



Altium

PCB Design Career & Team Tips

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How to Become a PCB Designer

How to Become a PCB Designer

The job of the PCB designer is extensive. They start by creating the library models or footprints for the parts that will be included on the print circuit board within the CAD system. Then the designer will create the circuit board design within the CAD system using the footprints that have been created. Once all of the required footprints have been placed on the board, the designer will connect all of the electrical connections using lines that represent metal in a process called trace routing.

What Kind of Education is Required to be a PCB Designer? – For a better success as a PCB designer it is important to have a degree that includes courses in drafting, computer-aided design, electronic design, or other related areas of study. As PCB designs become more complex, more companies will begin to require degrees for their PCB designers.

What is the Future for the PCB Designer? – With more and more electronics such as IoT becoming everyday parts of our lives, the future of electronic design is very bright. The industry needs more PCB designers, and those that are currently involved are reporting that their compensation and job satisfaction is on the rise.



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PCB Designers for SpaceX and Beyond

PCB Designers for SpaceX and Beyond

To design tomorrow's technologies in today's industries is going to take designers who can step up into new challenges

Designer positions emphasize a need for designers with experience in RF design as well as designs utilizing high pin-density components. Designers with experience in PCB CAD libraries and library configuration management are also highly sought after.

Designers who are Flexible Enough to Think Outside of the Box – The distinguishing feature of many of these designers tends to be in their abilities to think and act proactively. Letting a simple error in design hinder the testing and prototyping of large-scale projects can be easily avoided with the right foresight and design for stability.

The Next Generation of PCB Design Tools Will be Necessary for the Challenges of Space – To help keep the design on schedule and the engineering team focused, PCB CAD tools now feature the ability to work within a unified design environment. This allows the design group to work on all phases of the design within the same environment without having to interface between different schematic and layout tools



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**Optimize PCB Designs Before Product Development
With Clear Client Requirements**

Optimize PCB Designs Before Product Development

Ensure getting complete requirements from the client before starting an electronics design project. Here's how can best protect against unforeseen circumstances.

Understand Relevant Applications, Then Move to Product Development – Do not rely on assumptions when it comes to electronics design projects. Be sure to have an in-depth discussion with the client and take time to understand the project and how the design is being applied.

Use a Specific Requirements Checklist – After having a general idea of how to approach the design, construct a specific checklist to ensure that every single requirement is confirmed with the clients.

Get an Older Version of the Product for Reference – When designing complex controllers for industrial process automation, ask the client to let observe similar controllers in action. It will eliminate any guesswork or future interrogation of clients as questions pop up down the line.



Optimize PCB Designs Before Product Development

Draft a Schematic – Instead of rushing to create the perfect design, quickly draft out a schematic of the electronics product. It will uncover areas where there is uncertainty or lack knowledge.

Create a Complete Project Specifications Document – When all the project requirements are fully addressed, create complete project documentation that contains the general overview, timeline, technical specifications, and the basic design diagram. Walk through the document with the client and ensure that both are on the same page.



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Pass the Baton to PCB Design Successors

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Poor organization is usually noticeable in any work process; however, it takes on its most detrimental final form when trying to train someone based on the poorly organized legacy.

Maintain Clear And Concise Documentations – Specifying the purpose and functionality of the hardware and its specific requirements such as memory, communication interfaces, the types of inputs or outputs of the design will be crucial in saving future-designers' valuable time in going through the work and learning from what has worked in the past, and where problems were encountered. Keeping the revision number on the PCB itself helps to identify which version the product belongs to. A simple effort in documentation could help the successor in avoiding past design mistakes.

Designing With A Modular Approach – Lack of structure can result in successor wasting precious time trying to visualize and compartmentalize the entire design. A single glance at the overall block diagram should be all it takes to identify the major modules in the design.



Pass the Baton to PCB Design Successors

Keep Components Libraries Updated – While PCB design software does have its set of component libraries, create custom libraries for some components occasionally. What's more important is to pass the custom libraries over to successor as well.

Handling Over The Latest Manufacturing BOM List – In some positions, a hardware designer's responsibility goes beyond designing electronics product. Some engineers may be tasked with sourcing the right components to meet production budget requirements. Creating and updating a Bill Of Material (BOM) list can be a painstaking effort as it involves numerous suppliers and constant price changes.



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**What Does it take to be a PCB
Layout Designer?**

What Does it take to be a PCB Layout Designer?

“Much of my job of a PCB Designer appears to just be moving lines and shapes around on a computer screen to the untrained eye.”

The Attributes of a Great PCB Layout Designer:

- **Great attention to detail** – The job entails to be able to focus on the details.
- **Keeping up-to-date on industry trends** – Ignoring industry trends will mean more work.
- **Learning new design techniques** – It can be easy to make a habit of layout designing by finding a few techniques which work and applying them to the layouts. But this may encourage continuous errors, or enable new errors to pop up as layouts become more complex.
- **Long hours** – Even with the best priority management, sometimes there will be a need to complete designs and work extra hours to meet deadlines.
- **Common ground problem solving** – The biggest wrench in many of these plans is the amount of time a layout designer will spend managing others and managing design demands from multiple sources.



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Practical Setups for PCB Design and Other Tips for Success

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Hardware, the First Practical Setup for PCB Design – The rule of thumb is, get as much computer - as much memory, speed, 64-bit, and whatever else is available. As far as the rest of the hardware goes, it really is a matter of personal choice.

Avoid the Trap of a Negative Environment – Everyone operates differently within their sociality; however, there are many jobs which simply do not make it easy working there. Whatever the problem is, it creates a dread instead of a desire to report to work and find yourself counting down the hours each day until there is an escape. The biggest tip for success is to find somewhere that will positively challenge to be successful.

You Can Do This! – A negative environment will often cause thinking poorly of yourself and your abilities. The tip for success here is to lift your eyes out of the trenches and start focusing on the horizon. You've got a lot to offer the world.



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Tips for Real-World PCB Design

Tips for Real-World PCB Design

In order to keep things running well, consider focusing on three general areas.

Timing—and Good Personal Notes – Timing and notes may seem like an odd mix, but it does take some time to make good notes. Stopping halfway through complex design calculations or in the middle of laying out an involved portion of a PCB can make picking such tasks up again risky and even necessitate starting over.

Team Communication – The fact that priorities can change quickly is a big part of the reason why companies prefer to hire individuals with excellent communication skills. Good enterprise resource planning software makes this specter less daunting, but only when people actually use it. Having a clear goal and idea for the project's reprioritization also enables team members to understand what they're working towards. Timely communication among team members or clients regarding events that affect a project's deadlines are also very important.

Traceability- Tracking Changes to Important Data – A dynamic workplace will sometimes have many people looking at one project over its lifetime, and it is important to be able to display changes that are made. Such traceability is very useful when resuming a project, or even when coming back to a different part of a large project. Integrated BOM and component library functionality can help track changes to important documents.



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