

# BHI260AB Shuttle Board

## GENERAL DESCRIPTION

Bosch Sensortec’s BHI260AB shuttle board is a PCB with the BHI260AB, a smart sensor hub with integrated IMU sensor, mounted on it.

In addition to the BHI260AB, the board includes

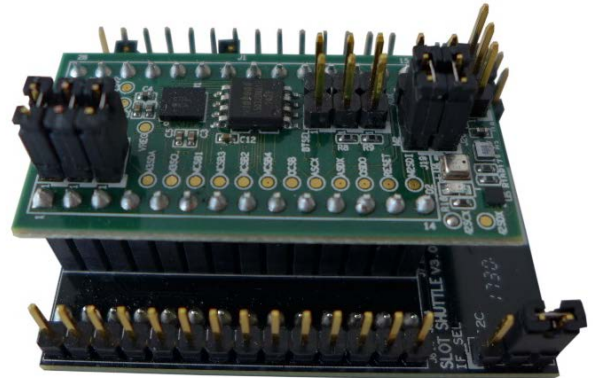
- ▶ on M2 master interface (configured as I2C):
  - ▶ a BME280 environmental sensor (p, rH, T)
  - ▶ a BMM150 magnetometer
  - ▶ an AK09915 magnetometer

on QSPI interface:

- ▶ a W25Q32FWSSI 4M-Byte flash memory connected to the BHI260AB.

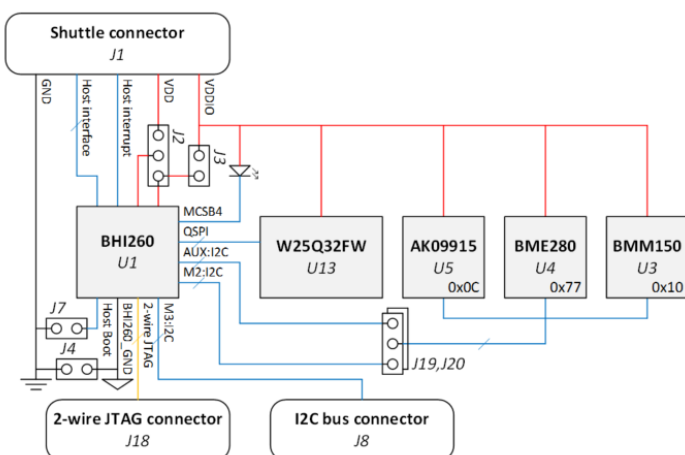
Addition sensors can be connected to the M3 I2C bus, using connector J8.

The shuttle board allows easy access to pins of the smart sensor hub via a simple socket. The shuttle board comes pre-mounted on a level-shifter board, which allows the PCB stack to be directly plugged into Bosch Sensortec’s advanced development tool (application board).

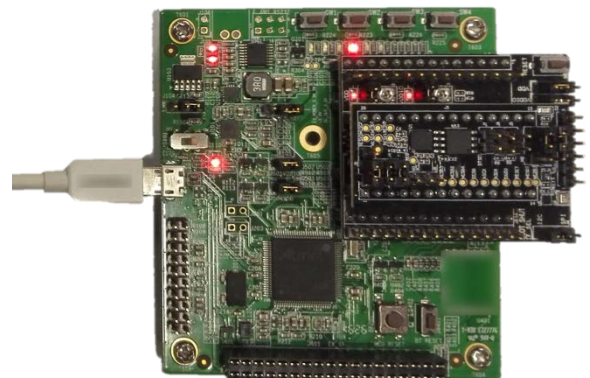


BHI260AB shuttle board mounted on level-shifter board (product photo may differ from real product appearance).

***Do not connect the shuttle board directly to the application board, as this can lead to severe damage of the shuttle board and its components.***

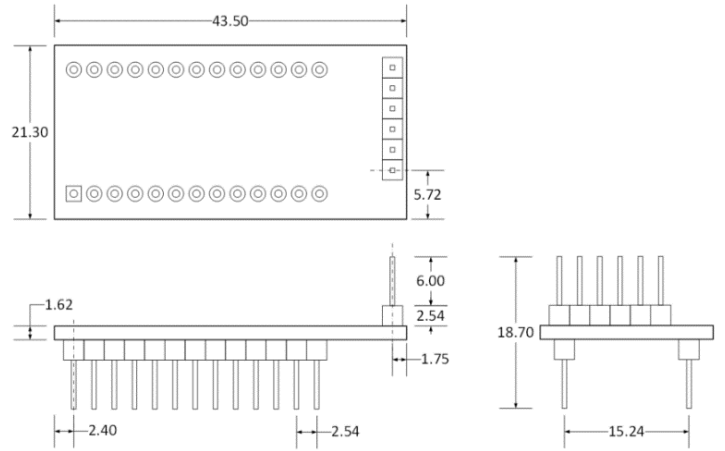
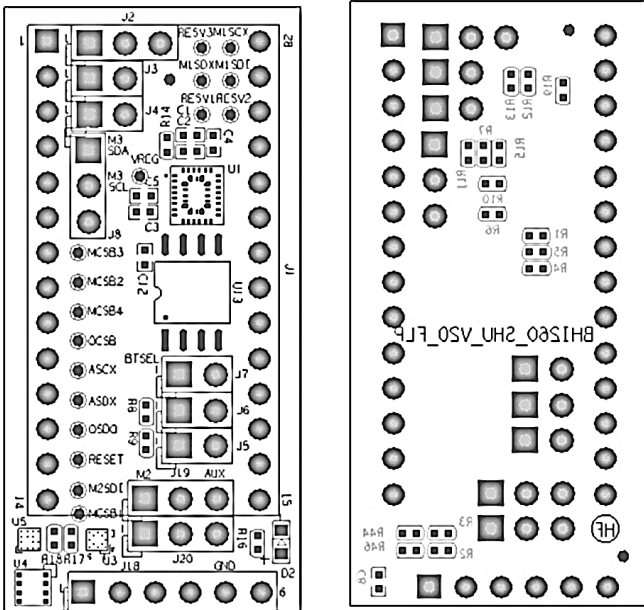


Block diagram of BHI260AB shuttle board



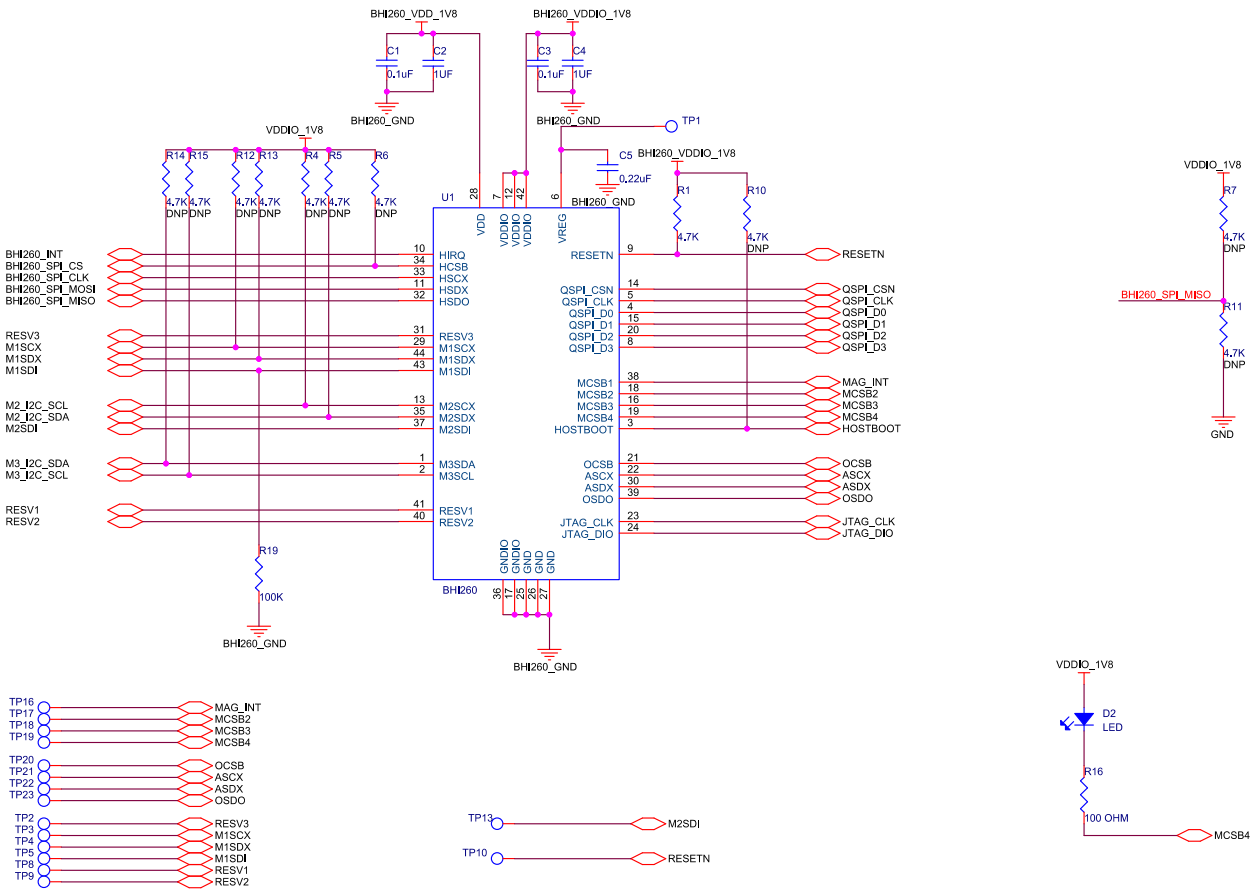
Connection of shuttle board, level shifter board and application board

Designator	Function	Description																																	
<b>J1</b>	Shuttle board connector	<table border="1"> <thead> <tr> <th>Pin number</th> <th>Pin name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>VDD</td> <td>Power supply (1.8V only!)</td> </tr> <tr> <td>2</td> <td>VDDIO</td> <td>Power supply (1.8V only!)</td> </tr> <tr> <td>3,23</td> <td>GND</td> <td>Ground</td> </tr> <tr> <td>4,15</td> <td>MISO</td> <td>Master-input-slave-output data pin of SPI bus (connected to BHI260AB host interface)</td> </tr> <tr> <td>5,17</td> <td>MOSI</td> <td>Master-output-slave-input data pin of SPI bus, or SDA of I2C bus (connected to BHI260AB host interface)</td> </tr> <tr> <td>6,18</td> <td>SCK</td> <td>Clock pin of both SPI and I2C bus (connected to BHI260AB host interface)</td> </tr> <tr> <td>7</td> <td>CS</td> <td>Chip selection pin of SPI bus (connected to BHI260AB host interface)</td> </tr> <tr> <td>21</td> <td>INT</td> <td>Host interrupt pin (connected to BHI260AB host interrupt)</td> </tr> <tr> <td>13,12,11, 10,28,27, 26,25,24</td> <td>COD[x]</td> <td>Device code for Application board, COD of BHI260AB shuttle board is [100011001].</td> </tr> <tr> <td>8,9,14, 15,16,19, 20,22,</td> <td>NC</td> <td>Not used.</td> </tr> </tbody> </table>	Pin number	Pin name	Description	1	VDD	Power supply (1.8V only!)	2	VDDIO	Power supply (1.8V only!)	3,23	GND	Ground	4,15	MISO	Master-input-slave-output data pin of SPI bus (connected to BHI260AB host interface)	5,17	MOSI	Master-output-slave-input data pin of SPI bus, or SDA of I2C bus (connected to BHI260AB host interface)	6,18	SCK	Clock pin of both SPI and I2C bus (connected to BHI260AB host interface)	7	CS	Chip selection pin of SPI bus (connected to BHI260AB host interface)	21	INT	Host interrupt pin (connected to BHI260AB host interrupt)	13,12,11, 10,28,27, 26,25,24	COD[x]	Device code for Application board, COD of BHI260AB shuttle board is [100011001].	8,9,14, 15,16,19, 20,22,	NC	Not used.
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<b>J2,J3,J4</b>	Access points to BHI260AB supply (e.g. for power measurement)	J2: BHI260AB VDD pad J3: BHI260AB VDDIO pad J4: BHI260AB_GND (GND+GNDIO) line																																	
<b>J5,J6</b>	Pull-up resistors for host interface running in I2C mode	J5: BHI260AB HSCX pad(SCK) J6: BHI260AB HSDX pad(SDA)																																	
<b>J7</b>	Boot source selection	J7: BHI260AB HOSTBOOT pad																																	
<b>J8</b>	M3 I2C interface for bus extensions	<table border="1"> <thead> <tr> <th>Pin number</th> <th>Pin name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>M3_SDA</td> <td>SDA pin of M3, with a 4.7kohm pull-up to 1.8V VDDIO</td> </tr> <tr> <td>2</td> <td>M3_SCL</td> <td>SCL pin of M3, with a 4.7kohm pull-up to 1.8V VDDIO</td> </tr> <tr> <td>3</td> <td>GND</td> <td>Ground pin.</td> </tr> </tbody> </table>	Pin number	Pin name	Description	1	M3_SDA	SDA pin of M3, with a 4.7kohm pull-up to 1.8V VDDIO	2	M3_SCL	SCL pin of M3, with a 4.7kohm pull-up to 1.8V VDDIO	3	GND	Ground pin.																					
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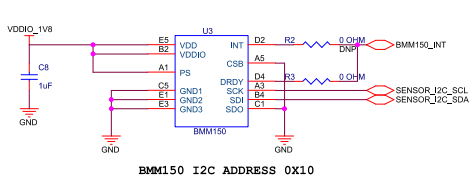


BHI260AB shuttle board outline dimensions (in mm)

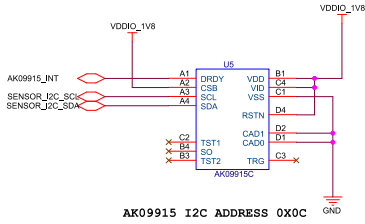
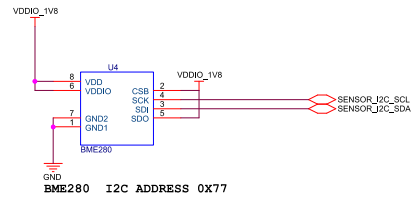
BHI260AB shuttle board layout – placement (top, bottom)



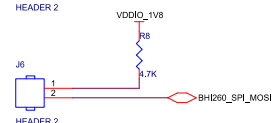
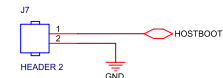
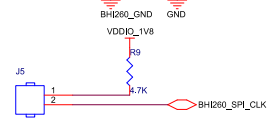
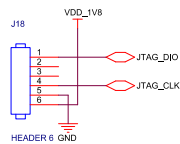
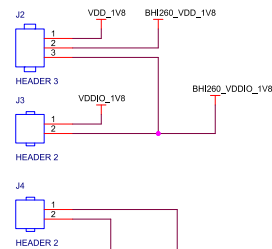
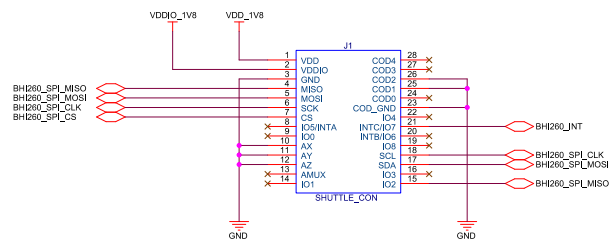
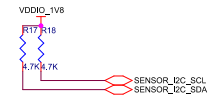
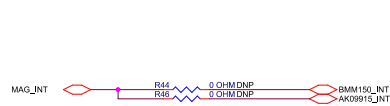
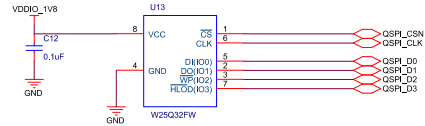
BHI260AB shuttle board schematics (1)



BMM150 I2C ADDRESS 0X10



AK09915 I2C ADDRESS 0X0C

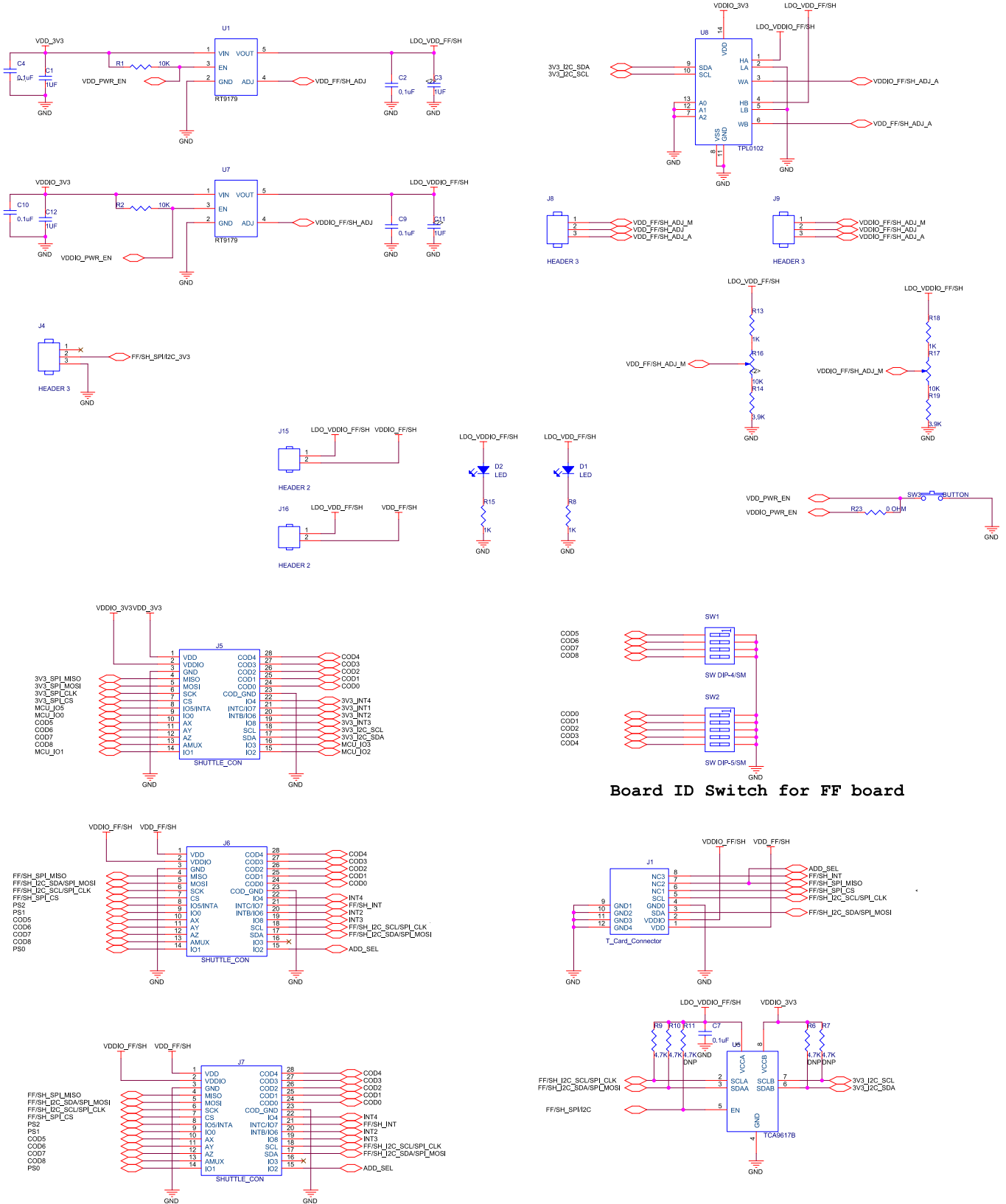


BHI260AB shuttle board schematics (2)

**Caution**

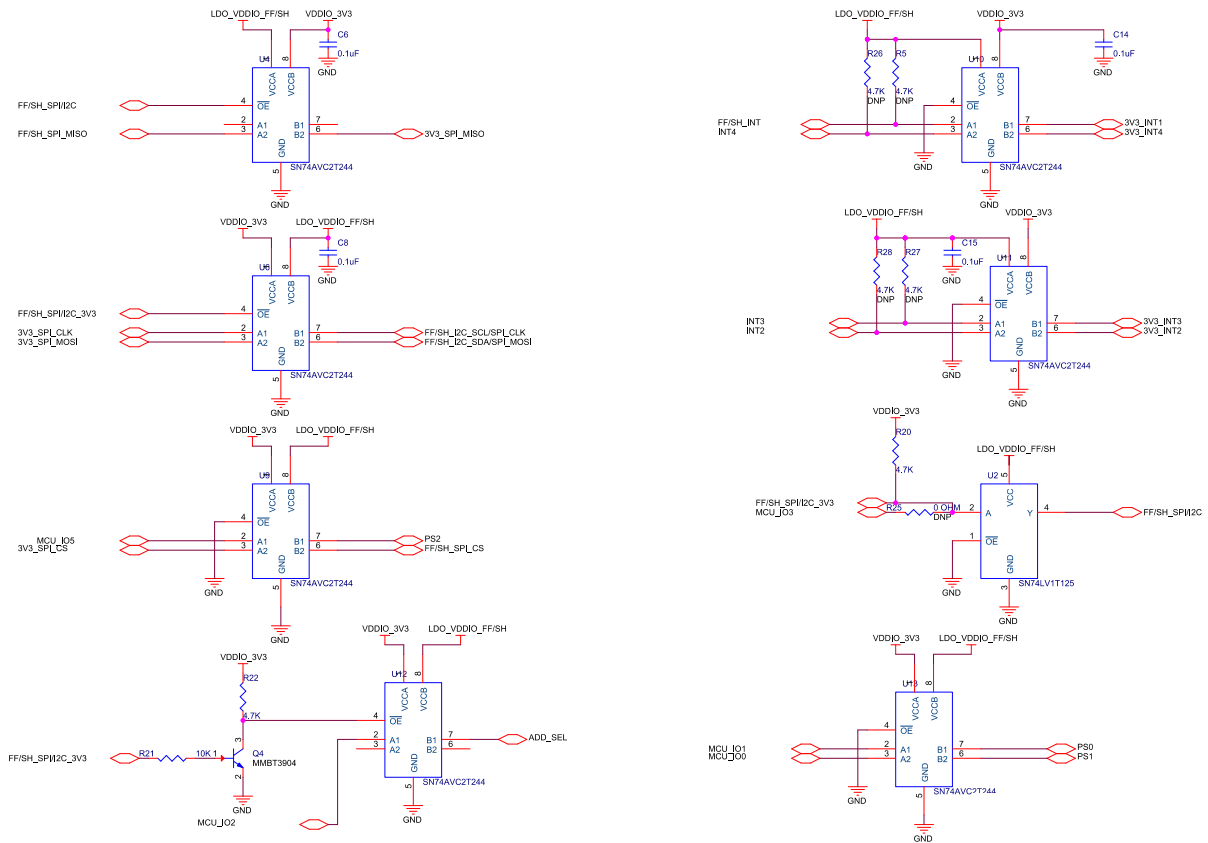
All switches (SW1, SW2) should be set to '1' when plugging in Shuttle board.

Jumper	Notes
J3	JTAG pin
J4	1-2 IF in I2C, 2-3 IF in SPI
J15/J16	Current Measurement for VDD/VDDIO
J8/J9	Auto/Manu Voltage-Adjust for VDD/VDDIO



Board ID Switch for FF board

Level-shifter board schematics (1)



Level-shifter board schematics (2)

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