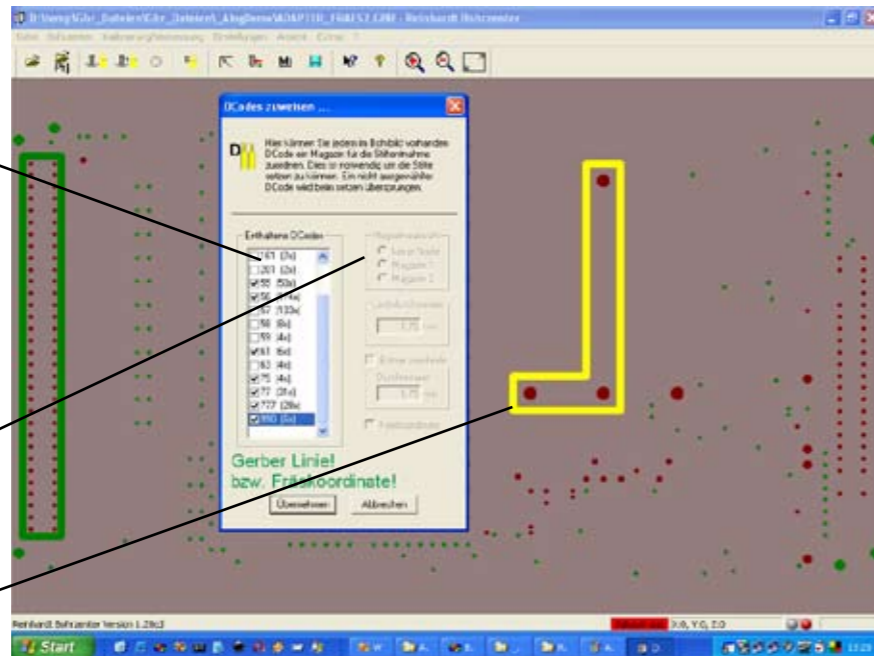


Dcodes are assigned to one of the two magazines. The two magazines can be filled with different contact pins resp. so that e.g. a wired component is contacted with a crown and a pad is contacted with a tip.

Assignment of the magazine

Milling line – highlighted, since it is active



now save the project, call it again or maybe correct or expand it. After the thickness of the exchange plate is measured automatically, the system starts with the default drill for 100mil spring contact pins. If other contact pins are used, there is a message during



drilling which asks you to use a drill with e.g. 1.27mm diameter (for 75 mil pins).

When the drilling and milling is finished, the system starts to place the sleeves with the spring contact pins.

A special tool, which is also controlled by the CNC-machine picks up the contact pins incl. sleeves in the magazines and presses them in highly accurate.

The whole procedure takes less than two hours. Then you can start the wiring (wirewrap). For that there are multi-way connectors which are already wrapped on one side so that only the contact pins must be wired. This connects the multi-way connector, which makes contact with the test system, with the contact pins. This procedure takes about 2 hours for about 300 connections so that a test fixture from the computation of the Gerber data to finishing takes about 4 to 6 hours.

ATSFRAES-Drill always comes with the Fixture Production System and requires WINDOWS2000® or WINDOWS XP® operating system. It also offers the comfortable, menu-driven measuring of the magazine, the check of the vacuum switch, the changes of the machine control parameters etc.

1/2009

REINHARDT

System- und Messelectronic GmbH

Information on the new WINDOWS-Software for Dealing With Gerber Data and the Drill and Mill Software **Issue 11/2006**

- Fixture created in typically 3–6 hours
- Typical fixture cost 500 to 1,000 Euro
- Gerber data calculation in 10–20 minutes
- Gerber RS274X
- Milling
- Consideration of Makros
- Fixture elements

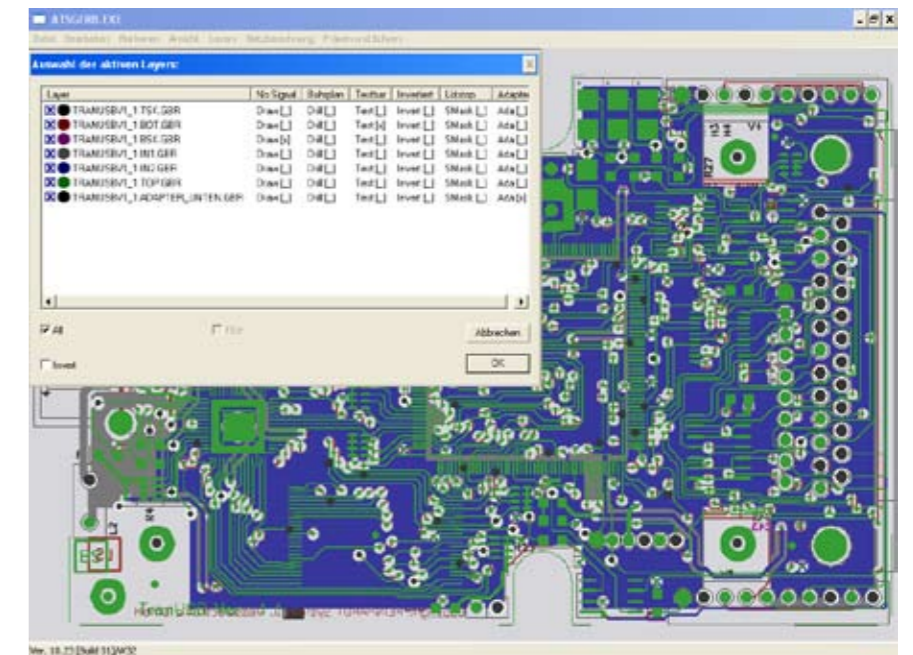
With more than 2,050 test systems installed, Reinhardt System- und Messelectronic operates worldwide; in Germany and Switzerland REINHARDT is market leader for automatic in-circuit- and functional test systems for electronic PCBs. Such a position in the market can only be reached by a good service, innovative technique and a rounded off product range. Our success also comes from the development of our own fixture systems for the test item and the Fixture Production System. The fixture production is based on the Gerber data which are output by every CAD-system and which are one of the few things which all CAD-systems for the development of PCBs have in common. The Gerber data are required for producing the blank boards which is why they can be provided easily, since more

and more often, there are non-disclosure agreements so that no CAD-data are given to the toll manufacturer.

The ATSGERB software for processing Gerber data was developed by REINHARDT and has been used since the early 90s in almost a thousand units. It has been refined ever since. Now, this software was developed completely new and adapted to the latest requirements. The new **ATSGERB WIN32** is based on the longtime experience with its predecessor, although it is

a new development with new computation and processing logarithms, expanded settings etc. and is technically always up to date. The newly developed software requires WINDOWS2000® or WINDOWS XP® as operating system.

Processing the Gerber Files
The software for processing Gerber data also reads modern Gerber standards such as Extended RS274X. Out of the read Gerber data, complete tracks with the component drillings and vias are recalculated. When all

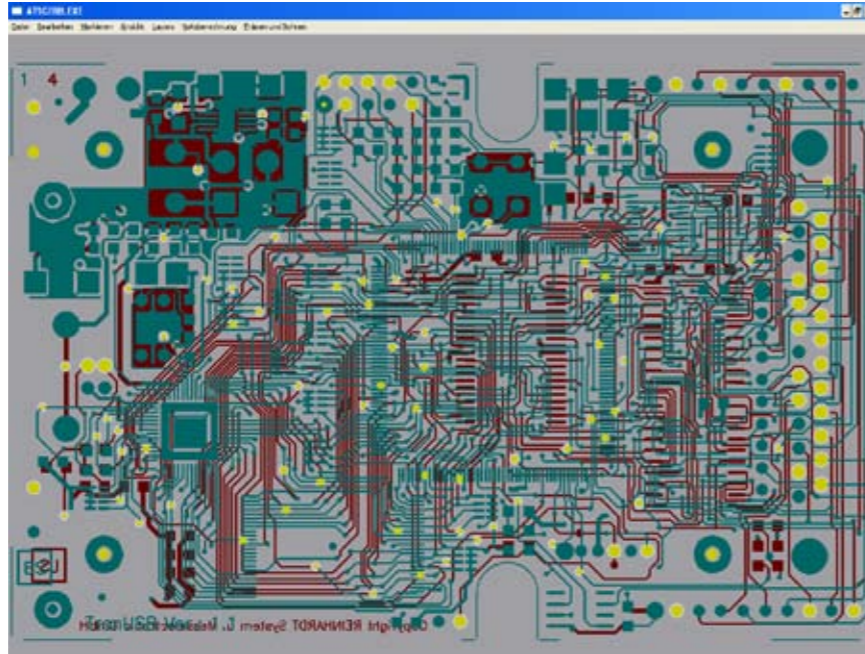


Read Gerber layers with their assignment

NEWS ... NEWS ... NEWS ... NEWS ...

Information on our new ATSGERB WIN32 Software

layers are read and lie on top of each other, the software starts recalculating all tracks, just as the original electrical connections in the CAD-system. The software works out this process in a very short time, even with double Eurocards in multi-layer technique. The software also checks the minimum clearance of the test points: It tells you e.g. if you can no longer use 100mil contact pins (inexpensive, robust), because they are too close or that you must use a 75mil contact pin. Two test contact points marked with a red frame mean that you can only use 50mil contact pins (avoid this if possible, as they are expensive with a short lifetime). Since there are enough difficulties with the test item, there should not be further difficulties with the fixturing. The operator should now try to avoid such bottlenecks and use a suitable alternate test pad. This may require a redesign of the PCB. Un-contacted tracks are highlighted as flashing. This means these tracks are not contacted, e.g. the IC-pins were connected with a track below the IC or the fixturing of this test item is from one side and a track is only on the un-contacted PCB-side. When all is corrected or accepted, the „Milling“ tool can be used for pockets for high standing components. You can set up a library for fixture elements. There you can store finished milling and drilling macros so that they can be loaded as needed. Such Macros can e.g. be created for centring pins, loading facilities and espe-



Finished Computed Gerber Data with Marked Test Points

cially high connectors. The data created with the Gerber processing software are also used in the graphical display of fault location of the Incircuit- and functional test system. So the two resp. tracks highlight in the Incircuit test in case of shortcircuit. The complete process for processing, display of the PCB, creating the tracks and drilling data takes about 10–20 minutes. Therefore you need about 2–3 weeks less for

this work compared with doing it manually.



Fixture Production System

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Information on our new ATSGERB WIN32 Software

Fixture creation

For fixture creation, we deliver a package of a complete CNC-drilling machine with hard- and software, magazine for 650 sleeves with contact pins and sub-cabinet, but without computer and monitor. With this system you can create a bed-of-nails fixture single-handedly within a few hours. The 3 axis-CNC-drilling machine has got 530mm X-axis travel, 485mm y-axis travel and 75mm maximum travel. Accuracy is 20–30µ. A suction device is included. The system requires at least 6bar compressed air supply. Compressed air consumption is about 30l/min. Supply: 230V Overall dimensions: 150 cm high, 130cm wide, 125cm deep, Weight: ca. 175 kg.

The data that have been computed and selected from the Gerber data are used for drill-

ling the bed-of-nails – one- or double-sided for the contact pins, reference pins, loading facilities, maybe for the IC-Open- and polarity probes too. A wizard of the new **ATSFRAES-Drill**-software helps to set the Fixture Production System. Thus the operator does not have to work out many setting parameters which are already known. If e.g. you select the basic material for the bed-of-nails, the correct parameters such as e.g. advance of the Fixture Production System are set automatically.

Neither offset nor other special details must be considered, since the dimensions of the plates are known and their loading facilities are fixed. A wizard supports you from the first to the last step. After you have settled a one-sided or a double-sided contacting, you select the fixture system you are going to use, such as e.g. Type 105, 125, 145, 625, 645, 40, se-

ries 60 or Type 52. In the same menu you set the material (plate) you use for the bed-of-nails. This is necessary as the different materials have a different tightness: Basic material with lower tightness can be used with up to 300 spring contact pins but can be worked on faster and tool-conserving than a material with high tightness. In the following step you select the requested file (Adapter.gbr created by ATSGERB WIN32). In the opening window you assign the DCodes and the drilling diameters to the magazines. The milling lines created by ATSGERB can be carried over. In the „Zusammenfassung“ menu, all the parameters and inputs can be checked and changed. In the following menu you set there, the bed-of-nails is placed on the universal exchange plate. The software normally places the bed-of-nails, maybe with millings, centrally on the plate. You can

Default settings of feed, fixture plates etc.

Selects the fixture plate material

Selects one or double-sided contacting and where to place the IC-Open- and Elcap probes

Selects the fixture type because of the size of fixture plate and useable area or areas defined by the operator

