IFTEST

Printed Circuit Board (PCB) Design by the expert
Designed by the professional - know how!

Many companies want to create the PCB Design for their applications in-house. The reason is that a broad range of CAD software is now commercially available. However, as soon as a complex layout has to be designed, substantial know-how of manufacturing processes and tolerances is essential in order to achieve maximized cost efficiency and highest quality standards.

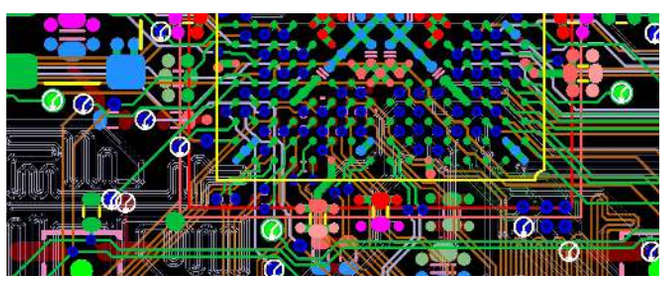
1 PCB Design - make or buy?

Iftest does not only has a team with more than 100 years of experience in PCB design but also has broad in-house know-how about printed circuit board assembly as well as engineering expertise about how to design and build electrical testing equipment. A high number of projects with diverse applications and requirements form the foundation for a solid understanding how to optimize PCB design. In particular when designing complex layouts such as high speed designs for fast data communication or when designing a highly miniaturized PCB, the Iftest internal know-how in the manufacturing plays a decisive role. Many times customers use PCB design services from Iftest in order to leverage their internal resources towards their core competencies and higher value added tasks such as innovation and product development.

2 Use Cases – Iftest, a proven expert in many use cases and fields of application

Use Case Medical Devices

Many medical device products need a high speed data communication electronics device. This requires a high speed PCB design which in turn requires multiple layer stack-up. These requirements together with electromagnetic compatibility, irradiation compatibility result in a limited amount of electronic components being available. In addition, the final product might have to be autoclavable and needs to be compliant with a range of regulatory guidelines as for example ISO 13485. Iftest manages those demands by a tight collaboration between hardware development, PCB Design and PCB Assembly.



High-Speed Design

Use Case Energy (Smart Grid)

For products in the field of Smart Grids different requirements are important for product design: high voltages and currents, resulting isolation distances, high speed communication, safety, harsh environmental conditions such as temperature and humidity as well as wireless communication (e.g. GSM, Bluetooth) are important use case demands.

Design for Energy (Smart Grid) application

Use Case Connected Smartwatch

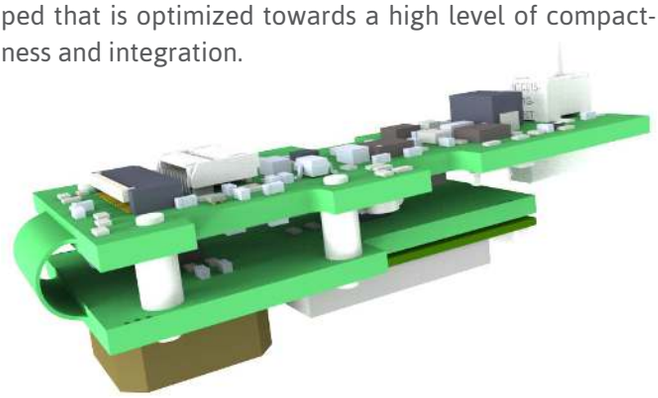
Challenges in the field of connected smartwatches comprise a high degree of miniaturization in all three dimensions, meeting ultra high mechanical tolerances, high consumer quantities as well as development of a design that is optimized for the dedicated manufacturing process.

The solution for connected smartwatch electronics consists in a product deisgn which was optimized for cost efficiency together with a newly developed dedicated manufacturing process. An important parameter for this newly developed process was to design it for production capacities to meet consumer quantity demands.

Smartwatch electronics, design optimization for high miniaturization, cost efficiency and production capacities.

Use case Starrflex and Flex applications

For Starrflex and Flex application high degree of miniaturization and many times high production quantities are required. The goal is to achieve a highly compact design while integrating many functionalities in the smallest space possible. Connectors shall be eliminated and the amount of cables minimized. In order to achieve manufacturability, Iftest developed specific manufacturing tools. As a result and solution, a PCB design was developed that is optimized towards a high level of compactness and integration.



3D-Model eines Starr-Flex Designs

3 What is a good PCB design?

A good PCB design is characterized by addressing a number of different criteria:

+ Temperature range, humidity, vibrations and compliance with electromagnetic safety guidelines as well as all other applicable regulatory guidelines for the respective use case
+ Execution of a process FMEA (Failure Mode and Effect Analysis) and optimization of manufacturing concept (Design-for-Manufacturing, Design-to-Cost)
+ Development of a test concept and the required test devices: Design-for-Testing
+ Lifecycle management: securing availability of all electronic components over the entire product life cycle of the device
+ Design-for-Logistics: storage, handling and shipment logistics of the device

Iftest AG

+ Partner for industrial and medical electronics
+ Services
  – Consulting
  – Elektronics hardware development
  – Embedded software development
  – PCB design
  – Fast prototyping
  – PCB Assembly: SMT and THT
  – Module and Device Assembly

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