-edgeInput Falling-edgeOutput	Falling-edgeInput Rising-edgeOutput	Rising-edgeInput Falling-edgeOutput	Rising-edgeInput Rising-edgeOutput
GPIO15/MTDO	Pull-Up	0	0	1	1
GPIO5	Pull-Up	0	1	0	1

Fiducials

FID1 Fiducial   FID2 Fiducial   FID3 Fiducial
FID4 Fiducial   FID5 Fiducial   FID6 Fiducial