01 ESP32-BIT

U1   ESP_WROOM32

Pin	Net	Signal
1	GND	GND1
2	+3V3	3V3
3	EN	EN
4	S_VP IO36 (ADC1_0)	GPIO36, SENSOR_VP, ADC_H, ADC1_CH0, RTC_GPIO0
5	S_VN IO39 (ADC1_3)	GPIO39, SENSOR_VN, ADC1_CH3, ADC_H, RTC_GPIO3
6	IO34 (ADC1_6)	GPIO34, ADC1_CH6, RTC_GPIO4
7	IO35 (ADC1_7)	GPIO35, ADC1_CH7, RTC_GPIO5
8	IO32 (ADC1_4)	GPIO32, XTAL_32K_P, ADC1_CH4, TOUCH9, RTC_GPIO9
9	IO33 (ADC1_5)	GPIO33, XTAL_32K_N, ADC1_CH5, TOUCH8, RTC_GPIO8
10	IO25 (ADC2_8)	GPIO25, DAC_1, ADC2_CH8, RTC_GPIO6, EMAC_RXD0
11	IO26 (ADC2_9)	GPIO26, DAC_2, ADC2_CH9, RTC_GPIO7, EMAC_RXD1
12	IO27 (ADC2_7)	GPIO27, ADC2_CH7, TOUCH7, RTC_GPIO17, EMAC_RX_DV
13	IO14 (ADC2_6)	GPIO14, ADC2_CH6, TOUCH6, RTC_GPIO16, MTMS, HSPICLK, HS2_CLK, SD_CLK, EMAC_TXD2
14	IO12 (ADC2_5)	GPIO12, ADC2_CH5, TOUCH5, RTC_GPIO15, MTDI, HSPIQ,
15	GND	GND2
16	IO13 (ADC2_4)	GPIO13, ADC2_CH4, TOUCH4, RTC_GPIO14, MTCK, HSPID,
17		**GPIO9, SD_DATA2, SPIHD, HS1_DATA2, U1RXD
18		**GPIO10, SD_DATA3, SPIWP, HS1_DATA3, U1TXD
19		**GPIO11, SD_CMD, SPICS0, HS1_CMD, U1RTS
20		**GPIO6, SD_CLK, SPICLK, HS1_CLK, U1CTS
21		**GPIO7, SD_DATA0, SPIQ, HS1_DATA0, U2RTS
22		**GPIO8, SD_DATA1, SPID, HS1_DATA1, U2CTS
23	IO15 (ADC2_3)	GPIO15, ADC2_CH3, TOUCH3, MTDO, HSPICS0, RTC_GPIO13, HS2_CMD, SD_CMD, EMAC_RXD3
24	IO2	GPIO2, ADC2_CH2, TOUCH2, RTC_GPIO12, HSPIWP, HS2_DATA0, SD_DATA0
25	IO0 (ADC2_0)	GPIO0, ADC2_CH1, TOUCH1, RTC_GPIO11, CLK_OUT1, EMAC_TX_CLK
26	IO4	GPIO4, ADC2_CH0, TOUCH0, RTC_GPIO10, HSPIHD, HS2_DATA1, SD_DATA1, EMAC_TX_ER
27	IO16 (GPIO16)	GPIO16, HS1_DATA4, U2RXD, EMAC_CLK_OUT
28	IO17 (GPIO17)	GPIO17, HS1_DATA5, U2TXD, EMAC_CLK_OUT_180
29	IO5 (VSPI-SS)	GPIO5, VSPICS0, HS1_DATA6, EMAC_RX_CLK
30	IO18 (VSPI-SCK)	GPIO18, VSPICLK, HS1_DATA7
31	IO19 (VSPI-MISO)	GPIO19, VSPIQ, U0CTS, EMAC_TXD0
32		NC
33	IO21 (SDA)	GPIO21, VSPIHD, EMAC_TX_EN
34	IO03 (RXD0)	GPIO3, U0RXD, CLK_OUT2
35	IO01 (TXD0)	GPIO1, U0TXD, CLK_OUT3, EMAC_RXD2
36	IO22 (SCL)	GPIO22, VSPIWP, U0RTS, EMAC_TXD1
37	IO23 (VSPI-MOSI)	GPIO23, VSPID, HS1_STROBE
38	GND	GND3
39	GND	PAD

+3V3 — R1 10K — IO35 — **A** — K1 Button6x6 — C1 103 — GNDGND

+3V3 — R2 10K — IO27 — **B** — K2 Button6x6 — C2 103 — GNDGND

+3V3 — R3 10K — EN — **EN** — K3 Button6x6 — C3 104 — GNDGND

Button6x6-SMT

CN1   NC\MicroBIT

Net	Pin	Signal	Pin
IO13	1	P3/LED COL1/ANALOG	2
IO25	3	P0/ANALOG	4
IO15	5	P4/LED COL2/ANALOG	6
IO35	7	P5/BUTTON-A	8
IO12	9	P6/LED COL9	10
IO14	11	P7/LED COL8	12
IO25	13	P1/ANALOG	14
IO16	15	P8	16
IO17	17	P9/LED COL7	18
IO26	19	P10/LED COL3/ANALOG	20
IO27	21	P11/BUTTON-B	22
IO2	23	P12/ANALOG	24
IO33	25	P2/ANALOG	26
IO18	27	P13/SCK	28
IO19	29	P14/MISO	30
IO23	31	P15/MOSI	32
IO5	33	P16	34
+3V3	35	+3V3-18	36
+3V3	37	+3V3-19	38
+3V3	39	+3V3-20	40
IO22	41	P19/SCL	42
IO21	43	P20/SDA	44
GND	45	GND-23	46
GND	47	GND-24	48
GND	49	GND-25	50

MicroBIT

TXD0 — TXD0
RXD0 — RXD0
EN — EN
IO0 — IO0

SCL — IO22
SDA — IO21
IO33 — INT-9250
IO0 — AD0-9250
MPU9250

IO34 — Rt-OUT
IO36 — LUM-OUT1
IO39 — LUM-OUT2
IO25 — Buzzer
Sensor

IO4 — RGB-LED
IO32 — VBAT-DET
IO2 — VCC-LED-EN
LED

+3V3+3V3 — R8 2K R9 2K — SCL / SDA

+3V3 — C5 10uF C0603 — C6 105 — GND

IO2 — R7 NC\5K1 — GND

VSPI-SCK — R10 4K7 — LED1 LED-G — LED0805 — GND

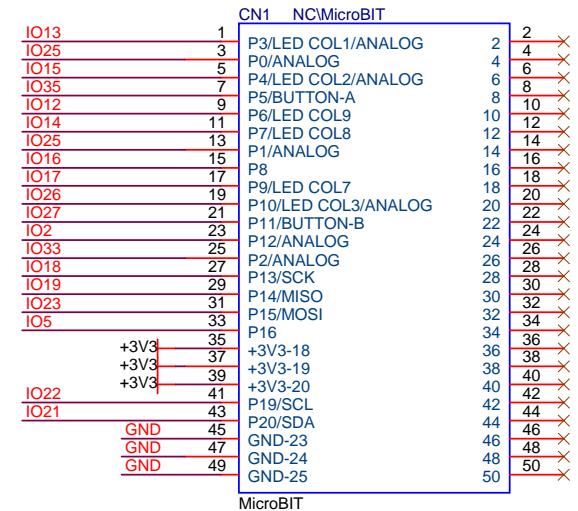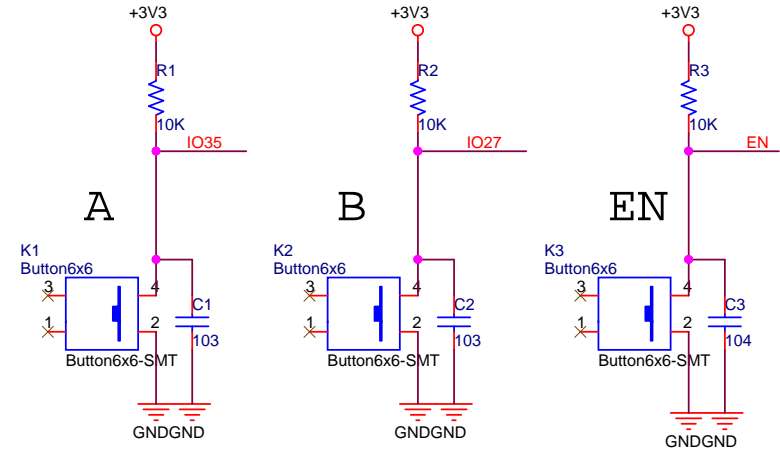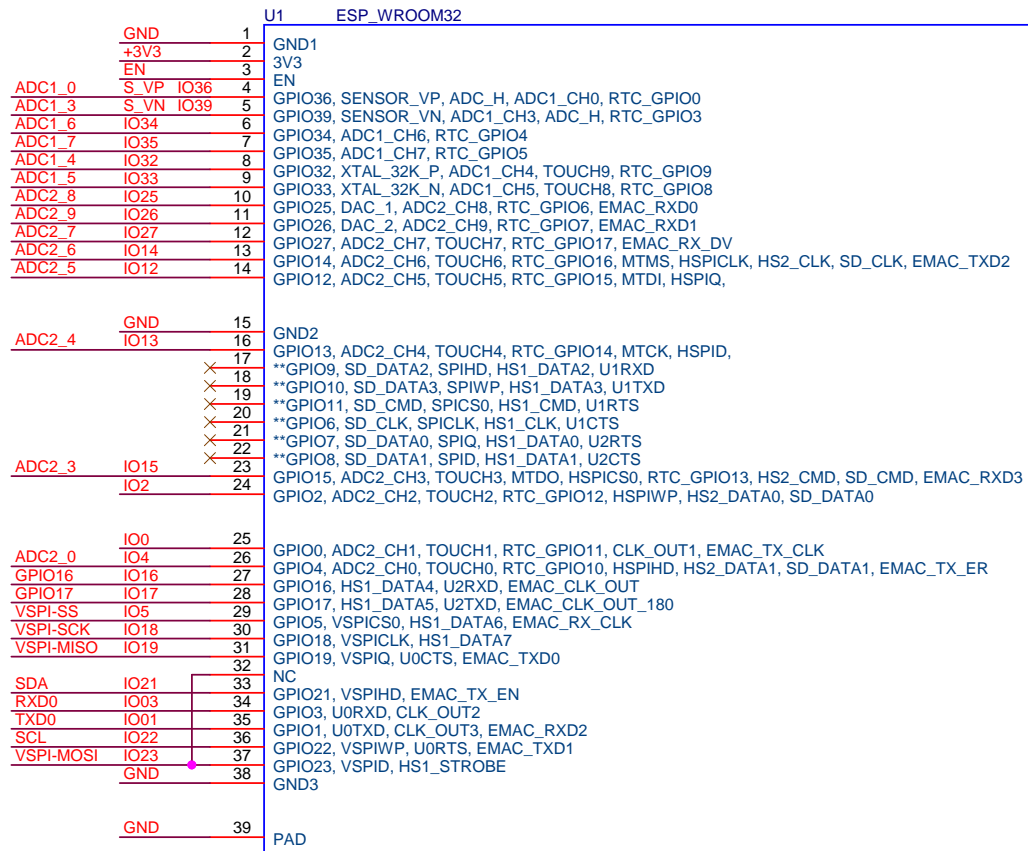**SINOVOIP CO.,LIMITED**

Design Name: **BPi-Webduino-Bit**

Size: A4

Page Name: ESP32-BIT

Rev 1.0

Date: Friday, March 09, 2018   Sheet 1 of 4

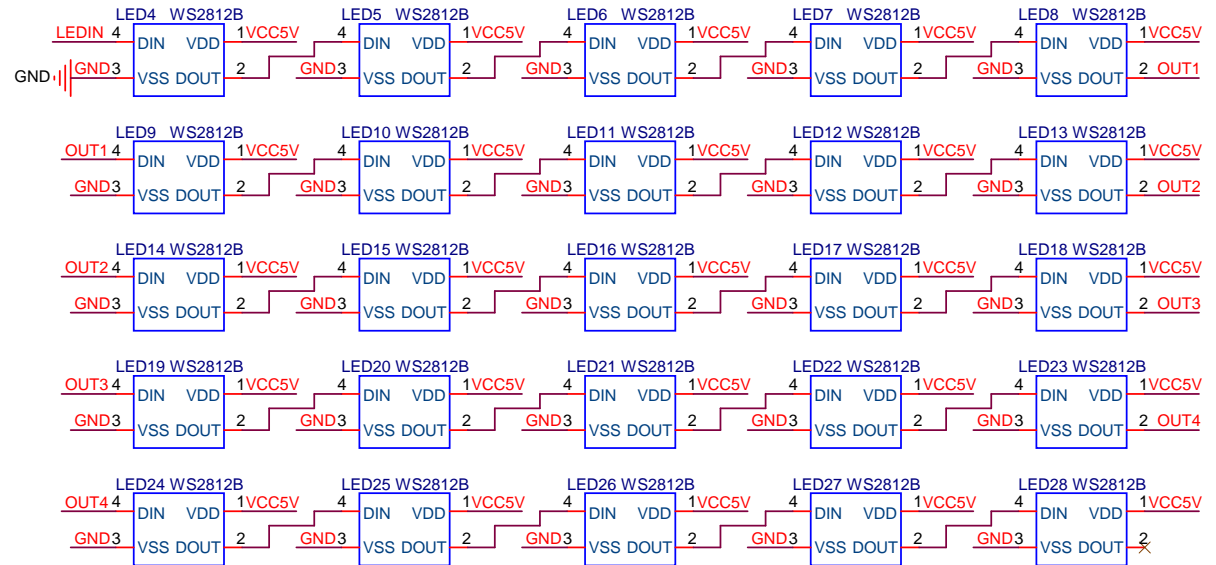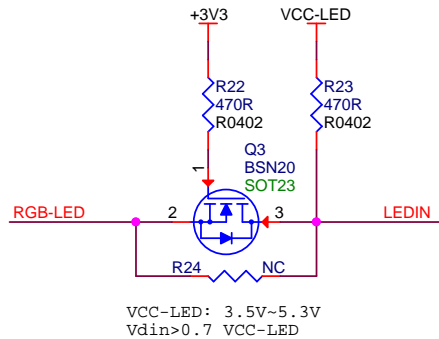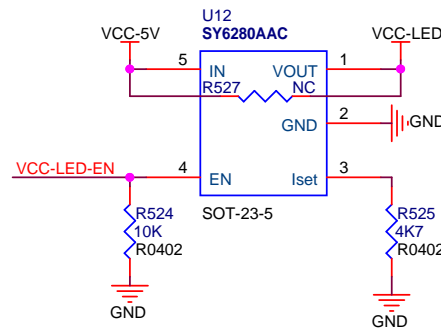# 02 Power

BAT1
Bat
XH-2AWB

3.5~4.2V

D3 1N5819

VBAT

GND

IO32 VBAT-DET

VBAT

R521
4K7-1%

VBAT-DET

R522
13K-1%

GND

VBAT
C260
10uF
C0603

GND

L10 IND4x4
2.2uH,2A

D2 SS24

VCC-5V

U13
5 IN   LX 1
4 EN   NC 6
2 GND   FB 3
SY7152(SY7208ABC)
SOT23-6

GND

R517
100K-1%
R0402

C258
22uF-6.3V
C0805

R516
13K-1%
R0402

GND   GND

VCC-5V

U7
LM1117-3.3V
SOT-223
3 IN   OUT2 4
1 GND   OUT1 2

GND

+3V3

C18
104
C0402

C19
10uF
C0603

GND

USB1
Micro-USB
MICRO_USB_DIP4SMD

VBUS

VCC-5V

D4 1N5819

USB-DM
USB-DP

1 V
2 D-
3 D+
4 ID
5 GND

GND1

ESD1 ESD2 ESD3

GND   GNDGNDGND

U3
CH340G
1 GND   CTS 9
2 TXD   DSR# 10
3 RXD   RI# 11
4 V3   DCD# 12
5 UD+   DTR 13
6 UD-   RTS# 14
7 XI   R232 15
8 XO   VCC 16
SOP16

TXD
RXD

+3V3

USB-DP
USB-DM

XI
XO

DTR
RTS

+3V3

XI

X1
1 XIN   GND2 4
2 GND1 XOUT 3
12MHz-20pF-10PPM
TSX-3225

GND

C10 22pF

GND

C11
105

GND

+3V3

XO

C12 22pF

GND

EN

DTR

R15 1K R0402

Q1
MMBT3904
SOT-23

RTS

IO0

R16 1K R0402

Q2
MMBT3904
SOT-23

Auto program
DTR RTS-->EN IO0

DTR	RTS	EN	IO0
1	1	1	1
0	0	1	1
1	0	1	1
0	1	1	0

+3V3 R17 4K7 LED2 LED-G TXD
LED0805

+3V3 R20 4K7 LED3 LED-G RXD
LED0805

TXD0 TXD0 R18 0R RXD
RXD0 RXD0 R19 0R TXD

EN   EN
IO0   IO0

03 LED/Sensor

IO4 >> RGB-LED
VCC-LED ○ VCC5V
+3V3

+3V3   VCC-LED
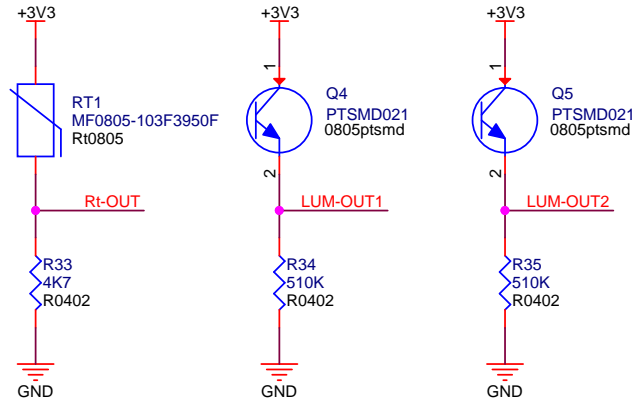
R22   R23
470R   470R
R0402   R0402

Q3
BSN20
SOT23

RGB-LED 2   3 LEDIN

R24   NC

VCC-LED: 3.5V~5.3V
Vdin>0.7 VCC-LED

IO2 >> VCC-LED-EN

+3V3
VCC-LED

U12
SY6280AAC

VCC-5V   VCC-LED
      5 IN   VOUT 1
         R527 NC
               GND 2 GND

VCC-LED-EN 4 EN   Iset 3

R524   R525
10K   4K7
R0402   R0402

GND   GND

SOT-23-5

LED Matrix (WS2812B)

Row 1

LED4 WS2812B — LEDIN 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED5 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED6 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED7 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED8 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2 OUT1

GND (GND3)

Row 2

LED9 WS2812B — OUT1 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED10 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED11 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED12 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED13 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2 OUT2

Row 3

LED14 WS2812B — OUT2 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED15 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED16 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED17 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED18 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2 OUT3

Row 4

LED19 WS2812B — OUT3 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED20 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED21 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED22 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED23 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2 OUT4

Row 5

LED24 WS2812B — OUT4 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED25 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED26 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED27 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2
LED28 WS2812B — 4 DIN VDD 1 VCC5V / GND 3 VSS DOUT 2

03 Sensor

IO34 — Rt-OUT
IO36 — LUM-OUT1
IO39 — LUM-OUT2
IO25 — Buzzer

+3V3

RT1
MF0805-103F3950F
Rt0805

Rt-OUT

R33
4K7
R0402

GND

+3V3

Q4
PTSMD021
0805ptsmd

LUM-OUT1

R34
510K
R0402

GND

+3V3

Q5
PTSMD021
0805ptsmd

LUM-OUT2

R35
510K
R0402

GND

+3V3

U10
Buzzer
Buzzer-52x52

R492
10R
R0402

R523   NC

Buzzer   R491   2K   R0402

Q13
MMBT3904
SOT-23

GND

SCL — IO22
SDA — IO21
IO33 — INT-9250
IO0 — AD0-9250

+3V3   R31   0R   VDD-SEN

VDD-SEN   R25   0R
SCL   R28   0R
SDA   R27   0R

VDD-SEN

C262
104
C0402

GND

U14
MPU9250

RESV1
NC2
NC3
NC4
NC5
NC6

SDA / SDI
SCL / SCLK
nCS
AUX-DA
RESV20
RESV19

GND18
NC17
NC16
NC15
NC14
VDD

GND

VDD-SEN

GND   ePAD

AUX_CL
VDD-IO
AD0/SDO
REGOUT
FSYNC
INT

VDD-SEN

AD0-9250   R526   0R
R520   NC

C261   104

GND   R519   0R
INT-9250   R518   0R

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Design Name		
BPi-Webduino-Bit		
Size A4	Page Name **LED/Sensor**	Rev 1.0
Date:	Friday, March 09, 2018	Sheet 4 of 4