OpenCore Evaluation of AMPP Megafunctions

Introduction

The Altera Megafunction Partner Program (AMPP℠) is a community of independent companies that offer reusable intellectual property for Altera® devices. These intellectual property products, also known as megafunctions, offer a broad range of solutions for a diverse set of FPGA applications. Using megafunctions in your design saves time spent in both design and verification, while maintaining a high standard of quality.

With Altera's free OpenCore evaluation feature, you can perform the following actions:

■ Simulate the behavior of a megafunction within your system
■ Verify the functionality of your design, as well as evaluate its size and speed quickly and easily

☞ Altera's OpenCore feature does not support programming file generation and/or hardware evaluation. For information about these and other features of OpenCore Plus evaluation, refer to *AN 320: OpenCore Plus Evaluation of Megafunctions*.

This document describes how to instantiate an AMPP function into a design and evaluate it using the OpenCore feature.

Obtaining and Licensing an AMPP Megafunction

To request an AMPP megafunction that supports OpenCore evaluation directly from the Altera web site, perform the following steps:

1. Point your web browser to the Altera IP MegaStore™ web site at www.altera.com/products/ip/ipm-index.html.

2. Use the search engine to generate a table of megafunctions that fit your search criteria.

3. Click the name of the megafunction you wish to evaluate. The product description web page displays, listing the name of the AMPP partner who is offering the megafunction, and an overview of the megafunction's features.

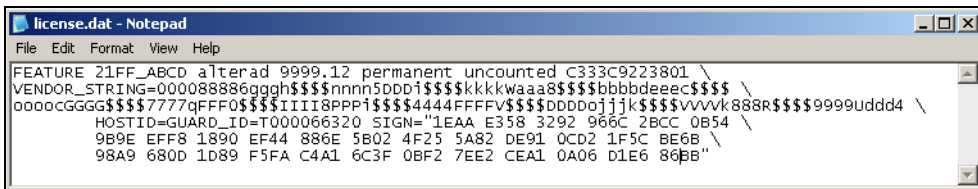4. Click **Request Free Evaluation** and follow the instructions for submitting a request.

When you submit a request, an e-mail message containing your contact and project information is sent to the AMPP megafunction partner. The partner will respond to your request with an OpenCore version of the megafunction and an evaluation license file.

☞ Make sure to populate the web request with complete and accurate information. Failure to do so may jeopardize the receipt of an OpenCore megafunction.

☞ Delivery methods for OpenCore evaluations may vary slightly for each AMPP partner. Make sure to follow the instructions provided by the AMPP partner.

The license file contains an Altera FEATURE line that enables compilation and simulation of the megafunction in Altera's Quartus® II software (Figure 1).

Figure 1. AMPP Megafunction License FEATURE Line

To license an AMPP megafunction for OpenCore evaluation, perform the following steps:

1. Open the megafunction license file in a text editor. The file should contain one FEATURE line spanning two or more lines in the file.

2. Open your Quartus II **license.dat** file in a text editor.

3. Copy the FEATURE line from the megafunction license file and paste it at the end of your Quartus II license file.

4. Start the Quartus II software and choose **License Setup** (Tools menu).

5. Confirm that the path to your Quartus II license file appears in the **License File** dialog box (Figure 2).

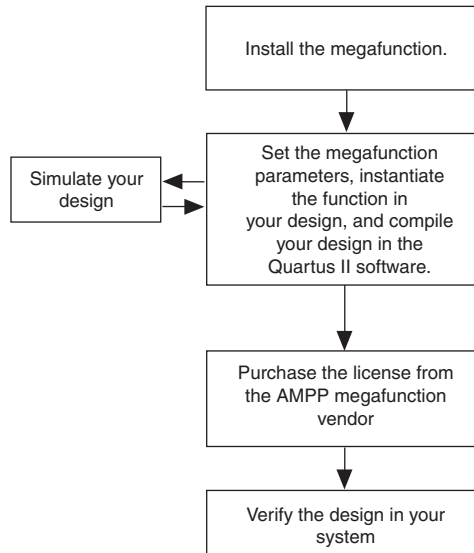*Figure 2. Quartus II License Setup Page of the Options Dialog Box*
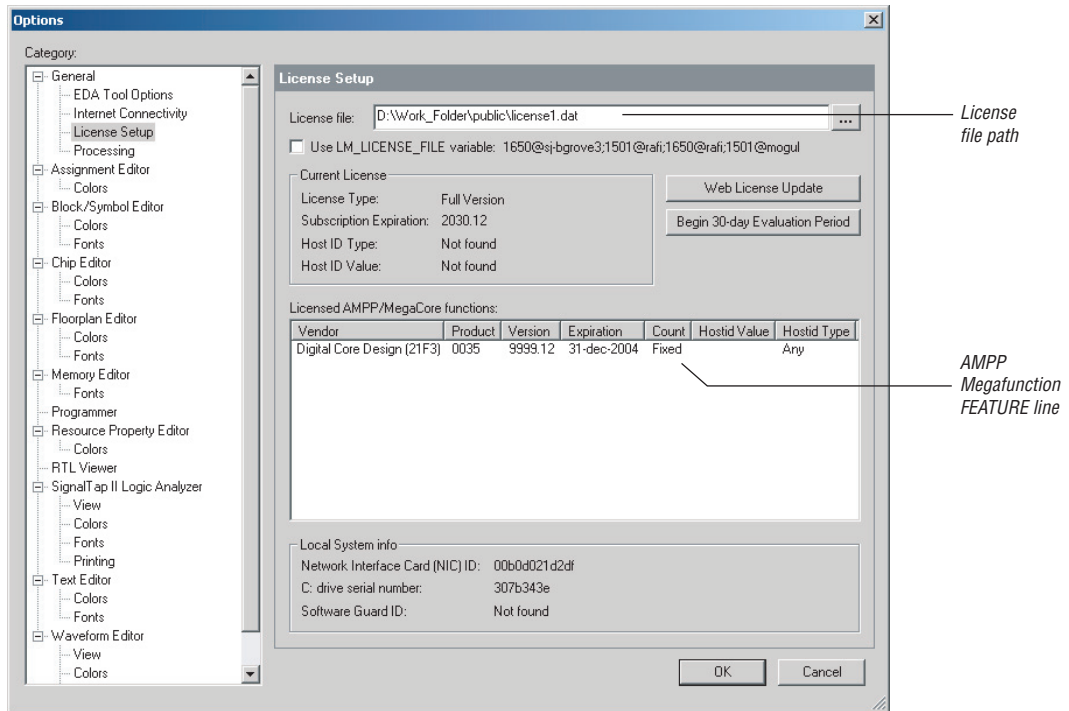
6. Confirm that the appropriate vendor (AMPP partner) name and product ID appear in the "Licensed AMPP/MegaCore functions" box (Figure 2).

You are now ready to evaluate your AMPP megafunction.

OpenCore Megafunction Design Flow

A design flow incorporating AMPP megafunctions and using the OpenCore evaluation feature is outlined in Figure 3.

Figure 3. AMPP Megafunction OpenCore Design Flow

```
                    ┌─────────────────────────┐
                    │  Install the megafunction. │
                    └─────────────────────────┘
                                 │
                                 ▼
  ┌──────────────┐   ┌─────────────────────────┐
  │ Simulate your │◄──│   Set the megafunction   │
  │    design     │──►│  parameters, instantiate │
  └──────────────┘   │      the function in     │
                     │   your design, and compile │
                     │     your design in the    │
                     │    Quartus II software.   │
                     └─────────────────────────┘
                                 │
                                 ▼
                     ┌─────────────────────────┐
                     │   Purchase the license from │
                     │   the AMPP megafunction   │
                     │          vendor           │
                     └─────────────────────────┘
                                 │
                                 ▼
                     ┌─────────────────────────┐
                     │   Verify the design in your │
                     │          system           │
                     └─────────────────────────┘
```

Install the megafunction

Each AMPP partner provides instructions on how to install their product into the Altera design environment. It is important to follow the directions carefully, since many products require multiple installation steps.

Parameterize, Instantiate, and Compile

Some AMPP megafunctions are designed with a set of user-selectable parameters. The OpenCore design flow allows you to evaluate the impact of different parameter settings on the overall design. These options should be set prior to compilation in the Quartus II software. Refer to the documentation included by the AMPP partner on how to instantiate the megafunction and set any applicable parameters.

Once you have properly instantiated the megafunction into your design, compile the Quartus II project and evaluate resource utilization and static timing analysis results.

Refer to the *Introduction to Quartus II Manual* for information on compiling your design using the Quartus II software.

Simulate

After successful compilation, you can simulate using the Quartus II software. You can perform the compilation and simulation steps as many times as required.

☞ Some AMPP vendors also support simulation platforms outside the Quartus II software. Contact the AMPP partner for details.

Refer to the *Introduction to Quartus II Manual* for information on simulating your design using the Quartus II software.

Purchase

When the you are satisfied with the results of the megafunction evaluation, you can purchase a license for the megafunction. All negotiation involving licensing, purchase, and deliverables takes place exclusively between you and the AMPP partner.

Conclusion

The OpenCore feature allows you to evaluate AMPP megafunctions risk-free. You can use the OpenCore feature to instantiate, compile, and simulate an AMPP megafunction before deciding to purchase the megafunction from the AMPP partner.

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