



PCB Layout

Printed circuit board (PCB) layout becomes more complex as pin density and frequency is increased. Due to the integration of various devices and complexity of the functionality of PCB boards, layout engineers are faced with enormous challenges to produce a layout that meets the systems characteristics. Furthermore, components shall be aligned to reduce the trace length as well as the real state of the board. This trade off creates additional challenges that the designers will face to produce PCB with free glitches. Therefore, PCB designers are effectively reduces system noise due to power plane distribution. And terminate the signal line to diminish [signal reflection](#), minimizes [crosstalk](#) and [ringing](#) between parallel traces, reduces the effects of ground bounce and meets the matching [impedance](#) characteristics.

During the layout process, our designers will rout the signal from one point in the design to the other points without deteriorating the engineering characteristics. Therefore proper routing of the [transmission lines](#) and traces, will maintain the [signal integrity](#) characteristics hence reducing the levels of noise due to [cross talk](#), [reflections](#) and [ringing](#). Additionally, proper routing will minimize [Pin-to-pin delay](#) the issue which compromises signal integrity.

Shax Engineering PCB layout team has maintained technical knowledge and practical experience to deal with complex design issues. They work with our customers' engineers to address problems related to signal integrity and reliability issues. They adhere to the design instructions and guidelines for routing critical signals to maintain design characteristic levels and avoid issues related to deterioration of the signal integrity. By incorporating Design for Manufacturing (DFM) practice, design alternatives are evaluated for overall design economics. They balance the effort and cost associated with development and refinement of the design to the cost and quality leverage that can be achieved.

Our in-house software and tools will enable us to maintain layout functionality and provide our customers with state-of-the-art PCB layout results. Beside measuring the impedance and estimating losses due to the [skew](#) and [slew](#), we will provide our customers with our recommendations to optimize their products and avoid problems related to the signal integrity issues.

When the layout is completed, Shax Engineering and Systems engineers will provide the customers with the design materials to review and approve. Upon our customer's approval, the various design files including PCB manufacturing files, assembly data, bill of materials, solder paste stencil files, SMD placement files and test point files shall be packaged for the customers. In addition, layout design information shall be packaged and converted to [Gerber Data](#). Design documentation will be provided to the customers in multiple formats. An electronics media format as well as the paper format shall be provided.