



PCB Design and Development

SHAX Engineering and Systems PCB design includes digital, analog and RF circuits design and implementation. Customer's functional requirements and specifications are maintained through the design process to final product. In the early stages of the design, Shax engineers' will closely look to the design constrains and technological challenges. They will address complex issues related to complex circuits and high speed design. These issues include signal integrity, cross talk, jitters and inter-symbol interference. Whether the design for communications, wireless, video, audio, image processing, medical or test instruments, these issues are similar and common in many ways. Our involvement in the project is not limited only to the design activities. We also provide analysis and recommendations to the customer of the best technological solutions which suit their applications.

Design phase starts with the layout of block diagrams representing the functionalities of the system. Then schematics representing these blocks circuits will be entered. For complex and high speed circuits, simulation may be required. Shax's engineers will perform simulation tasks and will enter critical properties of the design into the schematics to identify rules for critical signals and the properties of blocks or sections. Instructions related to components layout properties shall be defined and identified. The notes highlight these instructions including layout characteristics such as impedance, control signals, type of coupling, strip line, trace width and signals delay will also entered into the schematic.

When the schematic is completed the NETLIST will be produced. Clients have the option off working with Shax's on the layout or working with other layout house.

Shax's involvement in board design and implementation is summarized as follows:

- Review customers' design requirements, specifications and determine critical design issues.
- Generate block and sub-block diagrams and that represents the specifications.
- Generate master component list for the most critical components for early cost projections
- Generate preliminary cost and power budget
- Enter the design in schematic capture and generate NETLIST and bill of materials (BOM)
- Provide layout or interface with the client layout staff to provide supervision and direction for critical signals route, impedance characteristics and finalize PWR and GND and place decoupling etc.
- Integrate firmware and perform testing and debugging
- Generate engineering documentation and test data