

The image shows a detailed PCB layout for a DumbBadgeFusion board. The board is divided into sections labeled A through E. The layout includes a MAX3232 serial interface, an ATSAM21J18A-AUT microcontroller, and a VT-69 display. The board is populated with various components including capacitors, resistors, and a display. The layout is color-coded: red for power and ground, green for signal, and blue for I2C and SPI lines. The board is labeled with component values and pin numbers. The layout is a top-down view of the PCB.

Section A: MAX3232 SERIAL

U6: MAX3232

16: 3V3

1: C1+

2: C1-

3: C2+

4: C2-

5: C2-

11: UART_TX

10: T1IN

12: T2IN

9: R1OUT

14: T1OUT

7: T2OUT

13: R1IN

8: R2IN

15: GND

1: C2

2: C1

3: C2

4: C1

5: C2

11: UART_TX

10: T1IN

12: T2IN

9: R1OUT

14: T1OUT

7: T2OUT

13: R1IN

8: R2IN

15: GND

Section B: IC3 74245MTC

18: 3V3

17: 3V3

16: 3V3

15: LCD_RST

14: CS

13: D/C

12: WR

11: RD

1: LCD_RD

19: DIR

18: A1

17: A2

16: A3

15: A4

14: A5

13: A6

12: A7

11: A8

18: B1

17: B2

16: B3

15: B4

14: B5

13: B6

12: B7

11: B8

Section C: IC1 74245MTC

18: DB15

17: DB14

16: DB13

15: DB12

14: DB11

13: DB10

12: DB9

11: DB8

1: LCD_RD

19: DIR

18: A1

17: A2

16: A3

15: A4

14: A5

13: A6

12: A7

11: A8

18: B1

17: B2

16: B3

15: B4

14: B5

13: B6

12: B7

11: B8

Section D: IC2 74245MTC

18: DB07

17: DB06

16: DB05

15: DB04

14: DB03

13: DB02

12: DB01

11: DB00

1: LCD_RD

19: DIR

18: A1

17: A2

16: A3

15: A4

14: A5

13: A6

12: A7

11: A8

18: B1

17: B2

16: B3

15: B4

14: B5

13: B6

12: B7

11: B8

Section E: VT-69

DumbBadgeFusion

4/9/2020 9:50 PM

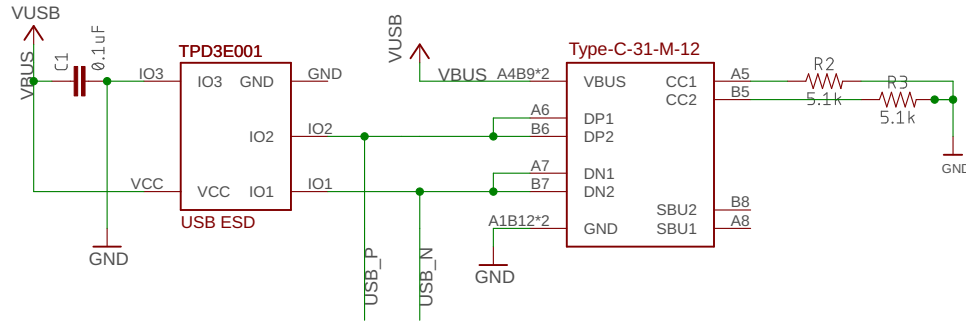
Sheet: 1/3

Benchhoff

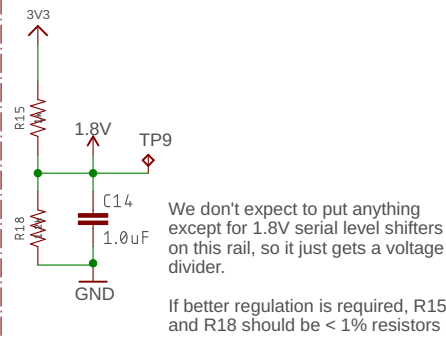
Rev: 1.0

DumbBadgeFusion	
4/9/2020 9:50 PM	Benchoff
Sheet: 1/3	Rev: 1.0

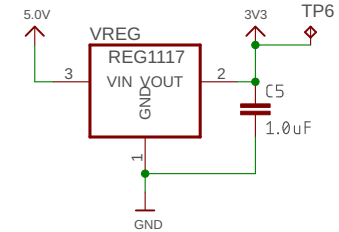
USB Power In



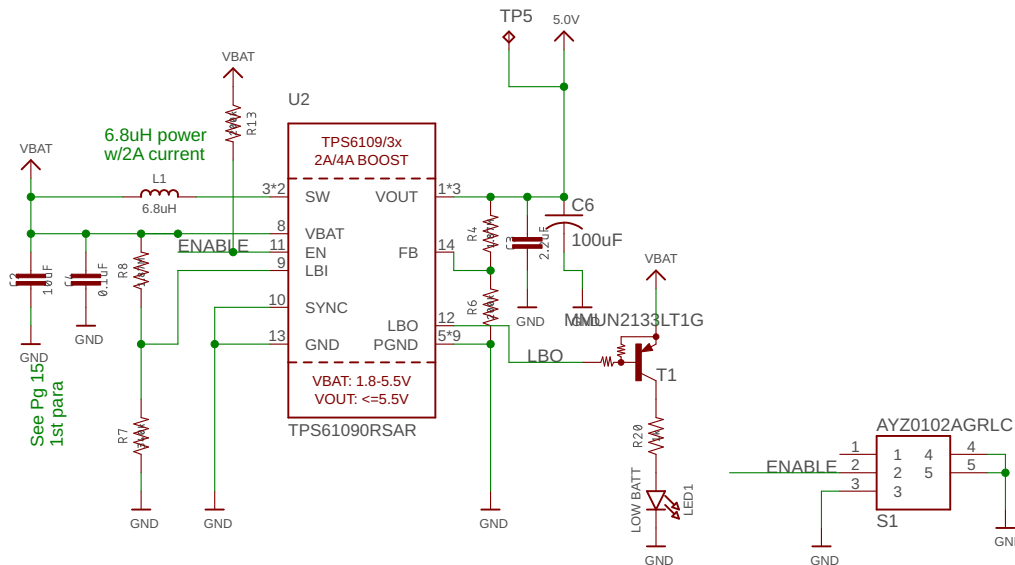
1.8 V Reg



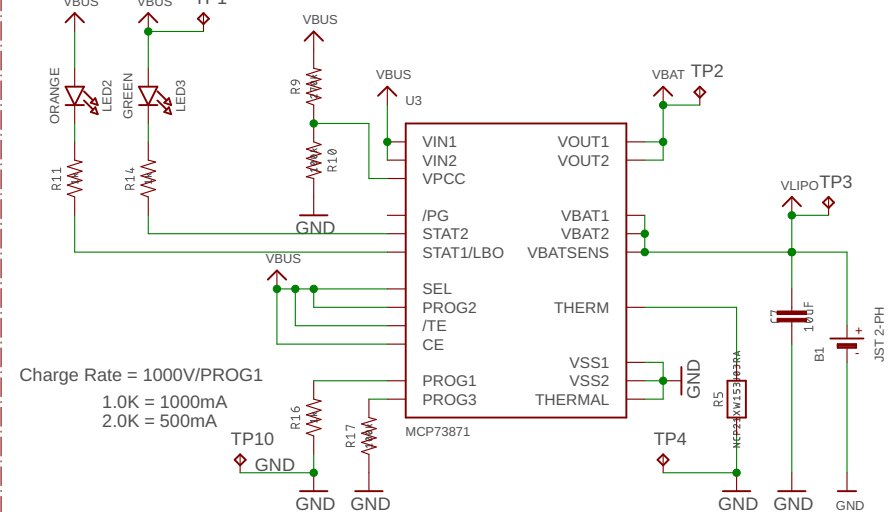
3.3 V Reg



5 V Switching Reg



Battery Charging



VT-69

DumbBadgeFusion

4/9/2020 9:50 PM

Sheet: 2/3

Benchhoff

Rev: 1.0

This diagram illustrates the hardware setup for a Raspberry Pi Zero, including a Keyboard Matrix and a 24V Boost converter.

Keyboard Matrix

The Keyboard Matrix is a 10x10 grid of keys. The columns are labeled KEYCOLUMN[0..6] and the rows are labeled KEYROW[0..9]. The keys are connected to the Raspberry Pi Zero's GPIO pins.

Row	Key	GPIO Pin
KEYROW0	K_6	P1
KEYROW0	K_5	P2
KEYROW0	K_4	P3
KEYROW0	K_3	P4
KEYROW0	K_2	P5
KEYROW0	K_1	P6
KEYROW0	K_0	P7
KEYROW0	K_9	P8
KEYROW0	K_8	P9
KEYROW0	K_7	P10
KEYROW1	K_Y	P11
KEYROW1	K_T	P12
KEYROW1	K_R	P13
KEYROW1	K_E	P14
KEYROW1	K_W	P15
KEYROW1	K_Q	P16
KEYROW1	K_Z	P17
KEYROW1	K_LEFTALT	P18
KEYROW1	K_LEFTMETA	P19
KEYROW1	K_RIGHTALT	P20
KEYROW2	K_F	P21
KEYROW2	K_D	P22
KEYROW2	K_S	P23
KEYROW2	K_C	P24
KEYROW2	K_X	P25
KEYROW2	K_A	P26
KEYROW2	K_CONTROL	P27
KEYROW2	K_CAPS	P28
KEYROW2	K_SHIFT	P29
KEYROW2	K_RIGHTMETA	P30
KEYROW3	K_B	P31
KEYROW3	K_V	P32
KEYROW3	K_N	P33
KEYROW3	K_SPACE	P34
KEYROW3	K_LEFTALT	P35
KEYROW3	K_LEFTMETA	P36
KEYROW3	K_RIGHTALT	P37
KEYROW3	K_RIGHTMETA	P38
KEYROW3	K_7	P39
KEYROW4	K_M	P40
KEYROW4	K_COMMA	P1
KEYROW4	K_DOT	P2
KEYROW4	K_SLASH	P3
KEYROW4	K_BACKSLASH	P4
KEYROW4	K_EQUAL	P5
KEYROW4	K_MINUS	P6
KEYROW4	K_0	P7
KEYROW4	K_1	P8
KEYROW4	K_2	P9
KEYROW4	K_3	P10
KEYROW5	K_RIGHT	P11
KEYROW5	K_UP	P12
KEYROW5	K_DOWN	P13
KEYROW5	K_LEFT	P14
KEYROW5	K_HOME	P15
KEYROW5	K_END	P16
KEYROW5	K_INSERT	P17
KEYROW5	K_DELETE	P18
KEYROW5	K_9	P19
KEYROW5	K_8	P20
KEYROW5	K_7	P21
KEYROW6	K_BACK	P22
KEYROW6	K_FORWARD	P23
KEYROW6	K_TILDE	P24
KEYROW6	K_PLUS	P25
KEYROW6	K_EQUAL	P26
KEYROW6	K_MINUS	P27
KEYROW6	K_0	P28
KEYROW6	K_1	P29
KEYROW6	K_2	P30
KEYROW6	K_3	P31
KEYROW7	K_BREAK	P32
KEYROW7	K_RETURN	P33
KEYROW7	K_QUOTE	P34
KEYROW7	K_QUOTE	P35
KEYROW7	K_SEMI	P36
KEYROW7	K_SEMI	P37
KEYROW7	K_L	P38
KEYROW7	K_L	P39
KEYROW7	K_O	P40
KEYROW8	K_PIPE	P1
KEYROW8	K_PIPE	P2
KEYROW8	K_RSHIFT	P3
KEYROW8	K_RSHIFT	P4
KEYROW8	K_2	P5
KEYROW8	K_3	P6
KEYROW8	K_4	P7
KEYROW8	K_5	P8
KEYROW8	K_6	P9
KEYROW8	K_7	P10
KEYROW9	K_LINE	P11
KEYROW9	K_LINE	P12
KEYROW9	K_PIPE	P13
KEYROW9	K_PIPE	P14
KEYROW9	K_2	P15
KEYROW9	K_3	P16
KEYROW9	K_4	P17
KEYROW9	K_5	P18
KEYROW9	K_6	P19
KEYROW9	K_7	P20

24 V Boost

The 24V Boost circuit is used to power the 7 x 3.2V LED boost. It consists of a 5.0V input, a 10k resistor (R1), a 10uF capacitor (C8), a 6.8uH power inductor (L2), a MOSFET (U4, FAN5333BSX), a diode (D2, MBR0540), and a 24V output. The output is connected to the 7 x 3.2V LED boost.

Raspberry Pi Zero Adapter

The Raspberry Pi Zero Adapter is used to connect the Raspberry Pi Zero to the 24V Boost circuit. It consists of a 5.0V input, a 10k resistor (R1), a 10uF capacitor (C8), a 6.8uH power inductor (L2), a MOSFET (U4, FAN5333BSX), a diode (D2, MBR0540), and a 24V output. The output is connected to the 7 x 3.2V LED boost.

Pin	Signal
P1	K_6
P2	K_5
P3	K_4
P4	K_3
P5	K_2
P6	K_1
P7	K_0
P8	K_9
P9	K_8
P10	K_7
P11	K_Y
P12	K_T
P13	K_R
P14	K_E
P15	K_W
P16	K_Q
P17	K_Z
P18	K_LEFTALT
P19	K_LEFTMETA
P20	K_RIGHTALT
P21	K_F
P22	K_D
P23	K_S
P24	K_C
P25	K_X
P26	K_A
P27	K_CONTROL
P28	K_CAPS
P29	K_SHIFT
P30	K_RIGHTMETA
P31	K_B
P32	K_V
P33	K_N
P34	K_SPACE
P35	K_LEFTALT
P36	K_LEFTMETA
P37	K_RIGHTALT
P38	K_RIGHTMETA
P39	K_7
P40	K_M
P41	K_COMMA
P42	K_DOT
P43	K_SLASH
P44	K_BACKSLASH
P45	K_EQUAL
P46	K_MINUS
P47	K_0
P48	K_1
P49	K_2
P50	K_3
P51	K_4
P52	K_5
P53	K_6
P54	K_7
P55	K_8
P56	K_9
P57	K_RIGHT
P58	K_UP
P59	K_DOWN
P60	K_LEFT
P61	K_HOME
P62	K_END
P63	K_INSERT
P64	K_DELETE

The diagram shows the wiring for a Raspberry Pi Zero Adapter. The adapter is represented by a red box with pins labeled P1 through P40. The connections are as follows:

- 5.0V:** Connected to pin P2.
- GND:** Connected to pin P9.
- UART_TX:** Connected to pin P14.
- UART_RX:** Connected to pin P15.
- PB31:** Connected to pin P1.
- VT-69:** Connected to pin P29.

DumbBadgeFusion

4/9/2020 9:50 PM

Sheet: 3/3

6

Benchhoff

Rev: 1.0

--	--