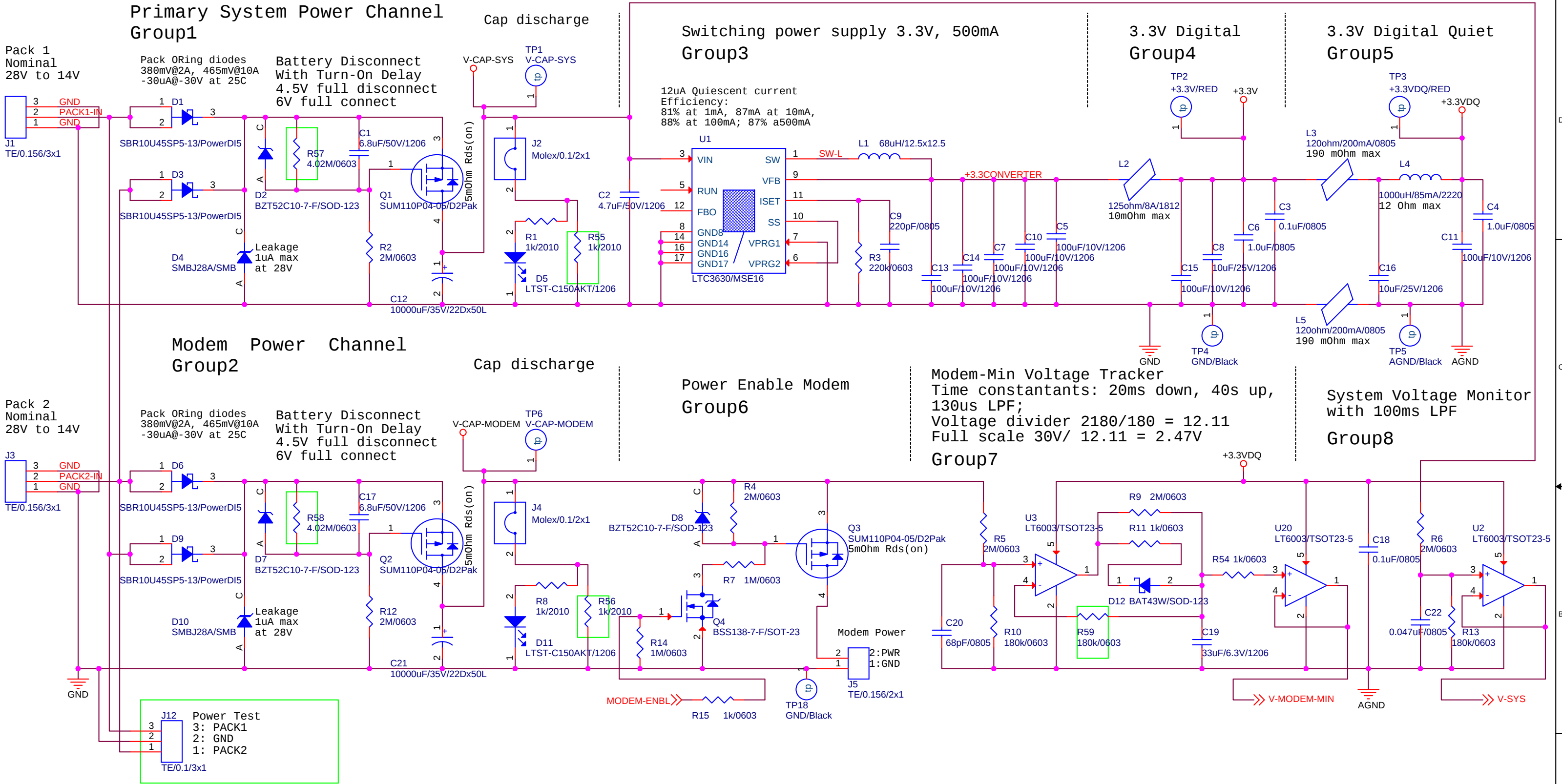
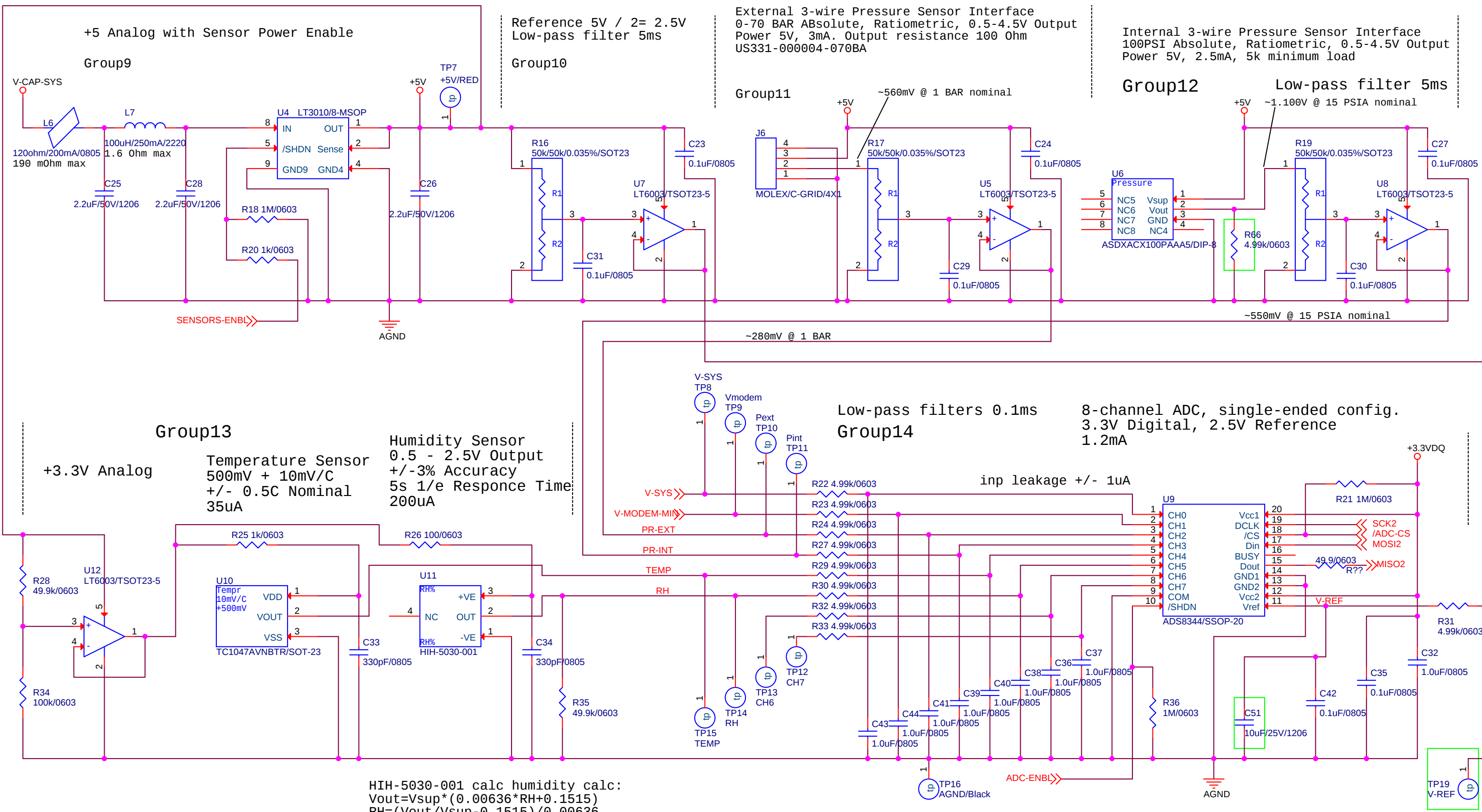




Rev0(01/24/2013): Initial Release
Rev1(05/07/2013): C1,C17(2.2uF to 6.8uF+4M), R2,R12(1M to 2M), R55,R56(1k, added), L3(1k to 120ohm), L5(600ohm to 120ohm), C11(10uF to 100uF), C19(10uF to 33uF), cont. Page2

MOB1 to MOB2 revision:
R55: 1k/2010 added
R56: 1k/2010 added
R57: 4.02M/0603 added
R58: 4.02M/0603 added
R59: 180k/0603 added
J12: Molex C-grid 3x1 added

		Monterey Bay Aquarium Research Institute 7700 Sandholdt Rd, Moss landing CA 95076	
Engineer Klimov		Page Title BEDS Mother Board/ Power	
Size B		Project: 901006	
Doc. or Part Number <Doc>		File Name (auto) 10020895-MOB3	
Page Modify Date (auto): Design Modify Date (auto): Full path (auto):		Rev 0	
Tuesday, February 20, 2018		Sheet: 1 of 4	
Tuesday, February 20, 2018		U:\ORCAD PROJECTS\BEDS\10020895-MOB3\10020895-MOB3.DSN	



Group13

+3.3V Analog

Temperature Sensor
500mV + 10mV/C
+/- 0.5C Nominal
35uA

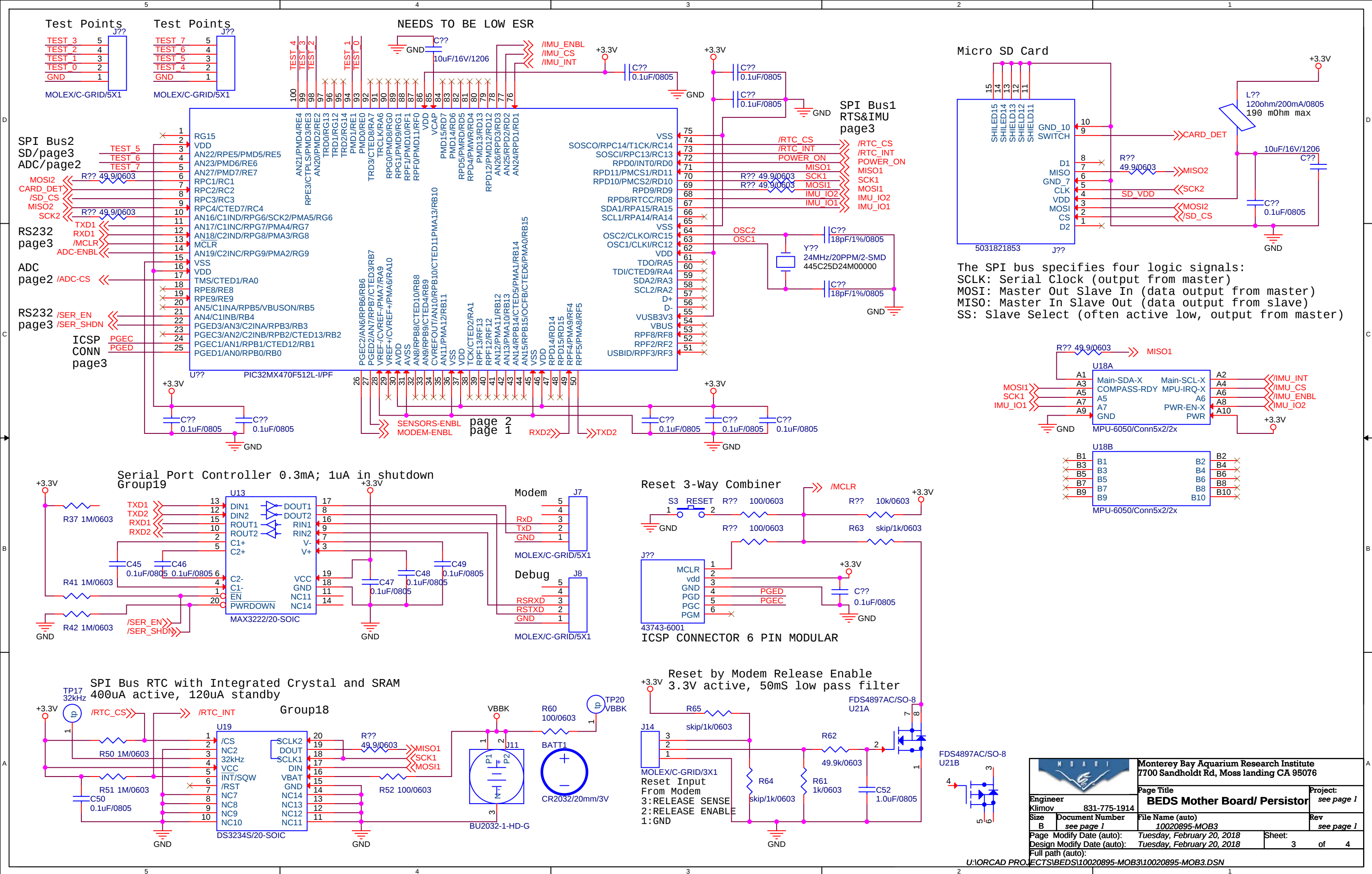
Humidity Sensor
0.5 - 2.5V Output
+/-3% Accuracy
5s 1/e Responce Time
200uA

HIH-5030-001 calc humidity calc:
 $V_{out} = V_{sup} * (0.00636 * RH + 0.1515)$
 $RH = (V_{out} / V_{sup} - 0.1515) / 0.00636$

MOB1 to MOB2 revision:
C51: 10uF/25V/1206 added
TP19: V-REF added
R66: 4.99k/0603 added

Rev2 (cont. from Page1): L6(1k/200mA to 120oHm/200mA), R25(100 to 1k), C33,C34(0.1uF to 330pF), R22-R33(1k to 5k), C37-C41,C43,C44(0.1uF to 1.0uF), C42(0.1uF to 0.1uF+10uF), R31(1k to 5k), cont. to Page3

		Monterey Bay Aquarium Research Institute 7700 Sandholdt Rd, Moss landing CA 95076	
Engineer Klimov		Page Title BEDS Mother Board/ Sensors	Project: see page 1
Size B	Document Number see page 1	File Name (auto) 10020895-MOB3	Rev see page 1
Page Modify Date (auto): Design Modify Date (auto): Full path (auto):		Tuesday, February 20, 2018 Tuesday, February 20, 2018 U:\ORCAD PROJECTS\BEDS\10020895-MOB3\10020895-MOB3.DSN	Sheet: 2 of 4



Bring-up Checklist

Fully assembled Mother Board, no Persistor Board, no MPU-6050 board. Set power supply to 12V, power up.

- 0. Connect jumpers to J2 and J4, verify LEDs light up, record PS current with and without LEDs running
- 1. Check voltage level and noise on 3.3V (TP2) with test load on 3.3V, 100mA (33 Ohm) and 200mA (16 Ohm)
- 2. Check voltage level and noise on 3.3VDQ (TP3) with 100mA (33 Ohm) test load on 3.3V power
- 3. Check operation of Modem_Enable with 5 Ohm 50W test load in J5 (2.3A).
- 4. Measure V-CAP-MODEM (TP6), voltage at J5.2, and difference between them (<50mV)
- 5. Check V-SYS (TP8) and V-MODEM-MIN (TP9) trackers with Modem-ENBL cycling and 5 Ohm 50W test load in J5
- 6. Check operation of SENSOR-ENBL and measure 5V (TP7) value and noise.
- 7. Check operation of TPU6 (U14.C27) and voltage on U18.A10

Sensors

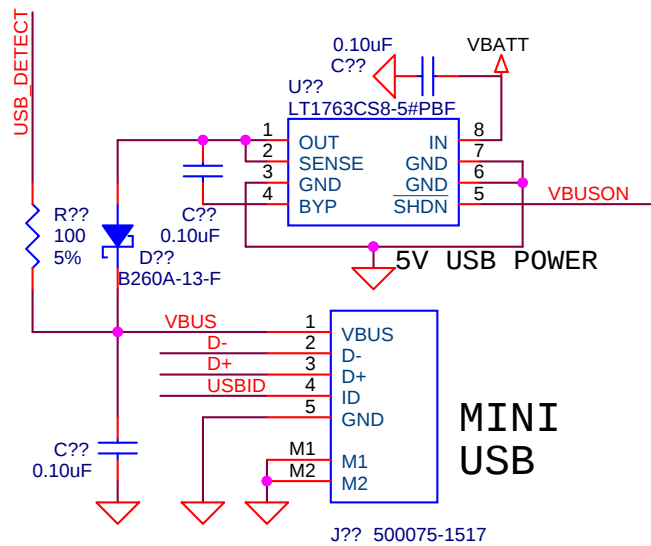
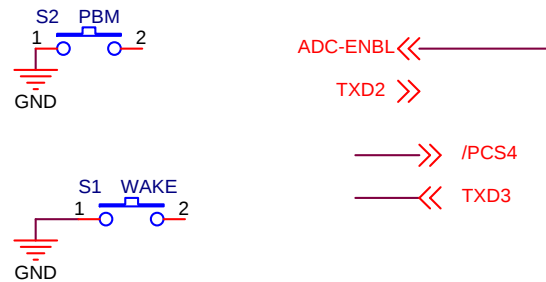
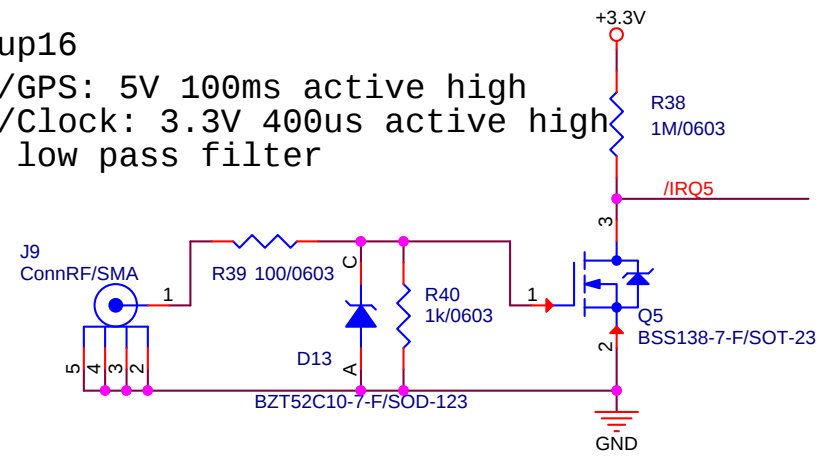
- 8. External pressure sensor. Check voltages on J6.3, J6.2, and TP10
- 9. Internal Pressure sensor. Check voltages on U6.1, U6.2, TP11
- 10. Temperature sensor. Check voltage on U10.1 (3.3V) and TP15
- 11. Humidity sensor. Check voltage on U11.3 (3.3V) and TP14.

Plug test Persistor board and run AD Test.
Record values on channels:

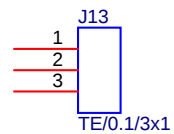
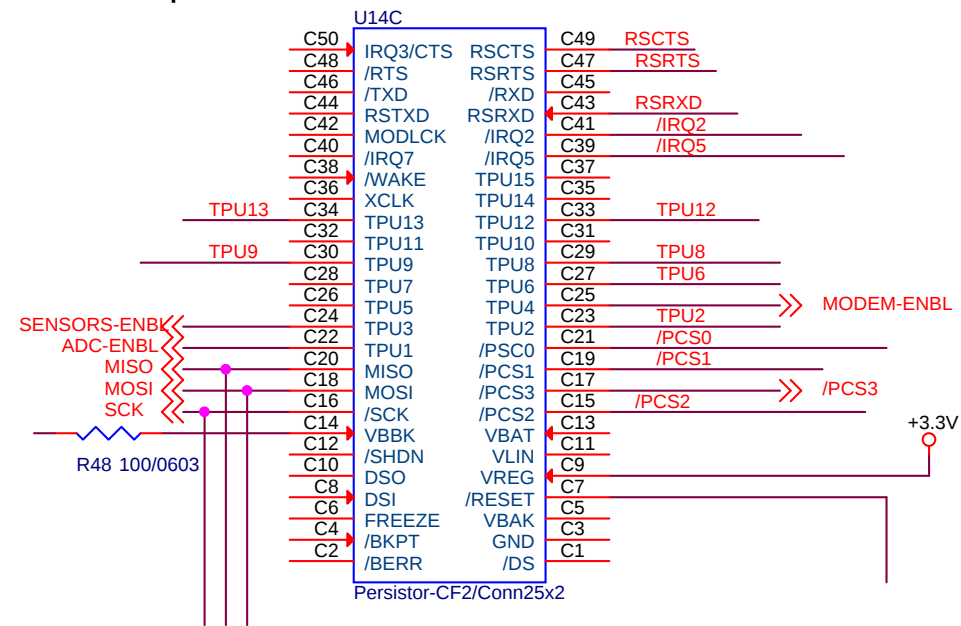
- 0:
- 1:
- 2:
- 3:
- 4:
- 5:

		Monterey Bay Aquarium Research Institute 7700 Sandholdt Rd, Moss landing CA 95076	
Engineer Klimov 831-775-1914		Page Title BEDS Mother Board / Checklist	Project: <i>see page 1</i>
Size B	Document Number <i>see page 1</i>	File Name (auto) 10020895-MOB3	Rev <i>see page 1</i>
Page Modify Date (auto): Design Modify Date (auto):		Tuesday, February 20, 2018 Tuesday, February 20, 2018	Sheet: 4 of 4
Full path (auto): U:\ORCAD PROJECTS\BEDS\10020895-MOB3\10020895-MOB3.DSN			

Group16
PPS/GPS: 5V 100ms active high
PPS/Clock: 3.3V 400us active high
5nS low pass filter

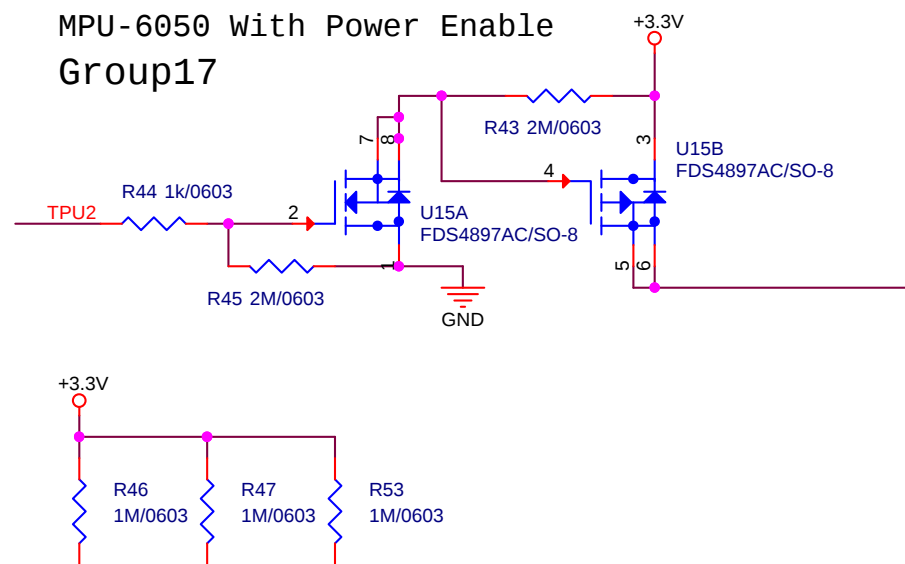


Group15 Persistor Board



MOB1 to MOB2 revision:
J11: BU2032-1-ND-G added
R60: 100/0603 added
J13: TE 0.1/3x1 added
J14, R61, R62, R63, R64, R65, U21 added
Rev2 (cont. from Page2): Install J11 (BU2032)
instead of J10 (Keystone/3003)

MPU-6050 With Power Enable Group17



Title <Title>		
Size B	Document Number <Doc>	Rev <RevCode>
Date:	Tuesday, February 20, 2018	Sheet 5 of 5