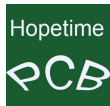


GLOSSARY of Printed Circuit Design and Manufacturing

No.	GLOSSARY	Meanings
1	Valuable Final Artwork	A term used in " Streamlined_PCB_Design :" Artwork for electronic circuits which have been laid out and documented in forms perfectly suited to the photo-imaging and numeric-controlled tooling processes of printed circuit manufacture. It is termed "final" because it has been thoroughly checked for errors and any corrected as needed and is now ready for manufacture without further work by the PCB designer . It is valuable because it could be exchanged with a customer for money or other support. Abbr. VFA. [Based on " Valuable Final Product ."
2	Valuable Final Product	Something that can be exchanged with other activities in return for support. The support usually adds up to food, clothing, shelter, money, tolerance and cooperation (goodwill)... A valuable final product (VFP) is valuable because it is potentially or factually exchangeable. The key word in this sense is EXCHANGEABLE. And exchangeability means outside, with something outside the person or activity. A valuable final product could as easily be named a VALUABLE EXCHANGEABLE PRODUCT. [L. Ron Hubbard, March 25, 1971, "Valuable Final Products."]
3	vcc or VCC or Vcc	A name for a power net meaning "voltage collector," usually +5V for TTL circuits.
4	vdd or VDD or Vdd	A name for a power net meaning "voltage drain," usually implying a more positive voltage.
5	vector photoplotter	(also "vector plotter", or "Gerber photoplotter" after Gerber Scientific Co., which built the first vector photoplotters for commercial use) It plots images from a CAD database on photographic film in a darkroom by drawing each line with a continuous lamp shined through an annular-ring aperture, and creating each shape (or pad) by flashing the lamp through a specially sized and shaped aperture. The "apertures" are thin trapezoidal pieces of plastic which are mostly opaque, but with a transparent portion that controls the size and shape of the light pattern passing through it. The apertures are mounted on an " aperture wheel " which can hold up to 24 apertures (or 70 on certain models). The lamp and aperture wheel are fixed, and the table holding the film is moved in x and y dimensions (on small photoplotters), or vice versa (on very large photoplotters). A numeric datum sent to the control circuit of the photoplotter is either a D code or an X and/or Y dimension in inches, to the nearest thousandth. If it is a D code equal to D10 or above, the message tells the wheel to rotate the corresponding aperture location into position in front of the lamp. . Gerber photoplotters, if set up by an experienced craftsman, are well-suited for printed circuit artwork generation. Compare with laser photoplotter , which is faster, more accurate and has largely replaced the vector photoplotter. There are still vector photoplotters in use. Some manufacturers take advantage of the large bed size of the largest Gerber photoplotters, roughly the size of a full-sized billiards table. This enables the production of very large photoplots. An example is Buckbee-Mears, which makes large antenna boards, and the USGS (United States Geological Survey) which has used them in map-making.
6	vee or VEE or Vee	A name for a power net meaning "voltage emitter," usually -5V for ECL circuits
7	via	Feed-through. A plated-through hole in a PWB used to route a trace vertically in the board, that is, from one layer to another.
8	VLSI	Very Large Scale Integration.
9	VQFP	Very thin Quad Flat Pack.
10	vss or VSS or Vss	A name for a power net meaning "voltage source," usually implying a more negative voltage and often equivalent to Ground or GND.
11	wafer	See silicon wafer



GLOSSARY of Printed Circuit Design and Manufacturing

No.	GLOSSARY	Meanings
12	WIP	Work In Progress. [Usage at Golden Gate Graphics: wip is used as the extension of the name of a folder or sub-directory which groups data in temporary storage locations for current "work in progress." Any folders beneath the .WIP folder in the directory structure would be named for the software, company and job in that order. Eg: playout.wip/Cadstar/AcmeInc/A2Dboard]
13	wire bonding	The method used to attach very fine wire to semiconductor components (dice) to interconnect these components with each other or with package leads. The wires might be 1 to 2 mils in diameter and made of aluminum containing 1% silicon
14	wet solder mask	Applied by means of distributing wet epoxy ink through a silk screen, a wet solder mask has a resolution suitable for single-track design, but is not accurate enough for fine-line design.
15	wire	Besides its usual definition of a strand of conductor, wire on a printed board also means a route or track .
16	wire wrap area	A portion of a board riddled with plated-through holes on a 100-mil grid. Its purpose is for accepting circuits which may be found necessary after a PWB has been manufactured, stuffed , tested and debugged.