PLOTTIME REFERENCE MANUAL

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PLOTTIME

The waveform plotting program PLOTTIME converts the Timing Verifier output file plotsig.dat or an output file from the Logic Simulator to GED drawings containing waveform diagrams. The Plottime program only runs on machines where GED is resident. If Timing Verification or Logic Simulation is run on a remote machine that does not have GED resident (ie. a mainframe), the Plottime input file must be brought to the local machine before running Plottime.

PLOTTIME DIRECTIVES FILE

The Plottime program requires as input a directives file (td.cmd) to define the input file to be plotted, the SCALD directory and name of the output drawing, and some display parameters (e.g., number of signals displayed, nanoseconds per inch etc.). A typical td.cmd directives file looks like this:

        DIRECTORY '*user*.wrk';
        INPUT 'plotsig.dat';
        OUTPUT 'TIMING';
        NS_PER_INCH = 20;
        NS_PER_TICK = 10;
        SIGNALS_PER_PAGE = 15;
        END.

Each directive is on a single line and must be terminated by a semicolon. An "END." statement is required following the last entry. The individual directives are described below:

- DIRECTORY -- the name of the SCALD directory to contain the output file (GED drawing). If this entry is omitted, the PLOTTIME program aborts.

- INPUT -- the name of the file to be used as input from the Timing Verifier or Logic Simulator. If this entry is omitted, the file "plotsig.dat" is used by default. Note that the name of the Timing Verifier output file is always "plotsig.dat"; the default name of the Logic Simulator output file is "plotsig.dat" or the file name specified in the Plot command.

- OUTPUT -- the name chosen for the GED drawing that Plottime produces. Usually you choose a name with no extension. It is handy to choose the root-drawing name of your design. If you choose a name with no extension, Plottime adds the extension .timing to the name you choose. This extension differentiates the timing diagrams from other drawings (.logic, .body) in your SCALD Directory. If you choose a name with an extension, Plottime adds nothing to it. If an output name is not specified, the output drawing is named "timing.timing" and is written into the specified SCALD directory. Note that version or page number extensions added to the output name are ignored.

- NS_PER_INCH -- the number of nanoseconds represented by an inch of timing diagram display. Note that a NS_PER_CM entry alternately can be used. For the timing diagram(s) to fit on a B size page (11x17), the total length of the timing diagrams should be 10 inches. Therefore, to display a 200 nanosecond waveform, set the NS_PER_INCH entry to 20. The total length of a plot should not exceed 30 inches.

- NS_PER_TICK -- the number of nanoseconds per tick mark on the timing diagram.

- SIGNALS_PER_PAGE -- the number of timing signals plotted per page. The maximum number of signals that can be plotted on a B size page is 15. When used with the Timing Verifier, the Plottime program plots all signals in the design. When used with the Simulator, Plottime plots all requested signals. When the number of signals to be plotted

exceeds the SIGNALS_PER_PAGE entry, Plottime produces as many pages as necessary to fit all of the signals. The pages are named, for example:

DESIGN.TIMING.1.1, DESIGN.TIMING.1.2, etc.

USING PLOTTIME

Plottime requires as input the directives file (td.cmd) and the Verifier or Simulator output file. The Verifier output file is named plotsig.dat, the Simulator output file may have a different name. The Timing Verifier only produces plotsig.dat when the Verifier TIMING_DIAGRAMS directive is included in the Verifier directives file with the value ON. If the TIMING_DIAGRAMS directive is omitted, it defaults to the value OFF.

When running the Logic Simulator, the PLot command is used to create the output file (see Simulator commands in the Simulator Reference Manual).

If the Timing Verifier or Logic Simulator is run remotely, the plotsig.dat (or equivalent output file) must be transferred to the local machine using the file copy utility (see the Utilities Reference Manual).

When the output file (plotsig.dat) and the directives file (td.cmd) are available in the current directory, run the Plottime program by entering the command:

plottime

at the UNIX prompt. Plottime creates a GED drawing with as many pages as are required to show all of the signals. Plottime also automatically updates the SCALD directory to include the drawing name (default name "timing.timing"). When Plottime is finished you see the message:

END TIMING DIAGRAM

To see the timing diagrams, go into GED and use the edit command to bring up your drawing onto the screen.

NOTE

The Plottime program automatically updates the SCALD directory stored on disk by entering the new drawing name. However, on platforms that support multiple windows, if the Graphics Editor is running in another window when the Plottime program is run, the SCALD Directory currently referenced by the Graphics Editor will not get updated. If this is the first time you are trying to edit this drawing (a drawing with the same name) GED will not be able to find it because it will not be listed in the SCALD Directory currently in use. To update the current SCALD Directory without exiting the Graphics Editor, use the following sequence of Graphics Editor commands:

IGNORE *user.wrk*
USE *user*.**wrk**

where *user*.wrk is the name of your current SCALD directory. This directs GED to fetch the copy of that SCALD Directory stored on disk.

When the number of timing signals exceeds the SIGNALS_PER_PAGE directive, the Graphics Editor displays the first page of the timing diagram (default file name timing.timing.1.1). To display a subsequent page, enter:

EDIT . . . *n*

where *n* is the page number to be displayed. The timing diagrams are conventional GED drawings and can be manipulated using the Graphics Editor commands. For example, a waveform can be GROUPed and then moved or deleted. The HARDCOPY command can be used to output waveform diagrams to a plotter.

EDITING THE INPUT FILE

The input file to Plottime from the Timing Verifier or the Logic Simulator (plotsig.dat) is an ASCII file. This file can be edited with a text editor (such as **vi**) prior to running Plottime in order to remove unwanted signals from the drawing. The first part of the file defines the labels that appear across the bottom of the waveform diagram. The actual signal descriptions follow the labels and are defined as a sequence of state-time values. The signals generated by the Timing Verifier are listed in alphabetical order; signals generated by the Logic Simulator are listed in the order in which they are "opened" in the Waveforms mode and, if specified, their display position (row). The signal name is enclosed in single quotes at the beginning of a line; the signal description can be any number of lines and is terminated by a semicolon. The following example shows a typical signal description.

Deleting an entire signal description from this file inhibits that signal from appearing on the timing diagrams produced by Plottime.