

# PCB products

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#### 4 Layer Board with Lead Free HAL Finish

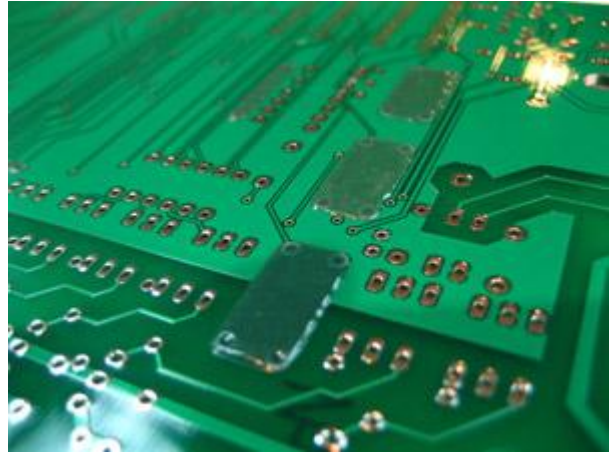
- Blue peelable mask.

Advantages:

- Blue peelable mask.
- ROHS compliance.
- 6 working days, for prototype production.

##### **Peelable Mask**

Peelable Mask is formulated to provide temporary protection for selected board areas against hot air leveling, wave soldering and gold plating. It is used as an alternative to the otherwise laborious process of masking board areas by tape against unwanted solder pick up or galvanic deposit.



#### PCB Prototype - 2 Layer Board, Without Green Paint, Bare Copper, HAL

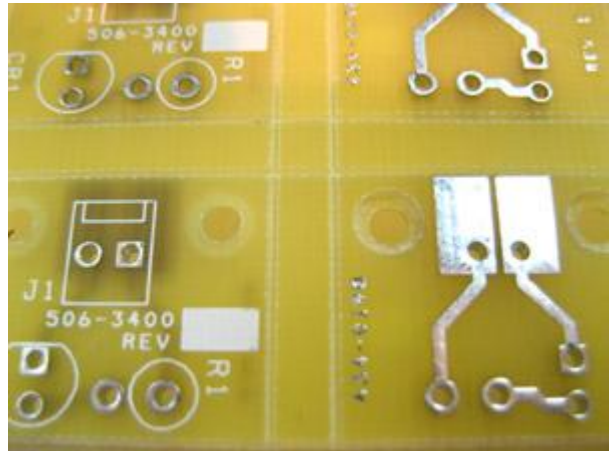
- 2 layer board, without green paint, bare copper, HAL.
- Countersink and counterbored holes.

Advantages:

Countersink and counterbored holes, the drilling can be in step or angle form.

##### **Counterbored Holes**

Counterbored holes (CBORE) are holes of different depths that share holes concentric centers. There is no angularity in the larger bore. Dimension counterbored holes as two concentric diameters and a depth. Where the thickness of the remaining material has significance, dimension the thickness rather than the depth of the hole.

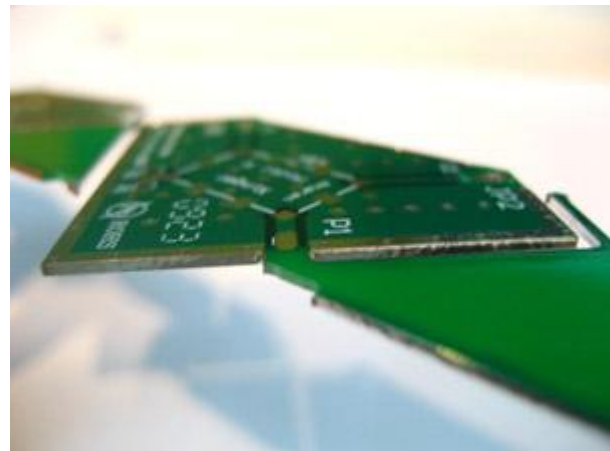


#### PCB Prototype - Plating On The Edges With Immersion Silver Finish

- 6 layer with immersion silver finish.
  - Plating on the edges.
- Advantages:
- Special plating to ensure plating remains on the edges of the board.
  - 3~6 working days for prototypes, for prototype production.

##### **Edge Plating**

The requirement for edge plating is being implemented for single axis, as well as multiple axis edges of the circuit board, including all four



edges.

Edge plating is created when a rout path is implemented prior to the metallization of the circuitry features of the printed circuit board and is sometimes referred to as "plated rout". The design requirements for implementing this technology are dependent on the requirement for the number of edges of each board, the size of the board, and whether the boards will be delivered in a multi-up array.

### PCB Prototype - 3 Layer, Hard Gold Plating 30u"

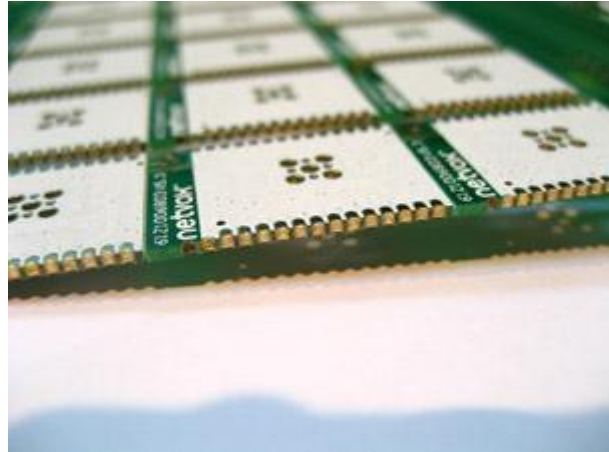
- 3 layer, hard gold plating 30u".
- Stamp holes gold plating on edges.

Advantages:

- Hard Gold plating 30u".
- Stamp holes gold plating on edges.

#### Hard Gold Plating

Bright hard gold on printed circuit board tabs is deposited using lower concentration of gold in the baths. Usually contains nickel and/or cobalt as well. Edge connectors are often made by controlled-depth immersion of only the edge of the boards.



### PCB Prototype - 8 Layer, Immersion Gold 3u" Finish Board

- BGA.

Advantages:

Our BGA capability :

- Smallest hole 0.2mm.
- Smallest ball 8mil-10mil.
- Pad over Via with epoxy. (epoxy will provide a smoother BGA surface.)

#### BGA

A BGA is a surface-mount package used for ICs. Solder balls are stuck to the bottom of the package, and the BGA is placed on a PCB that maintains copper pads in a pattern that matches the solder balls. The assembly is then heated in a reflow oven, causing the solder to melt, flow around the BGA footprint and align with the PCB.



### PCB Prototype - 45 Degree Angle With 4 Layers of Gold Fingers

- 45 degree angle with 4 layers of gold fingers.

Advantages:

- We are able to produce different finishes of gold fingers.
- 6 oz copper, track → 20mil/20mil.



- 3-5 working days for prototype production.

#### Gold Finger

The gold-plated terminal of a card-edge connector. Gold fingers are metallic pads at the edge of a printed circuit board (PCB). They must be inspected after plating to ensure that an adequate coating of gold has been applied. The gold-plated surface is not uniform, but produces a homogeneous texture in the image.

### PCB Prototype - 4-Layer PCB, Board With Impedance Control, Lead Free HASL Finish

- 4 layer PCB, board with impedance control, lead free HASL finish.

Advantages:

- Impedance control, test and control, report may be requested.

#### HASL Finish

A HASL finish is adequate for coarse-pitch surface mount components. There are five common surface finishes: hot air solder leveling (HASL – tin/lead and lead-free); organic solderability preservative (OSP); electroless nickel immersion gold (ENIG); immersion silver (ImAg); and immersion tin (ImSn).



### PCB Prototype - 4 Layer, BGA PTH Holes Unplugged, Immersion Gold 3u" And Black Solder Mask

- 4 layer, BGA PTH holes unplugged, immersion gold 3u" and black solder mask.

Advantages:

- BGA PTH holes unplugged.

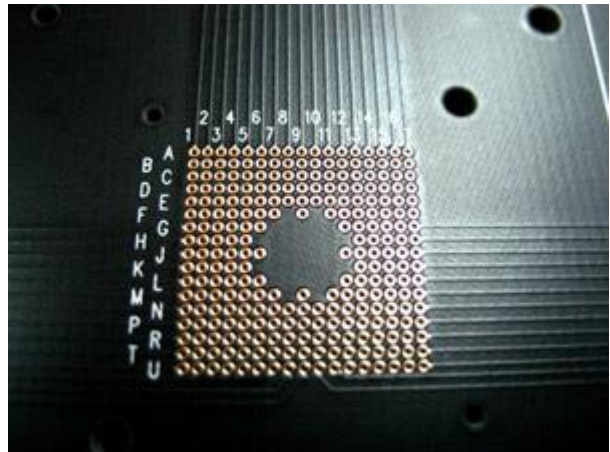
- 4 oz copper, track → 12mil/12mil and 0.2mm hole.

#### BGA

BGAs offer significantly more misalignment tolerance, less susceptibility to coplanarity issues and easier PCB signal routing under a

#### BGA package.PTH

A plated-through hole (PTH) in multi-layer printed wiring boards (PWB) is defined as "a hole in which electrical connection is made between internal or external conductive patterns, or both, by plating of metal on the wall of the hole". The recent trend to increase the packaging density at all levels has resulted in a significant increase in PWB wiring layers and in turn for PTH density in order to communicate between the layers of circuitry.

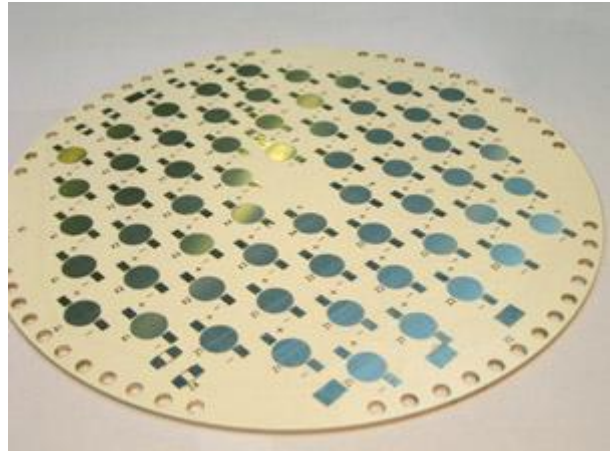


### PCB Prototype - 2 Layer, Aluminum Board

- 2 layer, aluminum board.

Advantages:

- We are able to fabricate up to 4-layer boards, please feel free to enquire us on this.
- 7 working days for 2 layer boards prototype production.
- Maximum 6 layers.



### PCB Prototype - 2 Layer, Metal Core Board, Hard Gold Plating 30u", With Black Solder Mask

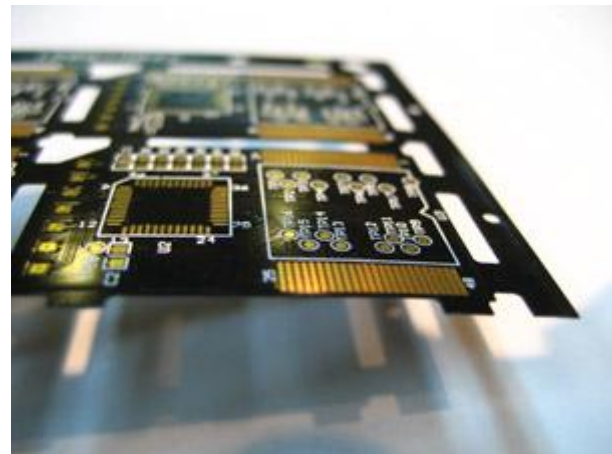
- 2 layer, metal core board, hard gold plating 30u", with black solder mask.

Advantages:

- Metal core board.

 **Remark:**

A PC board to be populated with electronic components, for insertion into the housing of an electronic device, has a core made of two metal plates connected together and spaced apart by reinforcing ribs, said plates being provided with a copper-invar layer and with a cover layer formed by several layers of polyimide film. To achieve high rigidity and good heat transfer, the metal plates are made of aluminum or an aluminum alloy and are fastened in the housings by means of gibs and cotters.



### PCB Prototype - 2 Layer, Metal Core Board, Hard Gold Plating 30u", With Black Solder Mask

- 2 layer, FR4 0.2mm HAL, with horizontal soldering.

Advantages:

- FR4, 0.2mm board thickness → the board is still bendable.
- Horizontal soldering.

 **Soldering**

Prior to the development of lead free soldering alloys, horizontal soldering was developed for the reflow process to obtain the optimal temperature profile.



## PCB Prototype - 2 Layer, Hard Gold Plating 30u", Controlled Deep Cut/Milling And Special CNC

- 2 layer, hard gold plating 30u", controlled deep cut/milling and special CNC.
- Red solder mask.

Advantages:

- Controlled deep cut/milling.
- Special CNC.

### PCB Milling

PCB milling is typically a non-chemical process and as such it can be completed in a typical office or lab environment without exposure to hazardous chemicals. High quality circuit boards can be produced using either process. In the case of PCB milling, the quality of a circuit board is chiefly determined by the system's true, or weighted, milling accuracy and control as well as the condition (sharpness, temper) of the milling bits and their respective feed/rotational speeds.



## PCB Prototype - PCB Assembly

- PCB Assembly. (PCBA)

Advantages:

- PCB Assembly service.
- 3-5 working days for prototype production.

### PCB Assembly (PCBA)

A PCB populated with electronic components is a printed circuit assembly (PCA), also known as a printed circuit board assembly (PCBA).

After the printed circuit board (PCB) is completed, electronic components must be attached to form a functional printed circuit assembly, or PCA (sometimes called a "printed circuit board assembly" PCBA).

In through-hole construction, component leads are inserted in holes. In surface-mount construction, the components are placed on pads or lands on the outer surfaces of the PCB. In both kinds of construction, component leads are electrically and mechanically fixed to the board with a molten metal solder.



## PCB Prototype - Single Sided Flex Board, Polyimide 1 mil Thickness and 0.5 oz Copper

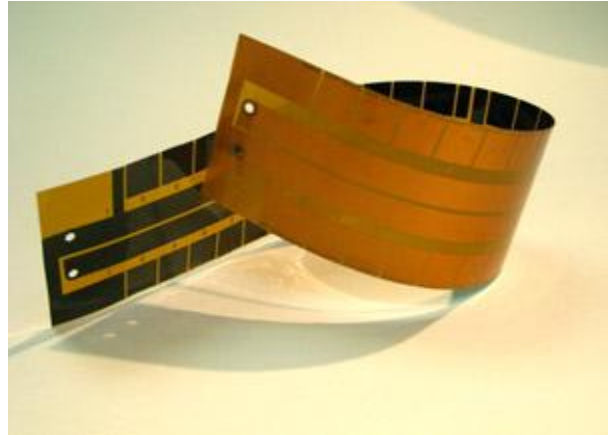
- Single sided flex board, polyimide 1 mil thickness and 0.5 oz copper.

Advantages:

- Can be made up to 6 layer flexi board.
- 7 working days for prototype production.

### Flexible Board

The flexible board assembly is in use in practically every application imaginable: from the mundane to the military. Thanks to its flexibility, the flexible PCB assembly (printed circuit board) can be in anything from cameras to rockets. There are three major types of flexible circuit boards: the single-sided FPC assembly (flexible printed circuit), multi-layer rigid flexible circuit board assemblies and dual sided flexible.



### PCB Prototype - Flex and Rigid PCB

- Rigid: FR-4, 6 layer, thickness 1.6mm.
- Flex: polyimide, double sided, thickness: 2 mil.
- Immersion gold finished.

Advantages:

- We can also do flexi board with laser drilling and CNC.
- The flexi board can be made with stiffener on the sides.
- 7-10 working days, for prototype production.

### Flex & Rigid

Rigid-flex is not just another ordinary flexible circuit.

A combination of flexible and rigid substrates laminated into a single package presents unique challenges and opportunities. Much of what designers have learned about PCB design comes into question when they start their first rigid-flex PCB. They are no longer designing a two-dimensional substrate but instead, a 3D interconnect that can be bent, folded, and, dare I say, mutilated into a higher performing PCB.



### PCB Prototype - FR-4 High Tg. 170, 4 Layer PCB With HAL Finish

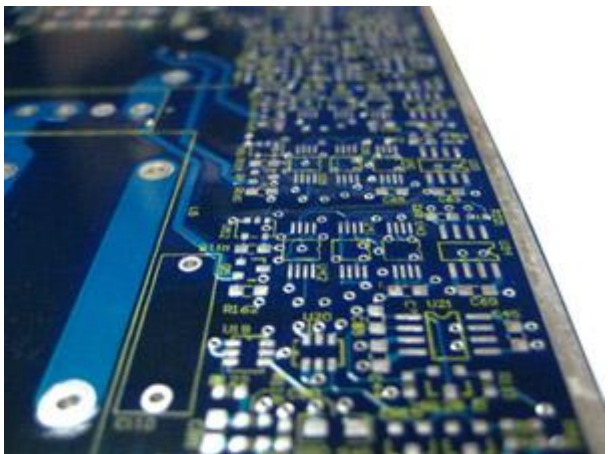
- FR-4 high Tg. 170, 4 layer PCB with HAL finish.

Advantages:

- Wide selection of colours for the solder mask and silkscreen.

HAL (Air Solder Leveling)

When evaluating HAL capability, it is useful to remember there is a difference between vertical and horizontal HAL. The most globally used process is hot air solder leveling (HAL). The coating provides excellent shelf life, high mechanical durability, and the shortest solder wetting time as assembly.



### PCB Prototype - 2 Layer, Black Solder Mask

- 2 layer, black solder mask.

**Advantages:**

- 550mm x 700mm, panel.

** Solder Mask**

The colors are called solder mask. They are available in many colors including Green & black. The purpose is to protect the Cu layer from corrosion and provide good insulation. The solder mask prevents the solder from bridging adjacent traces and pins. Not all circuit boards have solder masks and many cheap boards in the power supplied don't have them.

