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| Revisions |               |                |          |
|-----------|---------------|----------------|----------|
| Rev       | Description   | Date           | Approved |
| X1        | Initial       | 4-January-11   |          |
| X2        | Revise        | 7-January-11   |          |
| X3        | Revise        | 12-January-11  |          |
| X4A       | Revise        | 14-January-11  |          |
| X5        | Revise        | 17-January-11  |          |
| X6        | Revise        | 18-January-11  |          |
| X7        | Revise        | 19-January-11  |          |
| X8        | Revise        | 20-January-11  |          |
| X9        | Revise        | 24-January-11  |          |
| X10       | Revise        | 27-January-11  |          |
| X11       | Revise        | 28-January-11  |          |
| X12       | Back Annotate | 2-February-11  |          |
| A         | Release       | 10-February-11 |          |
| A1        | Revise        | 15-February-11 |          |
| A2        | Revise        | 16-February-11 |          |
| A3        | Revise        | 25-March-11    |          |
| A4        | Revise        | 28-March-11    |          |
| A5        | Revise        | 29-March-11    |          |
| A6        | Revise        | 30-March-11    |          |
| A7        | Revise        | 1-April-11     |          |
| A8        | Revise        | 2-April-11     |          |
| A9        | Revise        | 15-April-11    |          |
| B         | Release       | 18-April-11    |          |
|           |               |                |          |

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|   |                                      | ICAP Classification: FCP: FIUC: X PUB:                  |          |
| Designer:<br>Michael Steffen  | Drawing Title:<br><b>TWR-S08UNIV</b> |   |          |
| Drawn by:<br>Jun Ciao   | Page Title:<br><b>TITLE PAGE</b>     |   |          |
| Approved:<br>RA6329 & R80133  | Size<br>C                            | Document Number<br>SCH-27005 PDF: SPF-27005             | Rev<br>B |
| Date: Monday, April 18, 2011  |                                      | Sheet 1 of 6  |          |

- 1) Re-number the daughter card interface;
- 2) C13 is changed to 0.1uF;
- 3) Change the 12 net connections to the Daughter Card Interface FROM: ELEC\_IN0 through ELEC\_IN11 TO: ELEC\_OUT0 through ELEC\_OUT11;
- 4) Add I2C pull-up resistors (4.7k) to VDD on nets SDA, SCL;
- 5) Change the separate RED, GREEN, BLUE LEDs back to the original suggested RGB (OSRAM) LED;
- 6) Replace J3, J17, J19 with a 2-position DIP switch;
- 7) Replace U6 (TXB0108) IC with U7, U8 (SN74LVC1T45).

- REV X3:
- 1) Use one J1 for daughter card interface;
  - 2) Re-route ELEC\_OUTx;
  - 3) Use the net labels TXD\_ELEV, RXD\_ELEV;
  - 4) Re-route DIP8 switch;
  - 5) Insert one 0 ohm resistor from VDD to J1-33, 34;
  - 6) Re-route 60 pin header;
  - 7) Add pseudo DAC circuitry;
  - 8) Re-route 8 pin header.

- REV X4A:
- 1) Un-short 61, 62, 67 and change net color back to RED after their un-shortened;
  - 2) Move R7 to pin J1-6 and J1-44;
  - 4) Swap these two net names on J2-22(GPIO\_AD\_2) and J2-41(GPIO\_KBI\_TPM\_AD\_ACOMP-);
  - 5) Move GPIO5TPM to PIN J1-42, and GPIO4TPM to PIN J1-41;
  - 6) Change "MCU USER INTERFACE" to "MCU USER CONNECTOR";
  - 7) Remove net RSTO from J8,J9,J6;
  - 8) Remove nets GPIO8,GPIO7 from J10;
  - 9) Configure the TWRPI sockets with the level shifters.

REV X5: Change U9-4 net name to RXD\_ELEV and U8-4 net name to TXD\_ELEV.  
 REV X6: Change U5 into an adjustable regulator and add power rectifier to prevent draw-back current when 3.3V is supplied by user.

- REV X7:
- 1) Remove net RSTO from J1-68 and Elevator;
  - 2) Add net MCU\_RESETB to J2-7;
  - 3) Add (as needed) level shifters (TXS0108) for these signals (SDHC\_CS0, SDHC\_CS1, SPI\_CS0, SPI\_CS1) for the TWR J12A;
  - 4) Add connections to ELE\_MISO, ELE\_MOSI, ELE\_SCLK, ELE\_SDA, ELE\_SCL, ELE\_ANA0, ELE\_ANA1, ELE\_ANA2, ELE\_GPIO4TPM, ELE\_GPIO5TPM;
  - 5) Remove the unconnected signals from elevator;
  - 6) Remove the useless signals for channel B of MIC2026.

REV X8: Remove MCU\_RESETB from Elevator.  
 REV X9: Swap pins of J2 in order to match with J11: J2-12 swap with J2-3, J2-14 swap with J2-5, J2-16 swap with J2-7, J2-18 swap with J2-9, J2-20 swap with J2-11, J2-22 swap with J2-13, J2-24 swap with J2-15, J2-26 swap with J2-17

- REV X10:
- 1) D7 is changed from LRTB\_G6SG to HSMF-A341-A00J1;
  - 2) Change resistors R38, R39 to 1% resistors;
  - 3) Change R5 and R6 to 10k, 1% resistors;
  - 4) Change C12 to 1uF capacitor;
  - 5) Change R21 to 9.09k 1% resistor;
  - 6) Change R27 to 1k 1% resistor;
  - 7) Pin swaps on U17.

REV X11: Pin swaps on J11, J2, U15 and U16.  
 REV X12: Back Annotate.

- REV A: Release
- 1) Add default setting for SW1 and SW2.
- REV A1: Swap nets to the pins of J3: J3-25 swapped with J3-41, J3-24 swapped with J3-22, J3-22 swapped with J3-23, J3-20 swapped with J3-19, J3-26 swapped with J3-20
- REV A2: Move GPIO4TPM to J3-67.

- REV A3:
- 1) Add routing the output of the DAC to J12-6;
  - 2) Add R52 and R53 to pull up I2C lines;
  - 3) Change R36 to 287ohm.

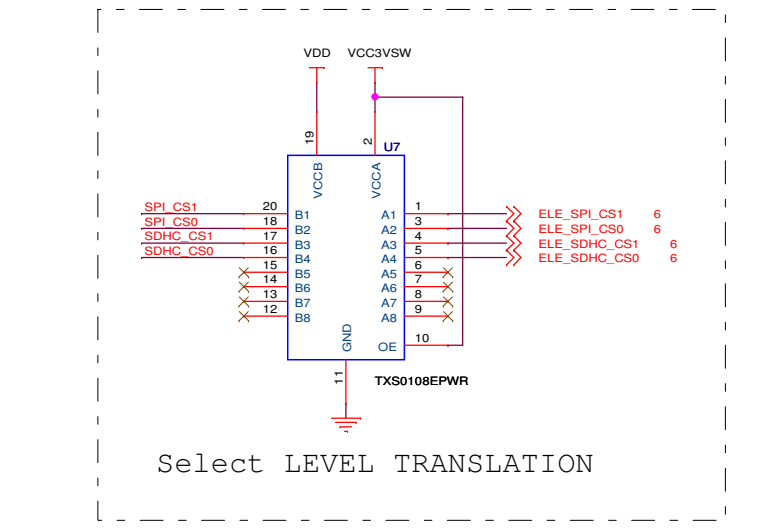
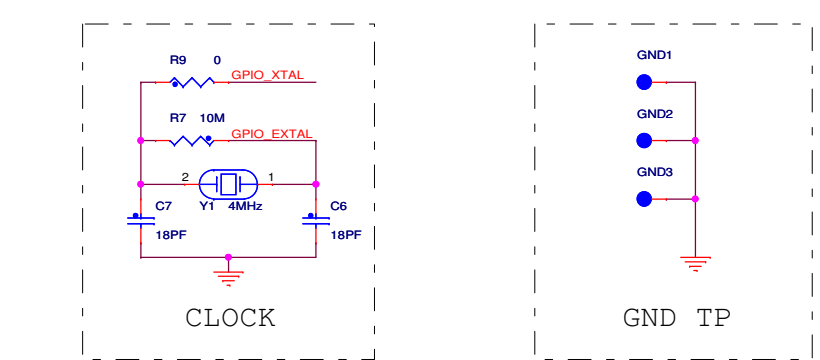
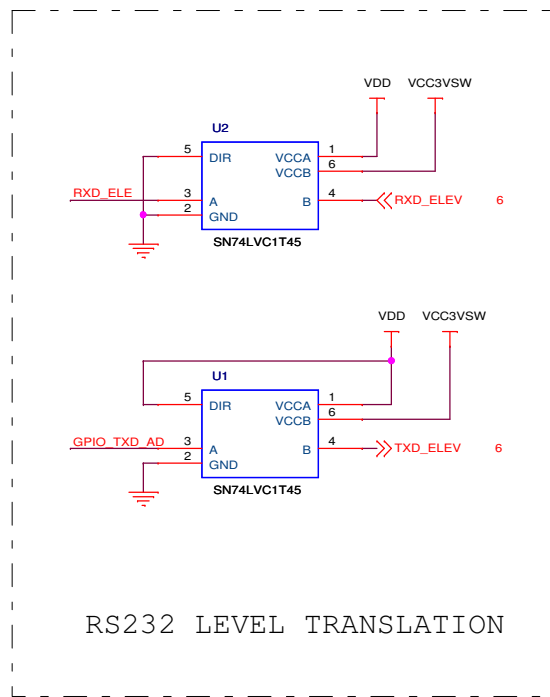
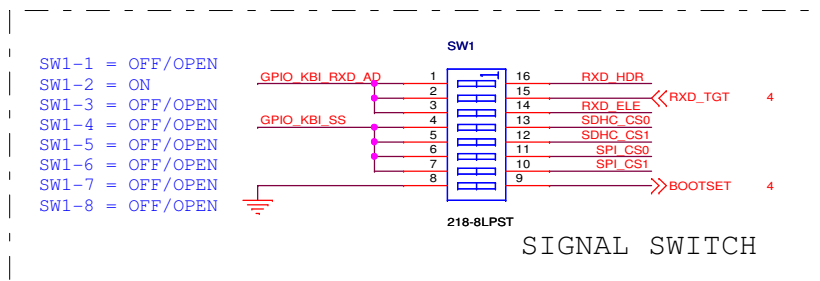
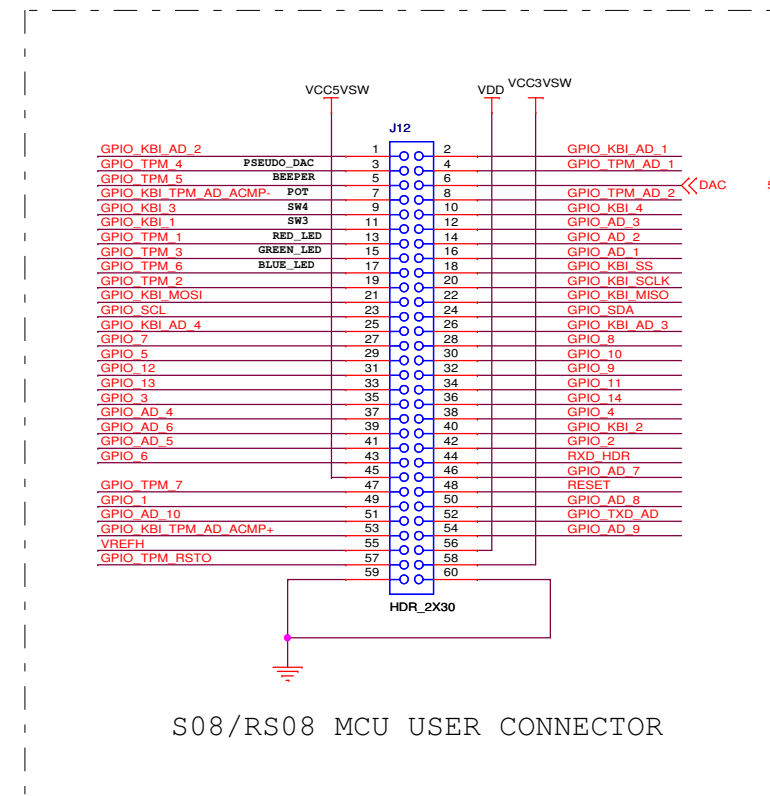
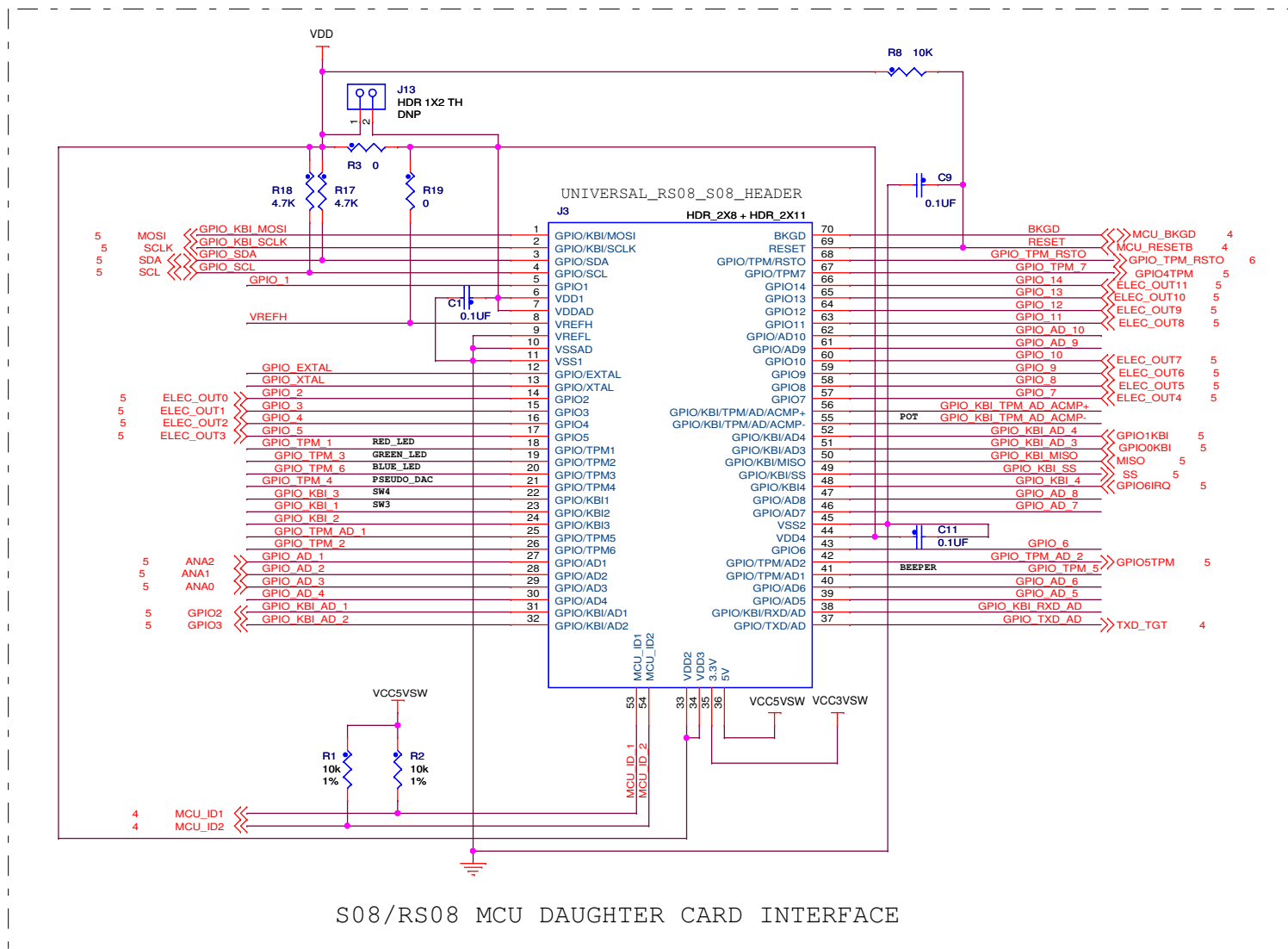
- REV A4:
- 1) Remove Q1 and R26, redraw the beeper circuit;
  - 2) Add J13 (DNP) across R3;
  - 3) Change label TP3 to DAC, change labels TP1,TP2,TP4 to GND;
  - 4) Change the JM60 power supply 5V rails to be un-switched.

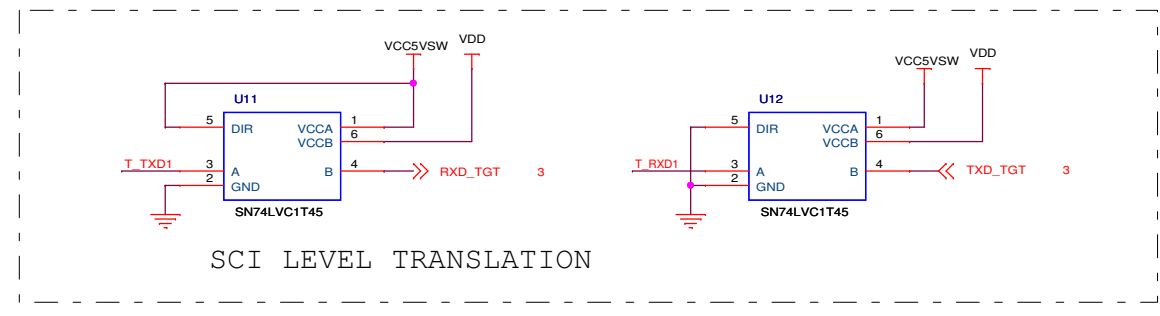
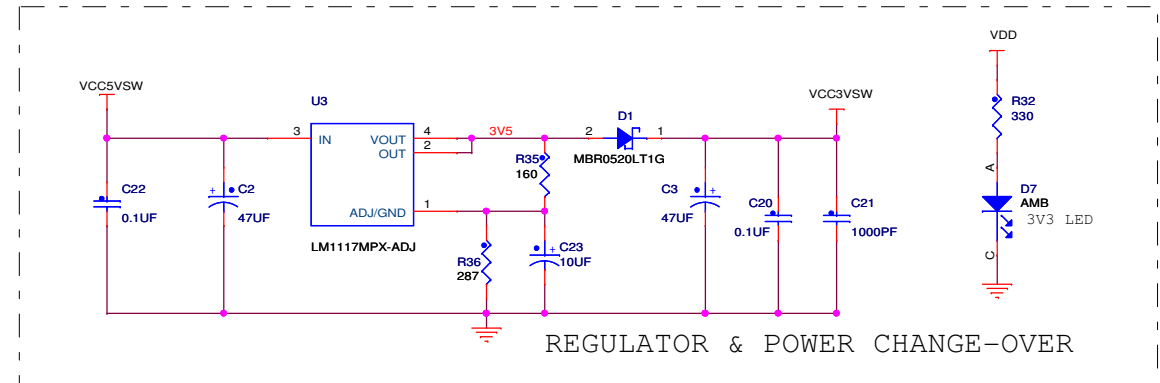
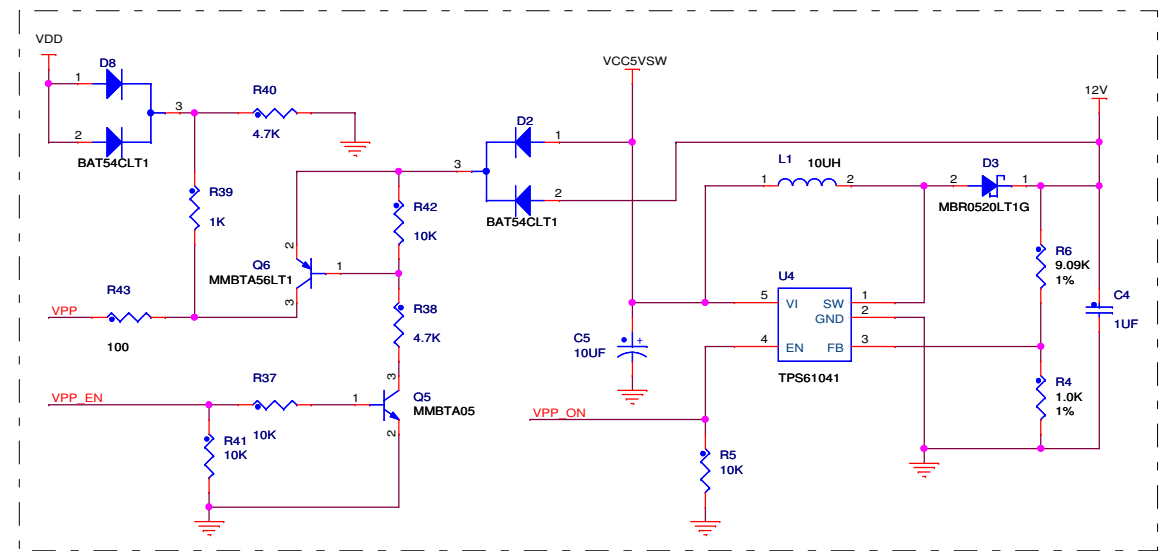
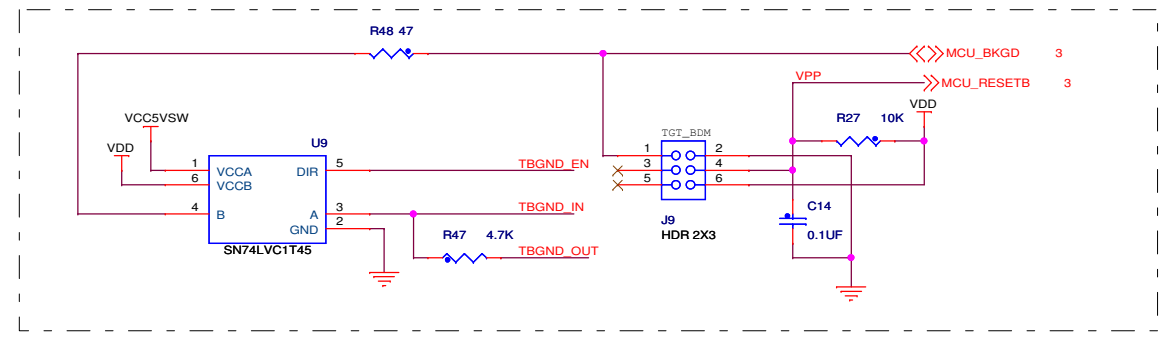
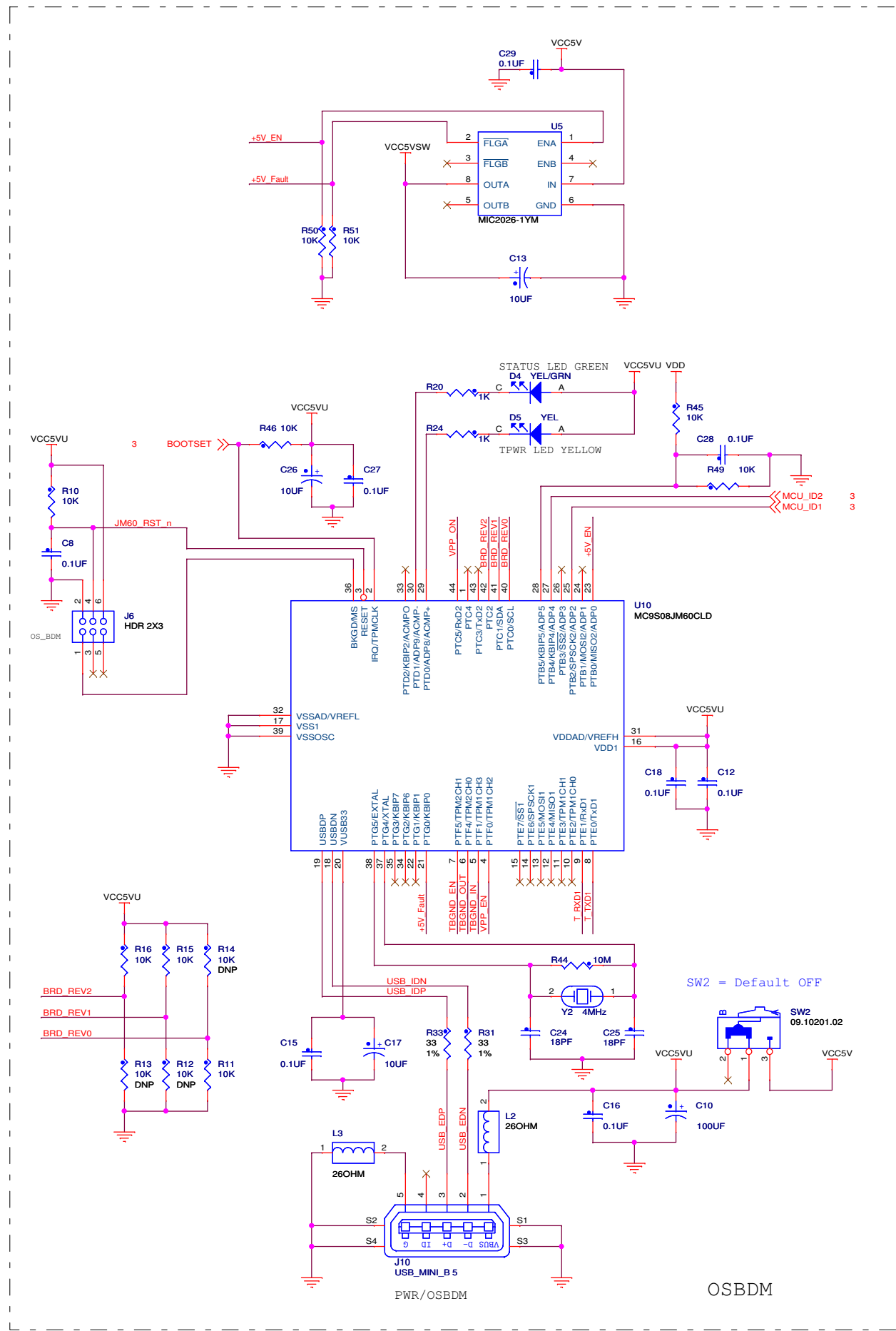
REV A5: Change the power rail for resistor on MCU\_IDx.  
 REV A6: Add some black text next to these signals on the J3 and J12 Header.

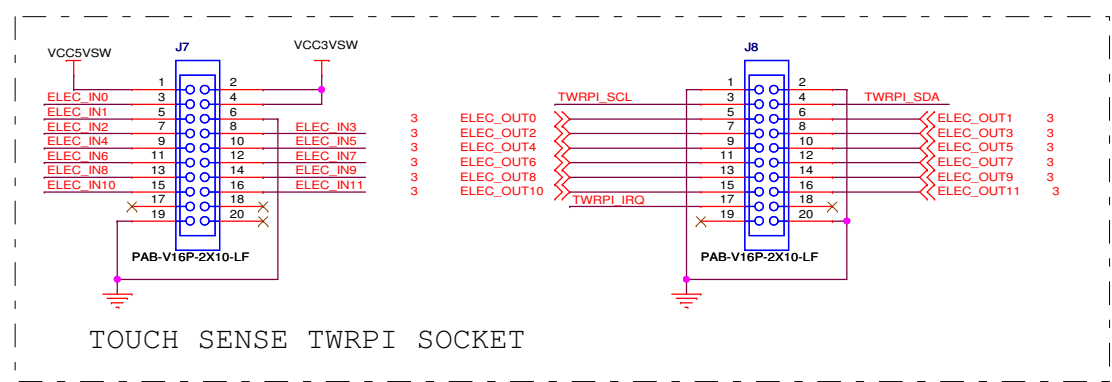
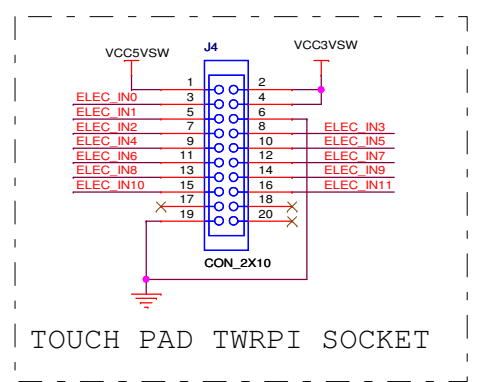
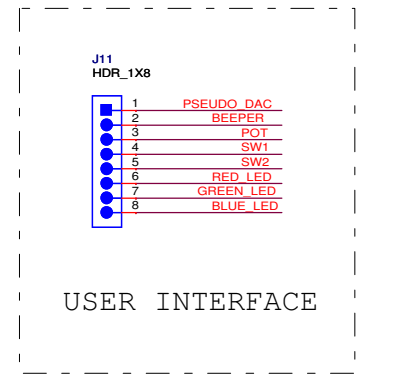
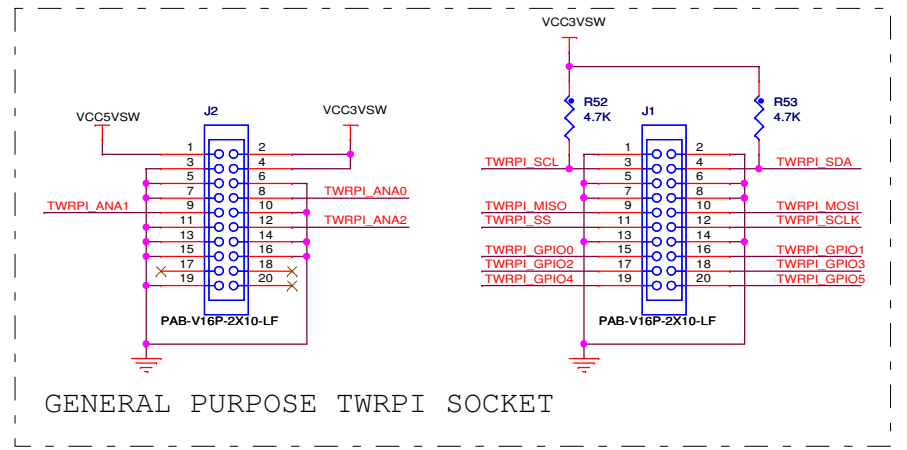
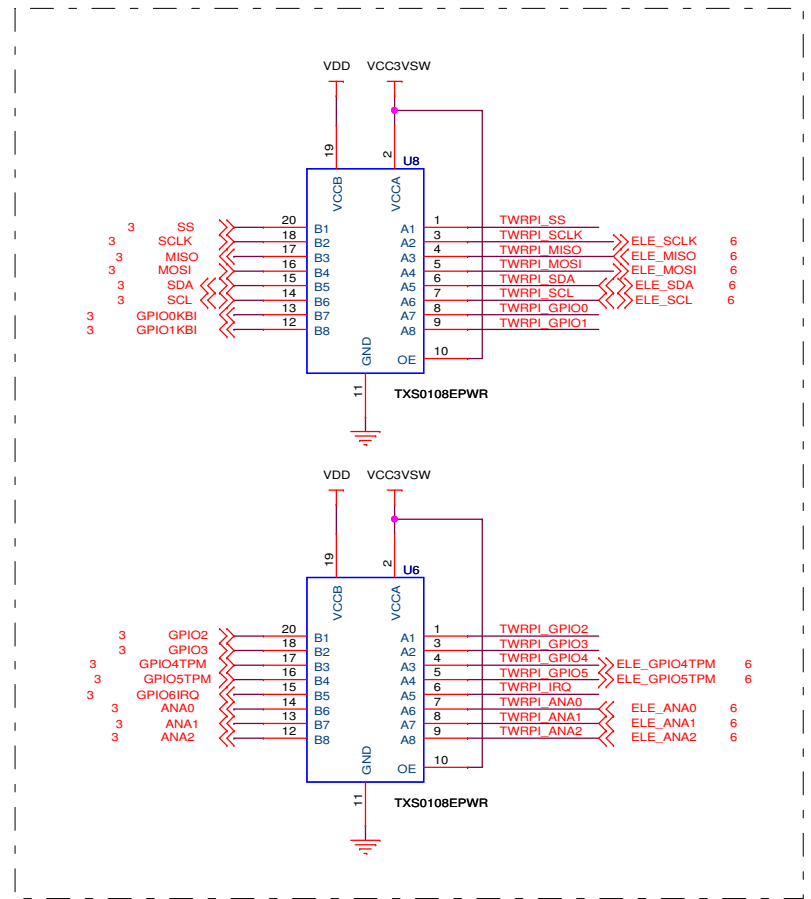
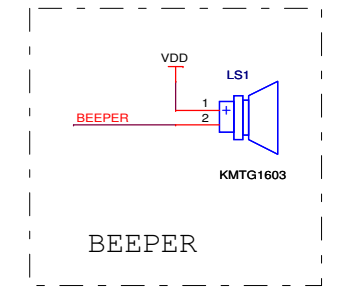
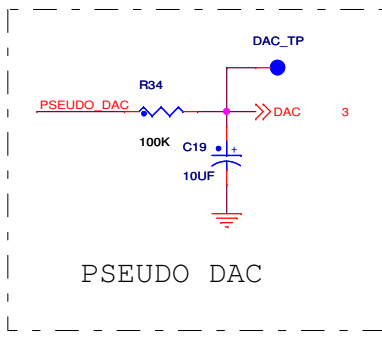
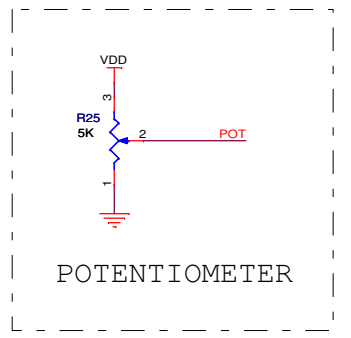
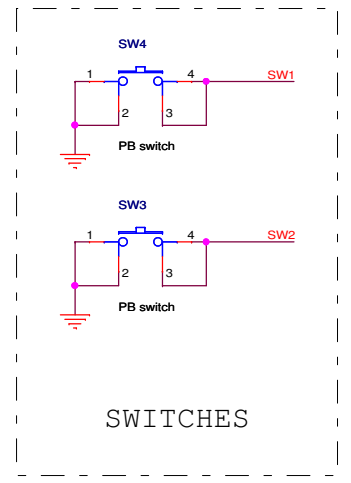
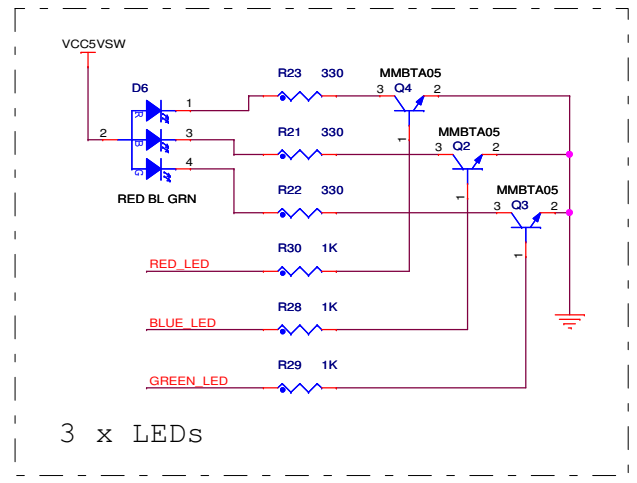
- REV A7:
- 1) Swap the nets on J12-45(GPIO\_TPM\_RSTO) and J12-57 (VCC5VSW);
  - 2) Add GPIO\_TPM\_RSTO to Elevator PRIMARY A63.

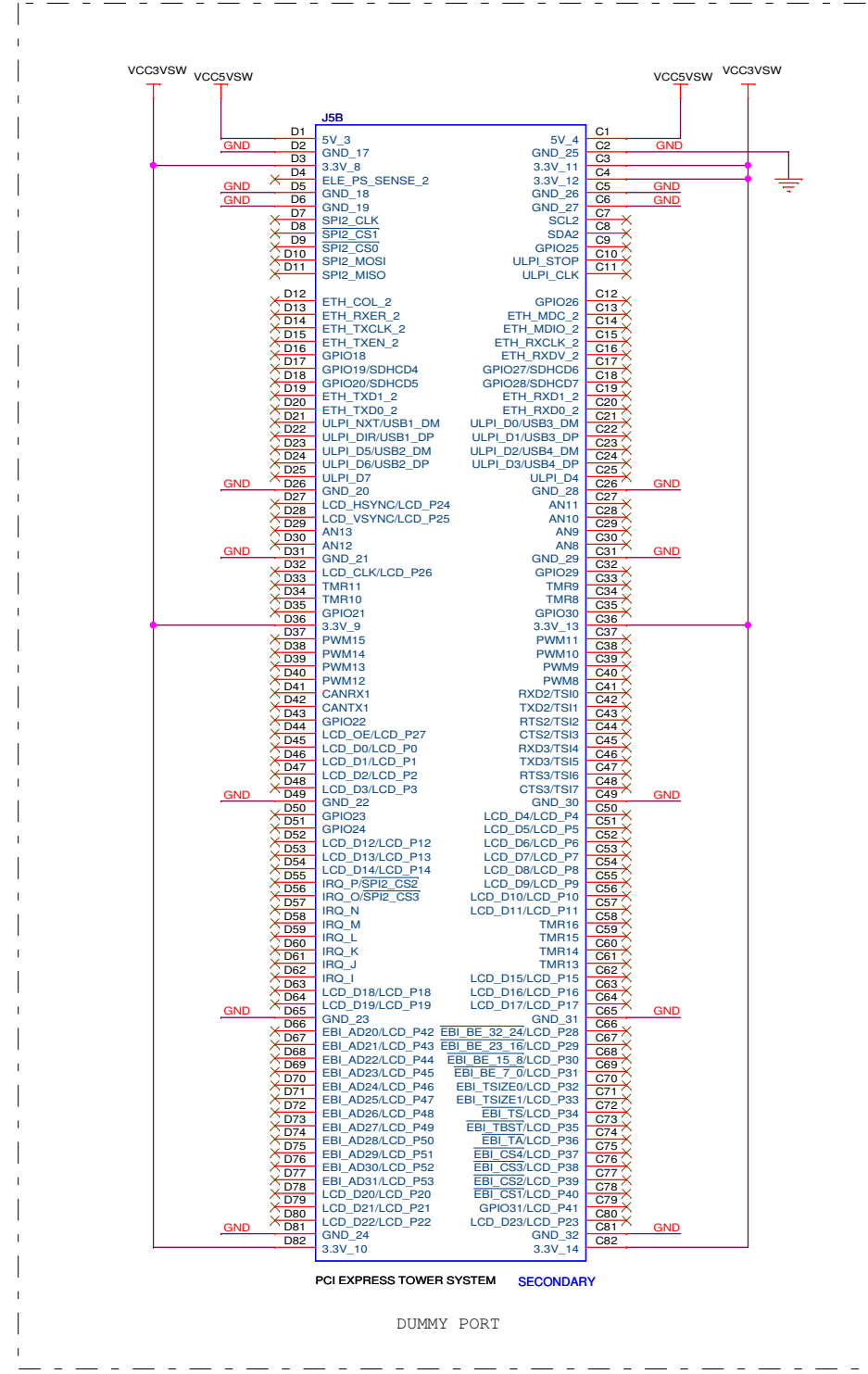
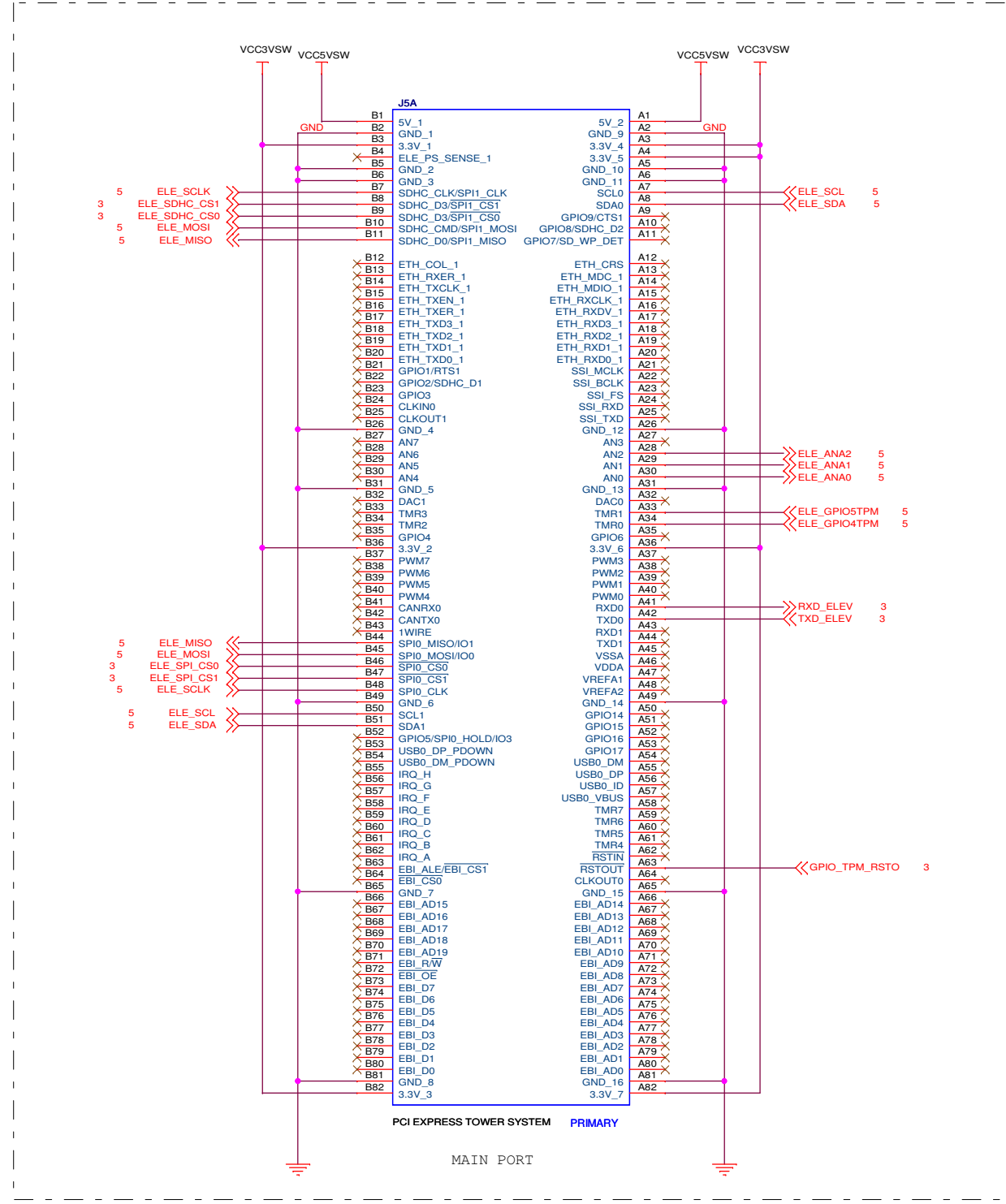
REV A8: Connect VDDAD, VREFH nets after R3.  
 REV A9: BDM REV configuration (R11 to R16) is changed.  
 REV B: Release.

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