



Tecnomatix
Realizing Your Manufacturing Vision

CAD Input Processors and Gerber Translator

More than 65 CAD input processors reduce production costs and speed time-to-market

eM-Translating CAD designs quickly and accurately is the first and most important step in the PCB-building process. Interpreting data quickly and correctly results in less expensive production costs and a faster time-to-market.

In order to support the varied requirements of Contract Manufacturers and OEM Manufacturers, we support more than 65 CAD Applications. A partial list follows:

CAD Input Processors Supported by eM-Assembly Expert -

- Accel Technologies Tango and Tango Pro
- Cadence Allegro
- CADES-G
- Cadnetix / Cadnetix EDIF
- Cad-ul Ariadne
- Centroid
- Computamation Vutrax
- ComputerVision Autoboard / THEDA
- DDE ECAD
- Dedale/Decad
- DIF (C-Link)
- Docica
- Eagle (FATF)
- Encore PCB (Scicards)
- EDIF 400
- Fabmaster ASCII Transfer Format (FATF)
- Gencad (Mitron)
- Gencam
- Gerber
- Harris EDA SCI-Cards CII
- Hewlett-Packard PCDS, P-Link, EGS & piglet
- I.B.M. CBDS Versions 4 and 5
- Integra
- Mentor
- Orcad Layout for Windows & DOS PCB386
- PADS-Perform, PowerPCB, PADS-PCB
- P-CAD PDIF
- Prisma
- Protel 3 for Windows / Protel Dos (2.8)
- Siemens VCAD
- Supermax DDE
- Theda
- Topcad
- Ultiboard
- UniCad / UniDat CAD Importer Tool
- Vanguard
- Veribest EIF, GenCad, and FATF
- Vutrax
- Zuken-Redac Visula cadExpert
- Zuken-Redac CR3000/CR5000

CAD Input Processors Supported by eM-Test Expert (FABmaster)-

- Academi
- Accel PCB and Tango
- Cadence Allegro
- CADES-G
- Cadnetix
- Cadstar for Windows
- Cad-ul Ariadne
- Calay V4
- Computamation Vutrax
- ComputerVision Autoboard / THEDA
- DDE ECAD
- Dedale/Decad
- DIF (C-Link)
- Docica
- Eagle (FATF)
- Encore PCB (Scicards)
- FABmaster ASCII Transfer Format (FATF)
- Gencad (Mitron)
- Gencam
- Harris EDA SCI-Cards CII
- Hewlett-Packard PCDS, P-Link, EGS & piglet
- I.B.M. CBDS Versions 4 and 5
- Integra
- Mentor
- Orcad Layout for Windows & DOS PCB386
- PADS-Perform, PowerPCB, PADS-PCB
- P-CAD PDIF
- Prisma
- Protel 3 for Windows / Protel Dos (2.8)
- Redac - Cadstar (CDI)
- Scicards
- Siemens VCAD
- Supermax DDE (ipl)
- Tango
- Theda - Incases
- Topcad
- Ultiboard
- Unicad
- Vanguard
- Veribest EIF, GenCad, and FATF
- Visula CADIF
- Vutrax
- Zuken-Redac Visula cadExpert & CR3000/CR5000



GerbCam Translator

GerbCam Translator

A Gerber data translation application for PCB assembly converts Gerber plotting data used to produce artwork drawings into component placement data. This information is loaded into eM-Assembly Expert to create databases, or output as an ASCII X-Y centroid file.

Common File Format

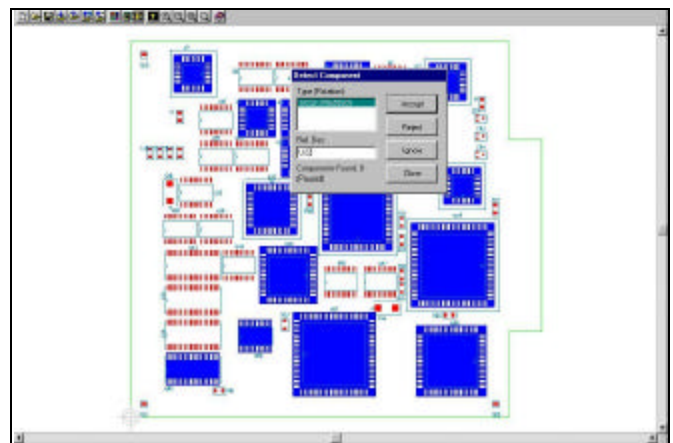
Gerber is a common file format for PCB CAD data. CAD designs are translated into Gerber format to fabricate circuit layers. However, Gerber data lacks component "intelligence." GerbCam solves this problem and it:

- Quickly identifies the features, lines and pads that define components
- Identifies component reference designated names
- Assigns part parameter information
- Outputs component information for pick and place or automatic insertion operation

GerbCam Product Features

- Easy-to-learn user interface, on-line help, and tool bar for commonly used commands.
- Supports metric and inch data, absolute and incremental coordinates, leading and trailing zeros.
- Automatically detects format of most Gerber files. Supports Gerber 242-D file format and Gerber 242-X format with embedded partners.
- Loads the aperture files created by most CAD systems. GerbCam automatically reads the file after user specifies structure.
- Imports Bill of Materials (BOM) file in user defined format to associate part numbers with reference designators.
- Multiple files can be loaded and applied to the Gerber files (layers) of choice.
- Allows modification of the aperture table to change pad sizes and shapes, and to increase or decrease trace widths.
- Offsets, mirrors, merges, and deletes Gerber layers with one mouse click.
- Automatically recognizes components based on parametric algorithms, allowing shapes to be identified by general rules rather than a pre-defined pad pattern. GerbCam can also scan the design matching information from the part shape library.
- Prints top or bottom Gerber drawings.
- Identifies the most likely rotation of the parts. If the rotation cannot be determined, a prompt appears to enter the rotation. GerbCam identifies parts placed on the top and bottom layers, and at a 90-degree rotation.

- Adds parts to the user library by identifying the circuit's pad and silk-screen features.
- Two shape libraries: A standard library and a user-created library.
- Vector character recognition (VCR) algorithm identifies component names from the silk-screen, assigning the text to the most likely component. In instances of ambiguous names, the user is prompted.
- Automatically identifies components with missing or duplicate register names.
- Creates a complete graphical job database for use with Assembly Expert, including the board outline, component outline, component graphics, and text



Automatic recognition of components based on parametric algorithms, allowing shapes to be identified by general rules rather than pre-defined pad patterns.

Converting Gerber Files to CAD Data

- Start with a set of Gerber files, including top and bottom signal layers, and a file for the assembly or silk-screen drawing. (Components placed on the bottom layer require a bottom silk-screen file.)
- Load the Gerber files into GerbCam.
- Normalize mirrored layers or those having a different origin to the same origin point.
- Load aperture file(s) for Gerber 242-D data.
- Identify the board outline.
- Find components in the circuit using parametric analysis.
- Define shape models for missing components.
- GerbCam assigns reference and part names to components.
- Edit these names and enter missing names, or load the BOM file to assign part numbers in the circuit.
- Run the output generator to create the eM-Assembly Expert (UniCam) job file or ASCII component centroid file.

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