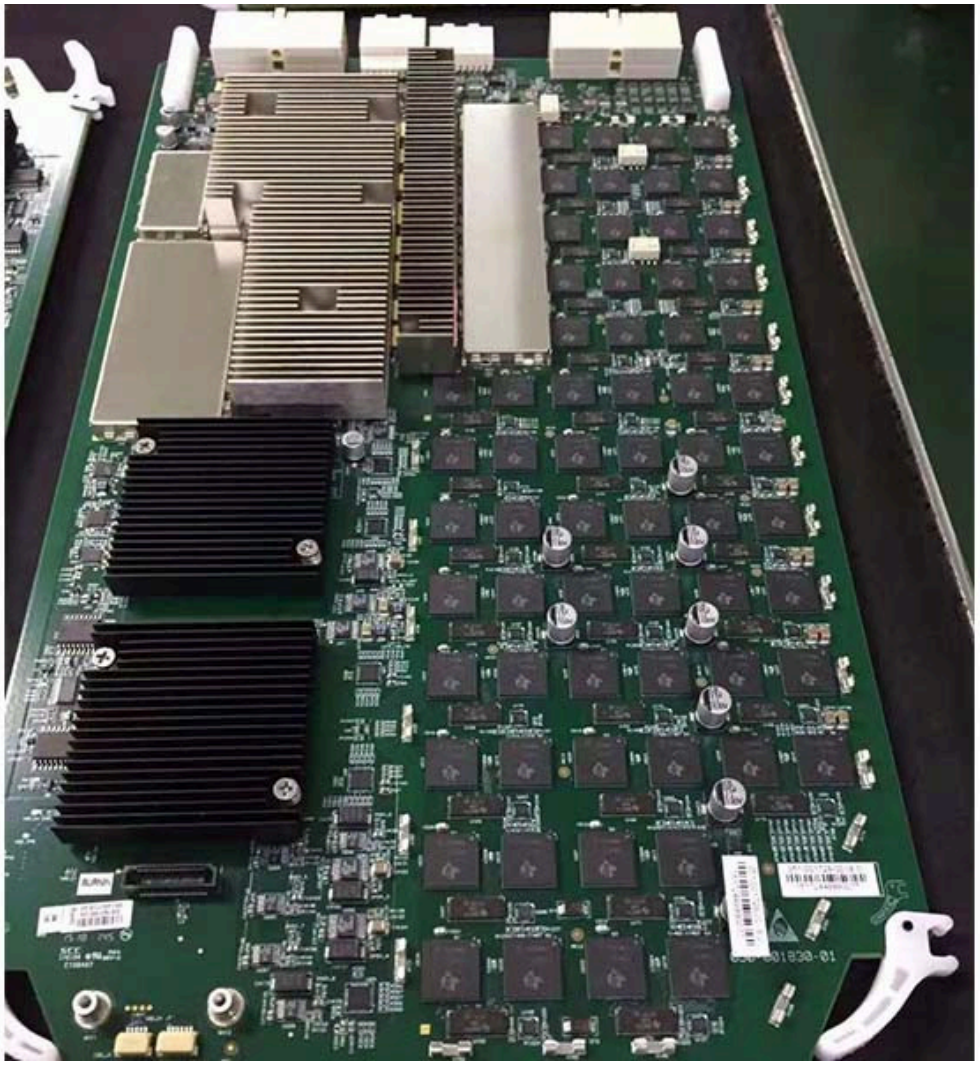
Inspection Method of PCB assembly Short Circuit



PCBA(Printed Circuit board Assembly) short circuit is a relatively common failure in PCB Assembly. once PCB assembly occured short circuit, which requires the professional electronic engineers to analyze the reason and deal with it to avoid irreparable losses.

Inspection Method of PCBA Short Circuit

1. If the board (PCB) will adopt manual soldering, developing a good habit is much vital. First, check the circuit board visually before soldering, and use a multimeter to check whether the key circuits (especially the power supply and ground) are short-circuited or not; Secondly, once soldered a chip to the board, using a multimeter to check whether the power supply and ground are short-circuited or not; In addition, do not throw the solder iron randomly when soldering. If you throw the solder onto the solder pins of the chip (especially for those SMD components), then the failure (short circuit) will not be easy to find.

2. Open the PCB diagram on the computer, light up the short-circuited network, and see which place is closest to it. Pay more attention to the short circuit inside the IC.

3. A short circuit is found. Take a board to cut the trace (especially suitable for single/double-sided boards). After the trace is cut, each part of the functional block is energized separately, and some are eliminated.

4. Use a short-circuit location analyzer to check.

5. If there is a BGA chip, since all the solder joints are covered by the chip and cannot be seen, and it is a multilayer board (above 4 layers), it is best to separate the power supply of each chip during the design, using magnetic beads or 0 ohms Resistor connection, so when there is a short circuit between the power supply and the ground, disconnect the magnetic bead detection, it is easy to locate a chip. Furthermore, considering the soldering of BGA is difficult, if it is not automatic soldering by the machine, a little carelessness will short-circuit the adjacent power supply and the ground two solder balls.

6. Be careful when soldering small-sized SMD capacitors, especially power supply filter capacitors (103 or 104), which may easily cause a short circuit between the power supply and the ground. Of course, sometimes with bad luck, the capacitor itself is short-circuited, so the best way is to check the capacitor quality before soldering.