Pandamoto Guidelines:

**General Guidelines**

1. Impedance Controlled Routing:
   1. 50 Ohm Single ended traces
   2. 100 Ohms Differential traces
2. Trace Length Matched Routing on all differential traces should be less than 10mils
3. 4 Layer Stackup
4. Only 01005 Packages can be placed on the bottom side of the board (Resistors and Capacitors)
5. T1 Can be on the bottom of the board
6. J2 is locked
7. J1 is not locked but we would like it where it is, if your team decides that it cannot fit there we can move it but it must be oriented in the current direction and it must be close to the bottom of the board on the right side
8. J3, J4 are locked and cannot be moved

**Schematic Page Specific Guidelines:**

**1. Block Diagram:** Nothing

**2. FPGA:** Nothing

**3. FPGA Config:**

1. Place R33 close to FPGA Pin W18
2. Place all 01005 bypass capacitors close to their respective pins

**4. FPGA Bank 1**

1. Place all 01005 bypass capacitors close to their respective pins
2. HS\_D[0-4]\_[PN] are differential traces with a characterstice impedance of 100 ohms/50 ohms single ended.
3. Place Resistors R13, R15, R16, R17, R18, R19, R31, R35, R36 and R37 as close as possible to pins
4. Place Resistors R3, R4, R5, R6, R7, R8, R9, R10, R11 and R12 as close as possible to R13, R15, R16, R17, R18, R19, R31, R35, R36 and R37 respectively
   1. R3 – R13
   2. R4 – R15
   3. R5 – R16
   4. R6 – R17
   5. R7 – R18
   6. R8 – R19
   7. R9 – R31
   8. R10 – R35
   9. R11 – R36
   10. R12 – R37
5. Nodes LS\_D[4-0]\_[PN] can be longer to accomodate the above resistor placement

**5. FPGA Bank 2**

1. Place all 01005 capacitors close to their respective pins
2. DS[0-4]\_[PN] are differential traces with a characteristic impedance of 100 ohms/50 ohms single ended

**6. FPGA SERDES:** Nothing

**7. FPGA Power**

1. Place all 01005 capacitors close to their respecitve pins

**8. DSI FPC Connector**

1. Place all 01005 capacitors close to their respecitve pins

**9. Audio**

1. Use R56 to connect GND and AGND at a single point

**10. Battery Charger**

**11. Ideal Diode**

**12. Button Connector**

**13. Daughter Card Connector**

**14. Power**

1. Place all 01005 capacitors close to their respective pins