

CAD-CAE VIRTUAL INSTRUMENT SYSTEM & PCB DRILLING

Mod. VTD/EV



There are different steps between the ideation and the marketing of an electronic device, and these are the circuit design, the simulation, the realization of the printed circuit, the realization of the first prototype and its testing.

These activities require the availability of a set of high accuracy equipment and instruments and the use of effective and well documented procedures which can be employed in a second time for the development of analog products (approach required by the standard ISO9000, too).

The system enables the creation of a standard application by using industrial procedures and equipment.

CIRCUIT DESIGN

CAD-CAE software for development of electronic design

- Design of the electrical diagram;
- Simulation;
- Design of the circuit layout;
- Positioning and connection between automatic components;
- Post-processing.

PRINTED CIRCUIT EXECUTION

Desk top dedicated milling machine for printed circuit etching connected to Personal Computer:

- 3 axes: X, Y and Z;
- Driving range X / Y / Z (mm): 290 x 335 x 70;
- Passage Height in mm: 105;
- Table dimension: 500 x 600 mm;
- 900 W Hybrid Motor that are brushless motors equipped with high grade ball bearing. Rotational speed stability even under load variations. Highest torque in the lower speed range;
- Rotation speed: 8000 – 26000 rev/min;
- Repetition accuracy: $\pm 1/100$ mm;
- 3 end/reference switch, accuracy $< 1/100$ mm;
- Teflon coated rubber seal to protect the spindles;
- Serial / Ethernet interface, 2 digital inputs and 2 digital outputs;
- Input file type GERBER;
- 20 tools engraving kit – 25 tools drilling kit;
- Vacuum cleaner adapter to remove produced dust.

FUNCTIONAL CHECKING AND TESTING THE CIRCUIT

A set of virtual instruments is used for stimulation and acquisition and are installed on Personal Computer and connectable directly to the card:

- 2-Channel oscilloscope with memory and sampling frequency of 50 Ms/s;
- 2-Channel programmable frequency counter with frequency range of 10 Hz ÷ 100 MHz and events counting from 0m to 9999999999;
- Function generator (sine, square, triangle wave) programmable from 10 Hz to 10 MHz and amplitude from 0 to 5 Vpp;
- 8-Channel programmable analog outputs with ± 9 Vdc selectable voltages and 10 mA output current;
- 2-Channel programmable voltmeter with measurement ranges from 4 to 200 V and mathematical function of sum, difference, product and ratio;
- Capacimeter with measurement range from 10 pF to 100 pF;
- Power supplies:
 - Fixed output voltage: ± 5 Vdc / 5A
 - Variable voltage 0 ÷ +15 Vdc / 200 mA
 - Variable voltage 0 ÷ -15 Vdc / 200 mA
- Test sequence generator with indication texts of the operations, automatic programming controls of the stimulation and memorization instruments for the carried out measurements;
- Data logger for memorization of the data coming from the frequency counter, programmable voltmeters, variable power supplies.

STANDARD APPLICATIONS

Application of analog kind including:

- Amplification section;
- Oscillation section;
- Fault insertion section

Application of digital kind including:

- Combinatory/sequential logic section;
- Display section;
- Fault insertion section.