

John Seamons (jks@jks.com)
Point Reyes Ventures, LLC

Project: WRX
Version: Prototype v0.1
Date: 15 July 2015

I need the following:

- Quotation for PCB, parts and assembly of three (3) prototype units. No test needed since I won't have test fixture yet, but maybe BGA x-ray to check connections?
- Quotation for PCB, parts, assembly and test of one hundred (100) production units using the 6-layer PCB.
- 100 unit quotation but using a 4-layer PCB instead.

One goal of this project is the lowest PCB and assembly costs possible. I will try and fit the design in 4 layers for the production version. Please let me know of any changes I can make to the PCB layout to reduce the assembly costs.

Documents

- Gerbers
- Drill file
- Centroid (rotation) file
- BOM
- Assembly drawing
- Schematics

PCB specification

- 117 x 55 mm, 6 layers.
- Standard FR4, 1 oz copper.
- Standard 1.6 mm / 0.63 inches thickness (needed by edge-mount SMA connector).
- Standard ENIG, or similar, finish suitable for BGA and fine pitch QFP packages.
- Standard green solder mask, top and bottom.
- Standard white silkscreen, top only.

PCB design

- Solder paste gerbers are only suggestions. Change to match your manufacturing process.
- 0.2 mm / 8 mil minimum trace width & spacing.
- 0.3 mm / 12 mil minimum drill size.
- plated holes: #181 0.3 mm / 12 mil, #141 0.4 mm / 16 mil, #54 1.10 mm / 43 mil
- NPTH: #4 3.17mm / 125 mil
- Via-in-pad for QFPs: Yes, but vias are covered with solder mask
- #691 SMT pads
- 0402 inch smallest SMD package
- #1 BGA, 256 pin, 17x17 mm, 1 mm pitch
- #6 fine-pitch parts (≤ 0.5 mm lead spacing)
- #3 through-hole parts
- #1 edge-mount part
- #2 RF shield cans with removable cover

Very Important – soldering of header connectors:

The two 26-pin, 2.54 mm / 0.1 inch header connector strips (ZB1 x2) are mounted **UPSIDE DOWN** so the solder pins are on the **TOP (COMPONENT) SIDE** of the board. These two diagrams try to explain. Also, the tail length of the header pins is **8.08 mm** which is **longer** than standard. Be sure to use a part that has this longer tail length. Please ask me if you have any question about this. Thank you.

