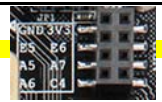
Port	Color Code
A	
B	
C	
D	
E	

Last Update
04-Mar-21



ON TOP RIGHT, NRF PORT ERRTA ON THE PRINT ON THE BOARD If showed E5 E6, should be C5 C6

Function	Device	Port	Pin	Hardware Config
Button	KEY1	A	0	External Pulled Low
	KEY2	C	13	External Pulled Low
C_Key	T_CAP	A	1	External Pulled Up
TFT	LCD Display	D	14	LCD data bus 0
		D	15	LCD data bus 1
		D	0	LCD data bus 2
		D	1	LCD data bus 3
		E	7	LCD data bus 4
		E	8	LCD data bus 5
		E	9	LCD data bus 6
		E	10	LCD data bus 7
		E	11	LCD data bus 8
		E	12	LCD data bus 9
		E	13	LCD data bus 10
		E	14	LCD data bus 11
		E	15	LCD data bus 12
		D	8	LCD data bus 13
		D	9	LCD data bus 14
		D	10	LCD data bus 15
		E	1	LCD Reset
		D	12	LCD Backlight
		D	7	LCD ~Select
		D	4	LCD ~Output Enable
		D	5	LCD ~Write Enable
		D	11	LCD CMD or Data
	LCD Touch	E	0	LCD Touch CLK
		E	3	LCD Touch Dout
		E	2	LCD Touch Din
		D	13	LCD Touch Select
		E	4	LCD Touch IRQ

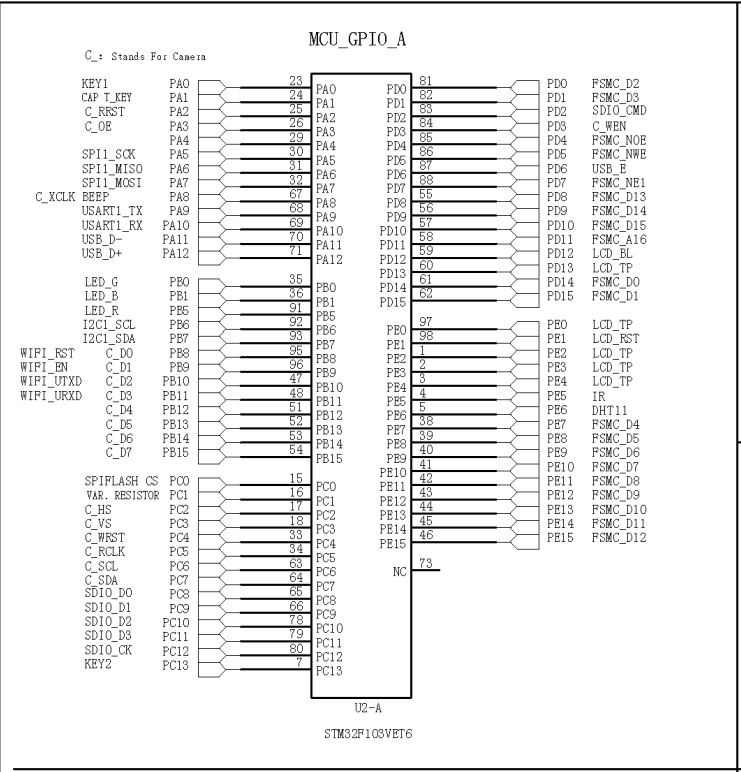
Function	Device	Port	Pin	Hardware Config
Color LED	LED R	B	5	active low
	LED G	B	0	active low
	LED B	B	1	active low
SDIO	SD D0	C	8	SD DB0 Pulled Up
	SD D1	C	9	SD DB1 Pulled Up
	SD D2	C	10	SD DB2 Pulled Up
	SD D3	C	11	SD DB3 Pulled Up
	SD CLK	C	12	SD Clock
	SD CMD	D	2	SD Cmd Pulled Up
USB	USB-	A	11	-
	USB+	A	12	-
	USB_EN	D	6	USB Device Enable
UART	USART1_TX	A	9	-
	USART1_RX	A	10	-
VR	Variable Resistor	C	1	-
Buzzer	Buzzer	A	8	-
IIC (EEPROM)	I2C1 SCL	B	6	External Pulled Up
	I2C1 SDA	B	7	External Pulled Up
8MB Flash	SPI Flash CS	C	0	External Pulled Up
	SPI Flash CLK	A	5	-
	SPI Flash MOSI	A	7	-
	SPI Flash MISO	A	6	-
OSC32	OSC32IN	C	14	32k Oscillator
	OSC32OUT	C	15	32k Oscillator

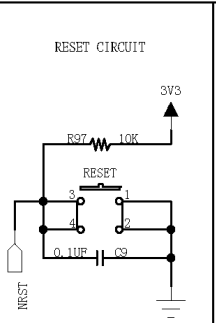
Function	Device	Port	Pin	Hardware Config
Camera	Camera data bus 0	B	8	WIFI_EN
	Camera data bus 1	B	9	WIFI_RST
	Camera data bus 2	B	10	WIFI_URxD
	Camera data bus 3	B	11	WIFI_UTxD
	Camera data bus 4	B	12	-
	Camera data bus 5	B	13	-
	Camera data bus 6	B	14	-
	Camera data bus 7	B	15	-
	Camera control SCL	C	6	Open Drain
	Camera control SDA	C	7	Open Drain
	Camera control HS	C	2	-
	Camera control VS	C	3	-
	Camera FIFO XCLK	A	8	-
	Camera FIFO RCLK	C	5	-
	Camera FIFO RRST	A	2	-
	Camera FIFO WRST	C	4	-
	Camera FIFO WEN	D	3	-
	Camera FIFO OEN	A	3	-
IR	IR Data	E	5	External Pulled Up
DHT11	DHT11 Data	E	6	External Pulled Up
BOOT1	BOOT1	B	2	GND
NC	Not Connected	A	4	
SWD to JTAG	TDO	B	3	
	NTRST	B	4	
	TMS	A	13	To Debugger
	TCK	A	14	
	TDI	A	15	

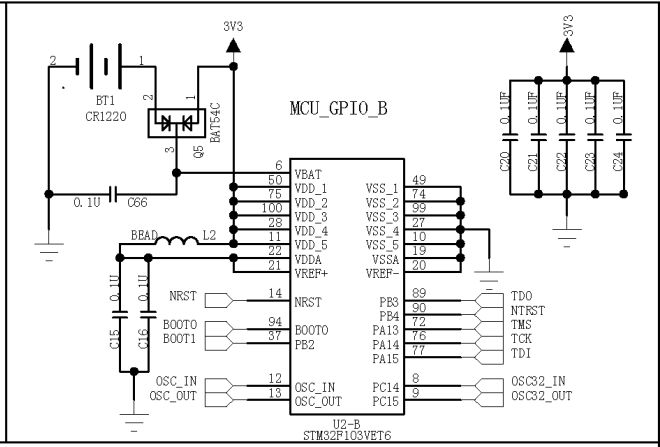
Below pins areconnected by removable jumpers by default,
the pin can be accessed by removing the corresponding jumper.

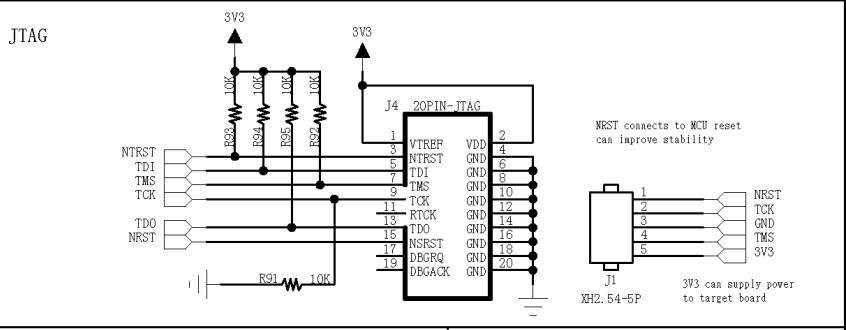
Function	Device	Port	Pin	Hardware Config
C_Key	T_CAP	A	1	External Pulled Up
VR	Variable Resistor	C	1	-
Buzzer	Buzzer	A	8	-
WIFI	WiFi RxD	B	10	WIFI_URxD
WIFI	WiFi TxD	B	11	WIFI_UTxD

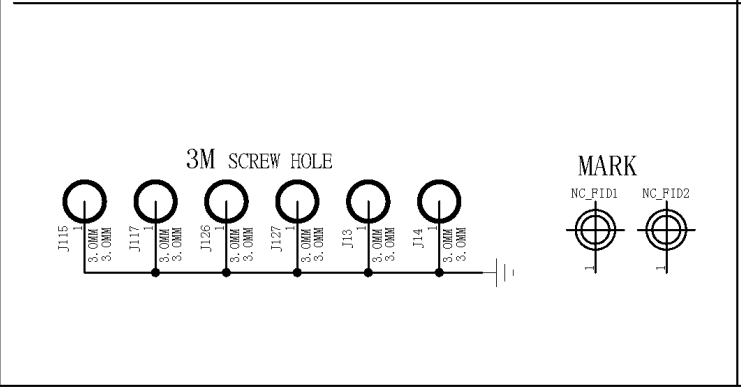
It is IMPORTANT for you to KEEP J17 as shown on LEFT.
ANY CHANGE OF JUMPERS WILL RESULT FAIL TO DOWNLOAD
PLEASE ALTER IT UNLESS YOU KNOW WHAT YOU ARE DOING.

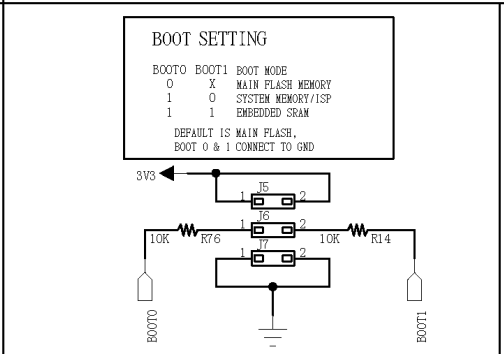

MCU_GPIO_A
C_: Stands For Camera
KEY1
CAP T_KEY
C_RRST
C_OE
SPI1_SCK
SPI1_MISO
SPI1_MOSI
C_XCLK
BEEP
USART1_TX
USART1_RX
USB_D-
USB_D+
LED_G
LED_B
LED_R
I2C1_SCL
I2C1_SDA
WIFI_RST
WIFI_EN
WIFI_UTXD
WIFI_URXD
C_D0
C_D1
C_D2
C_D3
C_D4
C_D5
C_D6
C_D7
SPIFLASH CS
VAR. RESISTOR
C_HS
C_VS
C_WRST
C_RCLK
C_SCL
C_SDA
SDIO_D0
SDIO_D1
SDIO_D2
SDIO_D3
SDIO_CK
KEY2
U2-A
STM32F103VET6

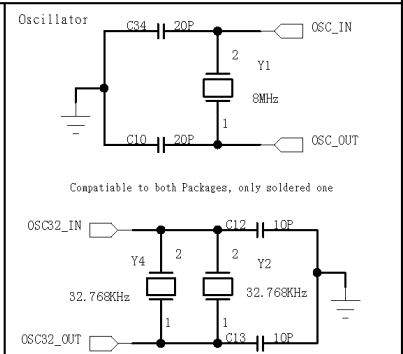

RESET CIRCUIT
3V3
R97
10K
RESET
0.1UF
C9
NRST

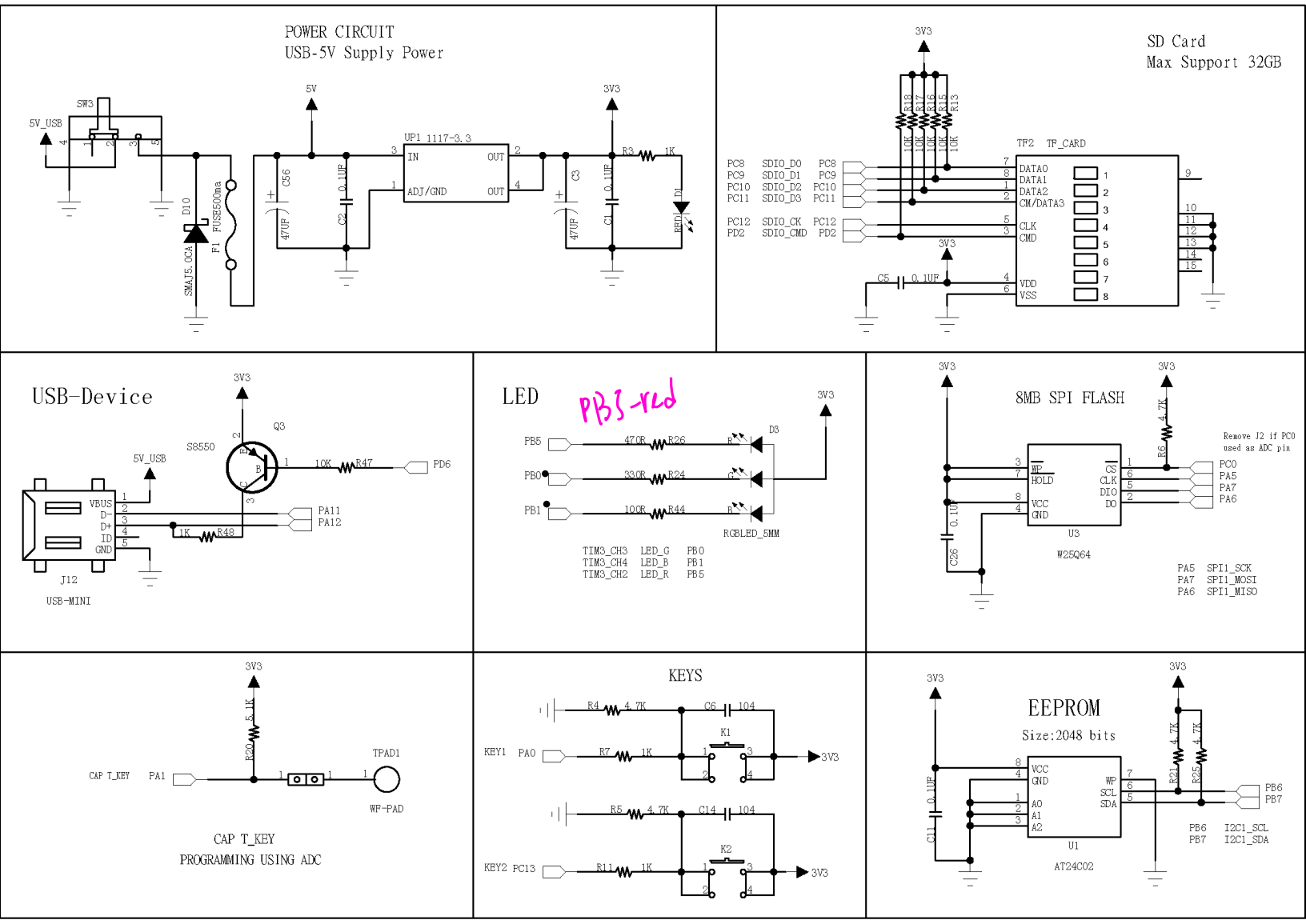

3V3
BT1
CR1220
BAT54C
Q5
MCU_GPIO_B
0.1U
C66
BEAD
L2
C15
C16
NRST
BOOT0
BOOT1
OSC_IN
OSC_OUT
C20
C21
C22
C23
C24
TDO
NTRST
TMS
TCK
TDI
OSC32_IN
OSC32_OUT
U2-B
STM32F103VET6


JTAG
3V3
R93
R94
R95
R92
J4
20PIN-JTAG
NTRST
TDI
TMS
TCK
TDO
NRST
R91
10K
NRST connects to MCU reset
can improve stability
J1
XH2.54-5P
3V3 can supply power
to target board

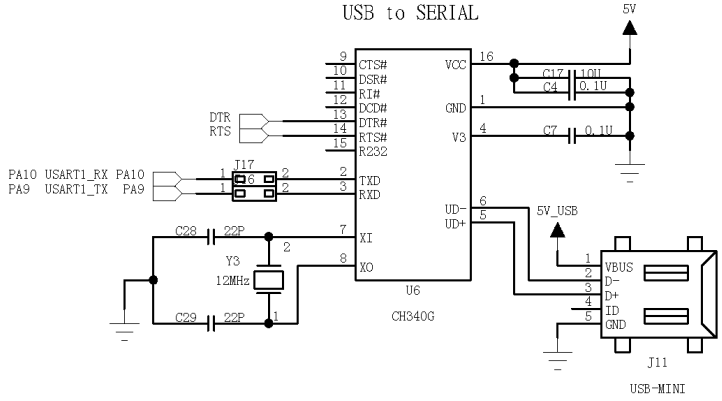

3M SCREW HOLE
J115
J117
J126
J127
J13
J14
MARK
NC_FID1
NC_FID2


BOOT SETTING
BOOT0 BOOT1 BOOT MODE
0 X MAIN FLASH MEMORY
1 0 SYSTEM MEMORY/ISP
1 1 EMBEDDED SRAM
DEPAULT IS MAIN FLASH,
BOOT 0 & 1 CONNECT TO GND
3V3
J5
J6
J7
10K
R76
10K
R14
BOOT0
BOOT1

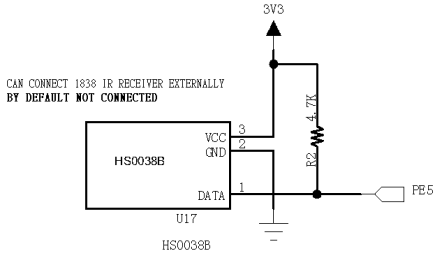

Oscillator
C34
20P
OSC_IN
Y1
8MHz
C10
20P
OSC_OUT
Compatiable to both Packages, only soldered one
OSC32_IN
C12
10P
Y4
32.768KHz
Y2
32.768KHz
OSC32_OUT
C13
10P


POWER CIRCUIT
USB-5V Supply Power
SW3
5V_USB
D10
SMAJ5.0CA
F1 FUSE500ma
5V
C56
470UF
C2
0.1UF
UP1 1117-3.3
IN
ADJ/GND
OUT
OUT
3V3
C3
0.1UF
C1
470UF
R3
1K
D1
RED
SD Card
Max Support 32GB
3V3
R18
R17
R16
R15
R13
10K
TF2 TF_CARD
PC8 SDIO_D0 PC8
PC9 SDIO_D1 PC9
PC10 SDIO_D2 PC10
PC11 SDIO_D3 PC11
PC12 SDIO_CK PC12
PD2 SDIO_CMD PD2
DATA0
DATA1
DATA2
CM/DATA3
CLK
CMD
VDD
VSS
C5
0.1UF
USB-Device
3V3
Q3
S8550
5V_USB
10K
R47
PD6
VBUS
D-
D+
ID
GND
1K
R48
PA11
PA12
J12
USB-MINI
LED
PB5-red
3V3
PB5
PB0
PB1
470R
R26
330R
R24
100R
R44
D3
RGBLED_5MM
TIM3_CH3 LED_G PB0
TIM3_CH4 LED_B PB1
TIM3_CH2 LED_R PB5
8MB SPI FLASH
3V3
R6
4.7K
Remove J2 if PC0
used as ADC pin
WP
HOLD
VCC
GND
CS
CLK
DIO
DO
PC0
PA5
PA7
PA6
C26
0.1UF
U3
W25Q64
PA5 SPI1_SCK
PA7 SPI1_MOSI
PA6 SPI1_MISO
3V3
R20
5.1K
CAP T_KEY
PA1
TPAD1
WP-PAD
CAP T_KEY
PROGRAMMING USING ADC
KEYS
R4 4.7K
C6 104
K1
KEY1 PA0
R7 1K
3V3
R5 4.7K
C14 104
K2
KEY2 PC13
R11 1K
3V3
EEPROM
Size:2048 bits
3V3
3V3
VCC
GND
WP
SCL
SDA
A0
A1
A2
C11
0.1UF
R21
4.7K
R25
4.7K
PB6
PB7
U1
AT24C02
PB6 I2C1_SCL
PB7 I2C1_SDA

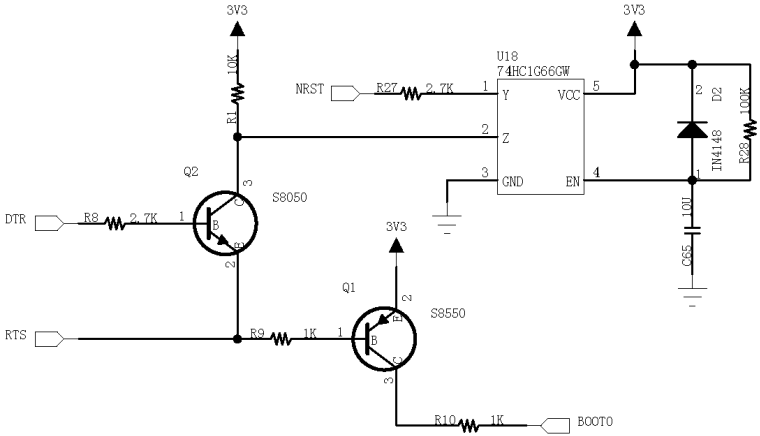
USB to SERIAL



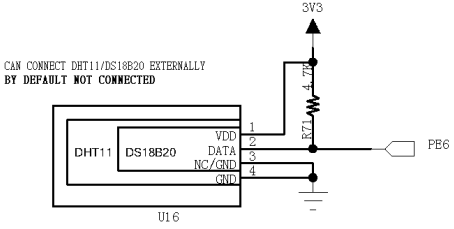
IR CONNECTOR

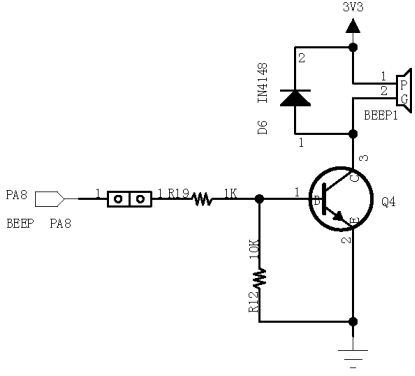


ISP ONE KEY DOWNLOAD CIRCUIT



DHT11/DS18B20 CONNECTOR

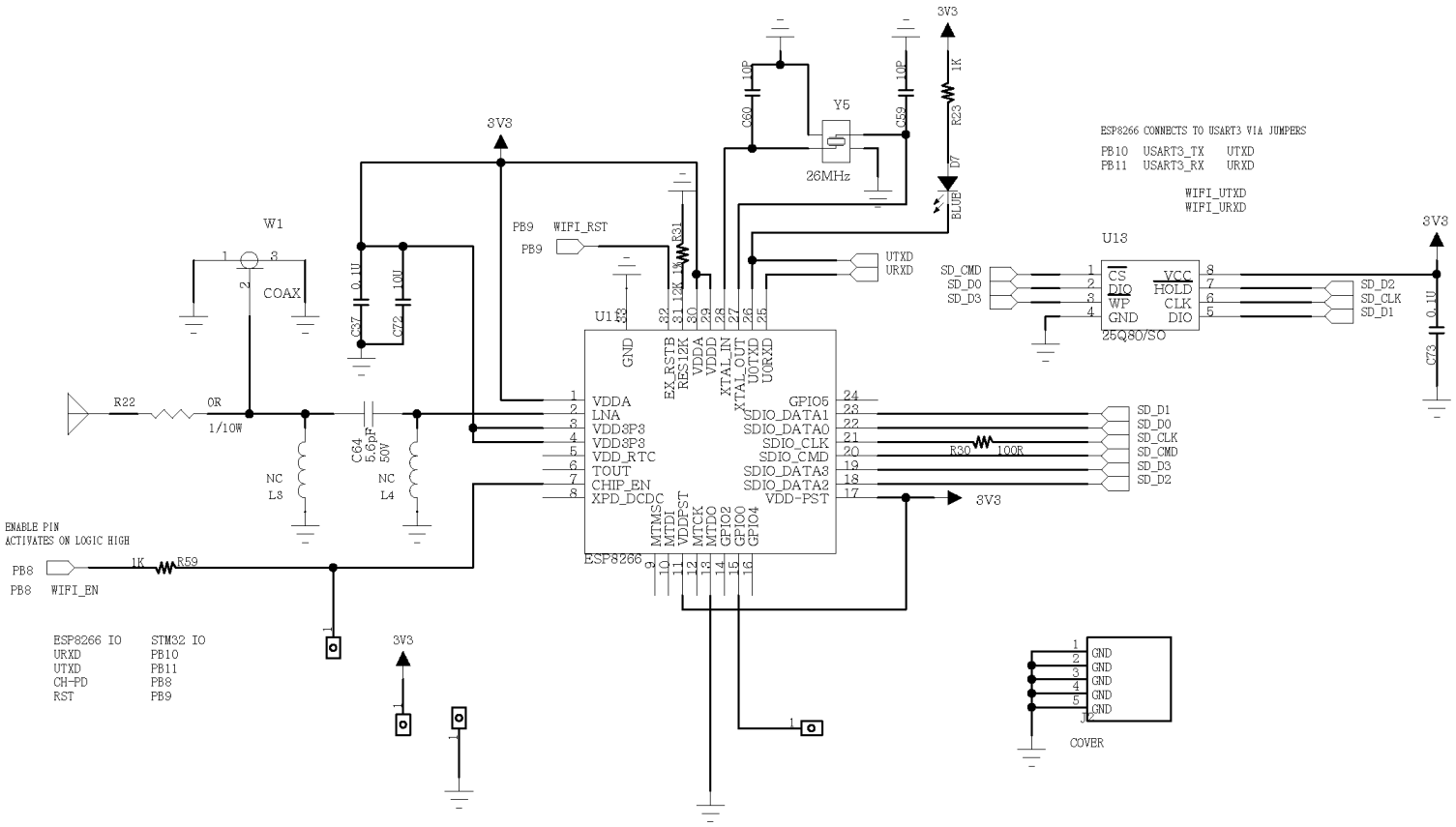




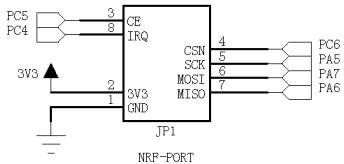
WIFI ESP8266

Note

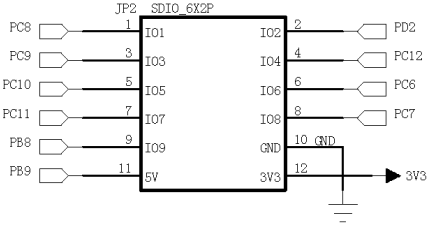
1. ESP8266 is designed for transferring small amount of data (e.g. less than 200 bytes)
2. The board is tested at a distance of 10-meter



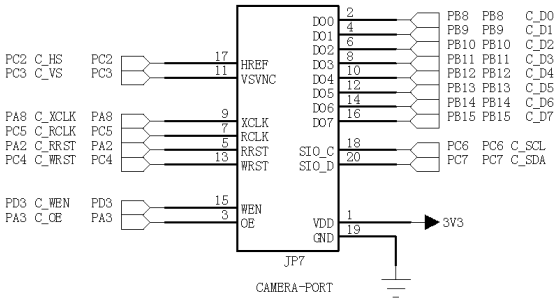
NRF24L01



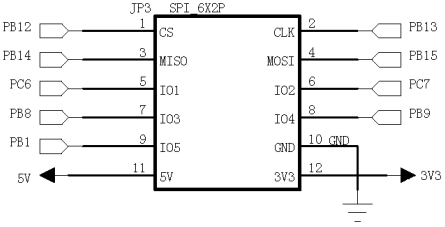
SDIO



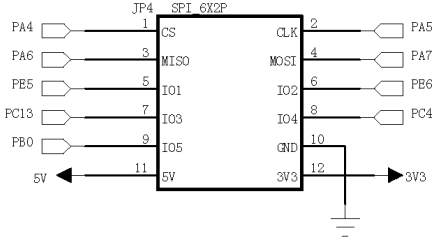
CAMERA



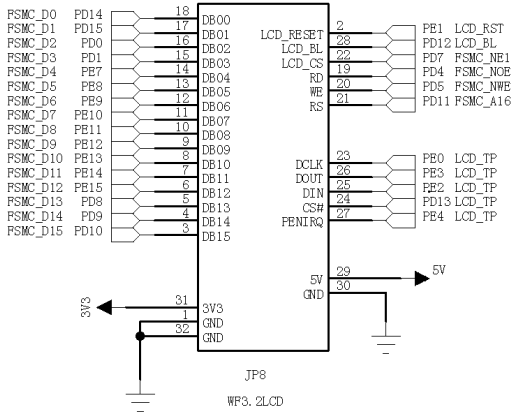
SPI2/I2S



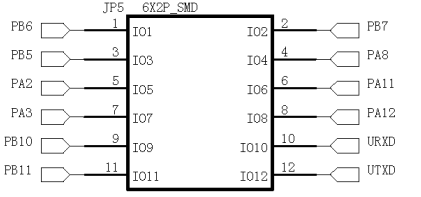
SPI1



LCD CONNECTOR

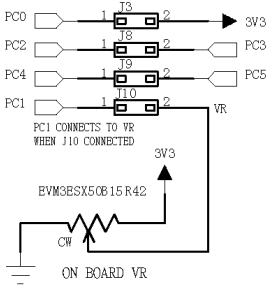


I2C1/2-USART2/3

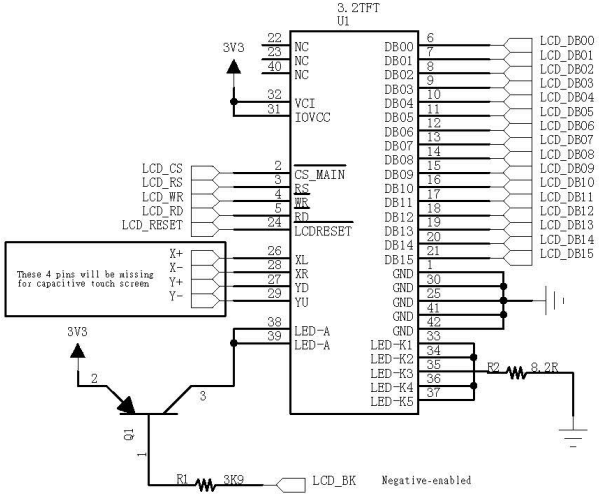


URXD UTXD for ESP8266
PB10: USART3_TXD
PB11: USART3_RXD
BY DEFAULT 9 10 11 12 CONNECTED BY JUMPERS

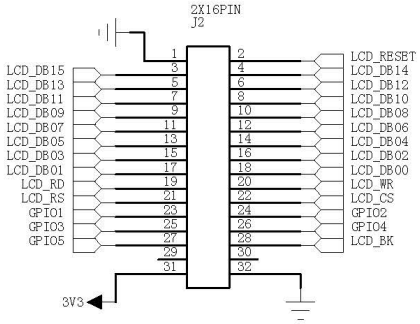
ADC



3.2 inch TFT

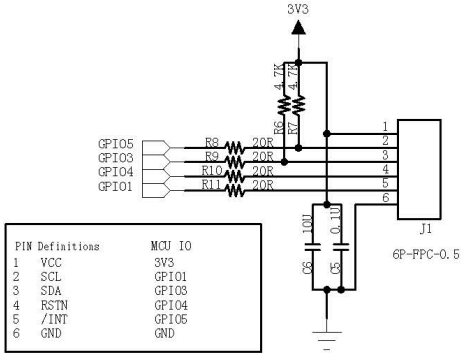


2X16PIN Connector



3.2 inch Capactive Touch Scren

No need to solder this part if resistive touch screen is used



Resistive Touch Screen Controller

No need to solder this part if capactive touch screen is used