

DIOEasy

DIGITAL VECTOR DEVELOPMENT SOFTWARE

- Graphical vector development environment for all of Geotest's dynamic digital I/O products
- Supports creation/editing of vectors via a graphical interface or embedded scripting environment
- Supports vectors up to 512-bits wide and 128 M deep
- File compression algorithm reduces DIO file size
- Converts ASCII vector formats to / from DIO formats for all Geotest digital I/O instruments
- GUI environment supports interactive control and status of all Geotest dynamic digital instruments
- Included with GTDIO software package



DESCRIPTION

DIOEasy offers test engineers an efficient tool for developing, debugging, and executing digital test vectors for all Geotest dynamic digital instruments.

Digital I/O (DIO) systems are very complex and typically require a substantial amount of programming effort to define data vectors. In order to simplify vector development, Geotest developed Windows-based DIOEasy, providing users with a familiar interface. Toolbars and menus provide quick access to vector editing and viewing tools.

ARCHITECTURE

DIOEasy offers two methods for creating and editing digital test vectors:

- Graphical User Interface (GUI) Environment
- Scripting Environment

Vectors can be loaded to and from DIO instrument(s) using the DIO Virtual Panel. After loading the vectors, the user can arm and trigger the instrument for generation / acquisition. Data captured from the boards can be saved to a file and/or loaded to DIOEasy for viewing or for comparison against a previously defined vector data file.

USER INTERFACE ENVIRONMENTS

GRAPHICAL USER INTERFACE

The DIOEasy GUI offers interactive digital vector editing and viewing capabilities. Its generic structure allows it to easily support all of Geotest's dynamic digital instrument hardware configurations.

DIOEasy produces vector data files that can be directly used by the digital instrument's driver (GTDIO).

The DIOEasy GUI is similar to a spreadsheet application. Each cell represents the state of a single data bit in a given step. The data bits (channels) are represented by trace lines in the rows of cells, and each step is a column of cells.

Data creation, analysis, and editing capabilities include:

- Setting cell attributes:
- Direction: In or Out
- Level (state): High, Low or H-Z/ignore

Each attribute is represented by a different color and shape. By simply pointing and clicking the mouse, the user can change the attribute of one cell or a group of cells.

DIOEasy supports filling selected ranges of steps and channels with a variety of data patterns including:

- All ones
- All zeros
- Checkerboard
- Invert the current data
- Ramp
- Toggle
- Clock
- Shift/Rotate
- Rotate
- Pseudo random data
- Value set by the user

DIOEasy

Other data generation, editing and analysis tools include:

- Vector Importing/Exporting
- Cut/Copy/Insert/Delete for a range of selected steps
- Compare two vectors - differences in any cell are highlighted.
- Vector conversion - DIOEasy can read and convert data vectors from ASCII files generated by other simulators and pattern generators, or you can save the created data file in a simple ASCII format file, with or without commands. The resulting file may then be edited with any text editor.

Supported sequencing commands include branching instructions such as Loop, Jump, Call or commands that assign a given value to a specific register. Most commands can be conditional. Supported branching conditions include EQ, NEQ, GT, LT, etc. Inserting/editing commands are done simply by clicking on any step and then filling in the cells when the Command Properties dialog box appears. Sequence steps can be assigned a label, a command, or both.

Scripting Environment

DIOEasy allows you to create, design and edit vectors using Microsoft Visual Basic Script™ (VBScript)—a popular scripting language. Using the capabilities of VBScript and DIO ActiveX objects, the user can write complex programs that create and modify DIO vectors.

The DIOEasy ActiveX object allows you to:

- Create and change any DIO files
- Setup / configure a digital instrument, i.e. set frequency, trigger mode, etc.
- Create DIO File Blocks that are composed of grouped channels (in any order) and steps
- Fill DIO File, Channels, Steps and Blocks with command and data
- Interact with DIOEasy graphical environment to display and compare DIO vector files using DIOEasy objects such as Window, Application, and more
- Create vector libraries that can be re-used in different steps and files

APPLICATIONS

- Digital test systems
- Automatic Test Equipment (ATE)
- Mixed signal testers
- Digital emulation systems
- Hybrid Component Test