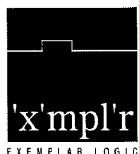


Using the MAX+PLUS II Software with Exemplar Logic Leonardo Software

Technical Brief 43

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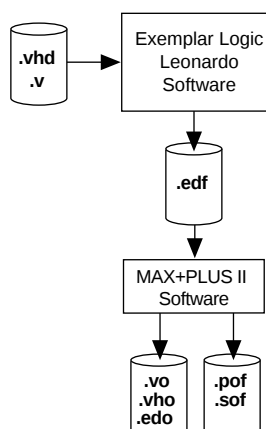
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Introduction

The Altera® MAX+PLUS® II software easily interacts with third-party EDA tools such as the Exemplar Logic Leonardo software. With the MAX+PLUS II software, you can target Altera programmable logic devices (PLDs) using the Leonardo software as your front-end tool. The Altera/Exemplar Logic Leonardo interface lets you quickly synthesize and implement designs for Altera devices, and even complete and verify multiple design revisions in a single day.

Figure 1 shows a flow diagram of the Altera/Exemplar Logic Leonardo interface for PCs.

Figure 1. Altera/Exemplar Logic Leonardo Interface for PCs



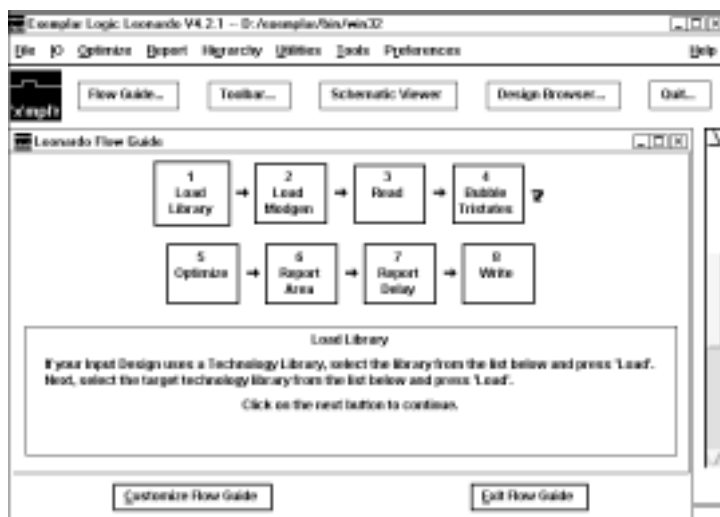
This technical brief describes how to generate an EDIF netlist file for the MAX+PLUS II software using the Leonardo software version 4.2.1 Flow Guide.

For complete instructions on how to synthesize and simulate a design using the Leonardo software and then import it into the MAX+PLUS II software for compilation, you should refer to the MAX+PLUS II Altera Commitment to Cooperative Engineering Solutions (ACCESSSM) Key Guidelines, which are available in the Altera Technical Support (AtlasSM) section of the Altera web site at <http://www.altera.com>. The guidelines are also available in HTML format in the \lit\html\maxkey directory on the MAX+PLUS II CD-ROM (version 8.2 and higher).

Using the Leonardo Flow Guide

The Leonardo Flow Guide provides a graphical user interface (GUI) that guides you through design synthesis and implementation. See Figure 2.

Figure 2. Leonardo Software Flow Guide



The following example procedure shows you how to select an Altera target device and generate an EDIF netlist file.

1. To start the Flow Guide and create a new project for an Altera device, click on the **Flow Guide** button and choose an Altera device family from the *Target Technology* drop-down list box. Choose **Run Flow Guide**.

You may also select software optimization parameters from the *Optimize Flow* checkbox options. For this example procedure, optimization parameters are not selected.

2. Choose the **Load Library** button. Verify that your selected device appears in the *Technology* window in the **Load Library** dialog box. Choose **Load**.
3. Choose the **Read** button. Specify your source files in the *Filename* window. The source files must be read from lowest to highest level within the design hierarchy. Then, turn on the *Do Automatic Processing for Source Technology* option and choose **Altera**. Then choose **Read** to begin source code analysis.

You must correct any coding errors that appear in the Leonardo software text / command screen before you continue the flow. These errors are highlighted in red text.

4. Choose the **Bubble Tristates** button and choose **bubble_tristates** to move tri-states up in the design hierarchy.
5. Choose the **Optimize** button. Verify that your selected target device family is selected, and if desired, turn on the *Effort*, *Mode*, or *Optimize* options. Choose **Optimize** to begin design synthesis.
6. Choose the **Area Report** button. Specify an output file in the *Report Filename* window and choose desired report results. Choose **Report**.
7. Choose the **Report Delay** button. Specify an output file in the *Report Filename* window and choose desired report delay results. Choose **Report**.
8. Choose the **Write** button. Specify the output file name in the *Filename* window. Be sure to select **EDIF** from the *Format* options. Choose **Write**.

The Leonardo software creates an EDIF netlist file, which you can import into the MAX+PLUS II software for compilation.

Conclusion

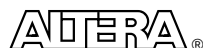
Altera provides extensive support documentation to help you successfully interface the MAX+PLUS II software with third-party EDA design entry tools. For technical support, contact Altera Applications at (800) 800-EPLD or go to the MAX+PLUS II ACCESS Key Guidelines. You can also e-mail your technical questions to Altera at **sos@altera.com**. For answers to common questions regarding the Altera/Exemplar Logic Leonardo interface, search Atlas Solutions on the Altera web site.

More Information

The following documents provide more detailed information:

- MAX+PLUS II ACCESS Key Guidelines
- *MAX+PLUS II Programmable Logic Development System & Software Data Sheet*
- *EDA Software Support*

The documents are available by contacting Literature Services at (888) 3-ALTERA; you can also download them from the Altera web site at **<http://www.altera.com>**.



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