ChipShover-PS1

Three-Axis Positioning System

General Description

ChipShover is an XYZ table & driver, with handy Python interface. It's designed for close analysis of integrated circuits using tools like Electromagnetic Fault Injection (EMFI), EM Probes for side channel analysis, and more. In both specifications and cost it falls somewhere between between 3D printers & microscope positioning systems.

The ChipShover-PS1 is a complete system for 3D positioning of embedded tools that includes:

- Solid machined aluminum XYZ platform based on high-precision stages driven by stepper motors
- Interposers to mount tools onto the stage
- An electronic controller for the XYZ stage based on open-source Marlin firmware
- Python interface on computer
- 110-240VAC to 24VDC adapter
- All cables required for operation

The frame of the ChipShover PS1 is made entirely of solid machined aluminum, ensuring high rigidity and repeatability. The ChipShover-PS1 has a precision better than 200nm, and an accuracy (including backlash) better than 4um.

Applications

- Electromagnetic fault injection using a ChipSHOUTER or other tool
- Positioning of electromagnetic field probes for side channel analysis
- Positioning of laser fault injection tools
- Positioning of macroscopic cameras or probes for die inspection

Features

- Three axis positioning on a rigid frame
- Assembled machine fits on a 45cm square
- Assembled Machine is 40cm tall in its default configuration
- Movement range of a single configuration is up to 5cm on each axis
- Better than 200nm precision on each axis
- Better than 4um of repeatability of each axis
- Controller with LCD screen for jogging and position readout
- Computer control over USB
- Adapter for use with the ChipSHOUTER electromagnetic fault injection tool