

What Are The Steps Involved in PCB Assembly Services?



When it comes to PCB assembly, the process is lengthy with plenty of steps that need to be followed. Each step involved in [quick turn PCB assembly services](#) needs complete focus and attention. Details that are missed can result in an error in the assembly process that can ultimately lead to failure. Here are the steps to know when it comes to quick turn PCB assembly services in the USA:

Basics of PCB Assembly

To understand the PCB process, it is essential to note the basic layers that are applied, including substrates, copper, solder masks, and silkscreen. Substrates are materials that conduct minimal electricity. Substrates are used as an insulating layer in between conducting layers. Insulating layers consist of fluorine-series resin, PPO or PPE resin, PTFE, and more. Copper is another layer that assists in increasing thermal resistance while carrying the capacity of the PCBs. Solder mask is a green-colored layer that insulates



copper traces from conductive materials. Lastly, silkscreen is the lask layer that provides test designators. This layer assists in noting test points, warning symbols, part numbers, logos, and marks. These are the basic layers behind custom quick turn PCB assembly.

PCB Design

To begin the PCB assembly process, manufacturers need to check the design to ensure it is functionable. This stage is known as the design for manufacturability check. Checking for specifications while determining if any missing or potential problematic factors are present. This stage is imperative to foresee design issues and errors and allows for manufacturers to fix the issues, leading to a successful end product.

Starting the PCB Assembly Process

- **Solder Paste Application:** the first assembly process step is to paste grains of solder that are mixed with flux before being applied to the board.
- **Placing Components:** This stage in the process is automated. A robotic machine picks up components and places them on areas of the board.
- **Reflow:** The next stage is the reflow process which consists of components along with the solder paste passing through a conveyor belt that will go through an industrial reflow oven. The solder will be melted before being cooled to its desired state.
- **Inspection:** After the steps above are completed, an inspection is put into place to check for functionality.
- **Through-hole Component Insertion:** Depending on the PCB, insertion of through-hole compliments might be necessary. This



step assists in helping pass signals from one side of a PCB board to another.

- Last Inspection: Before being sent to a customer, PCBs must be inspected to check for the functionality of voltage and signal output.

When searching for a custom quick turn PCB assembly manufacturer to partner with, consider a trusted electronic contract manufacturing company.

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