Migrating from Engineering Silicon to Production Devices for the Axcelerator Family

Introduction

The Axcelerator family, one of the most recent antifuse offerings from Actel, combines higher density and performance with features like embedded SRAM and expanded I/O standards. To facilitate early design prototyping, Actel has provided users with Engineering Silicon (ES) devices.

With the release of Designer R1-2003 SP3 and pre-production Axcelerator silicon, the ES devices will no longer be available as a valid option. As the production units have enhanced routing and processes, the ES designs are not directly transferable and require a few quick steps to migrate from one device to another. The purpose of this technical brief is to clearly explain the steps involved.

Migration Flow

The following steps summarize the conversion process from ES to production parts:

1. Export the EDIF netlist and the Physical Design Constraint (PDC) file from your ES design
2. Start a new Designer project, selecting the production part in the Device Selection Wizard
3. Import the EDIF netlist and the PDC into the new project
4. Compile, then run place-and-route using the Incremental Fix mode
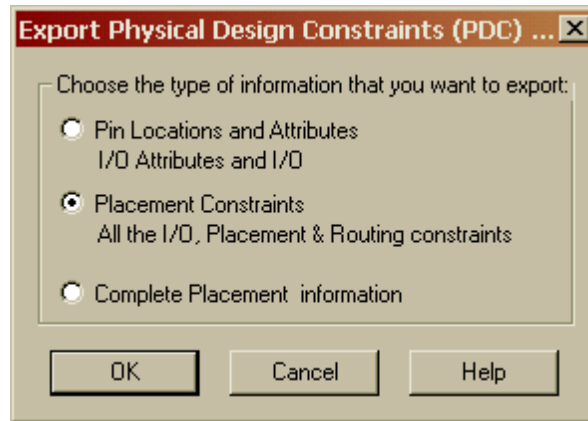
Step 1

To export a PDC file:

1a. From the File Menu, select Export, and click Auxiliary Files from the Export sub-menu. This displays the Export Auxiliary Files dialog box appears, as shown in Figure 1

- File name: Type your file name
- Save as type: Select PDC
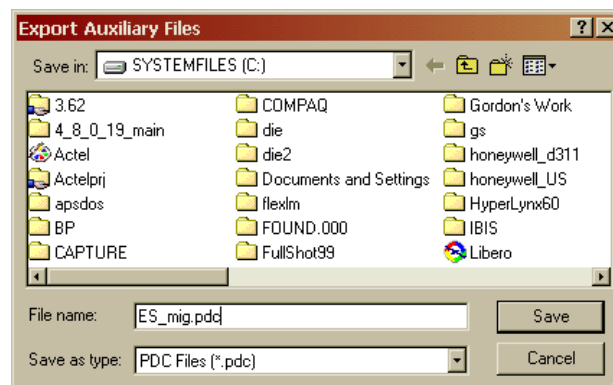
Figure 1 • Export Auxiliary Files

1b. Click Save. An Export Physical Design Constraints dialog box appears, as shown in Figure 2.
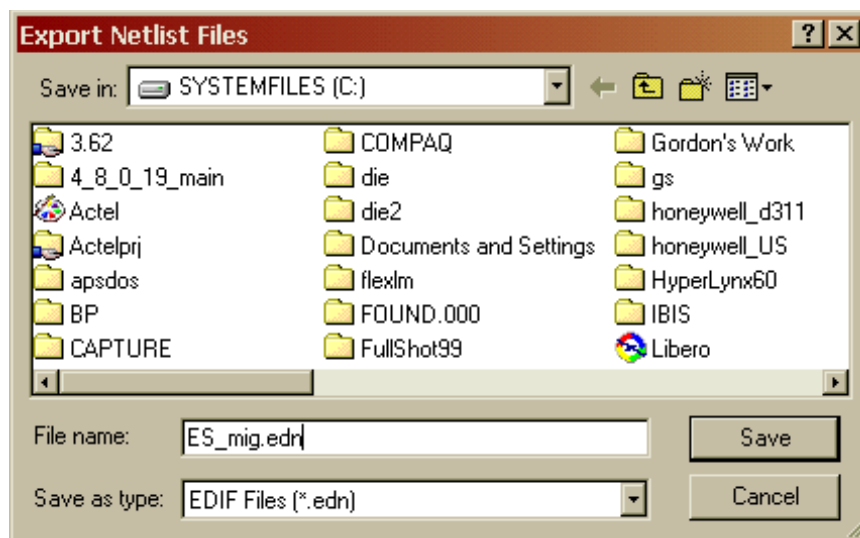

Figure 2 • *Export Physical Design Constraints (PDC)*

- Select "Placement Constraints. All the I/O, Placement & Routing constraints"

1c. Click OK.

To export an EDIF Netlist (EDN) file:

1d. From the File Menu, select Export, and click Netlist from the Export sub-menu. This displays Export Netlist Files dialog box appears, as shown in Figure 3.

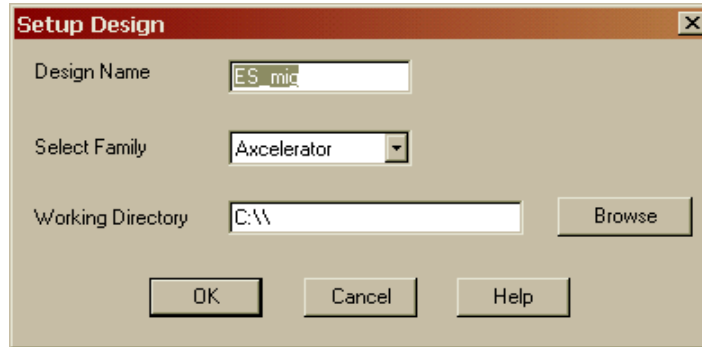*Figure 3* • *Exporting Your EDN File*

- File name: Type your file name
- Save as type: Select EDIF Files (*.edn)

1e. Click Save.

Step 2

To start a New Design:

2a. Click the Start New Design button in the main window, or in the File menu, click New. This displays the Setup Design dialog box, as shown in Figure 4.


Figure 4 • *Setup Design*

2b. Setup Design

• Enter a Design Name. The design name is used in reports and as the default name when saving or exporting files

• Select an Actel product family from the drop down menu list (Axcelerator in this case)

• Specify a working directory (Do not use spaces in the directory name)

2c. From the Tools Menu, click Device Selection

The Device Selection Wizard window appears, as show in Figure 5. The ES option is no longer available. Select the production part, click on Next to fill in the operating conditions as you would for the ES part and continue with "Step 3" on page 4.
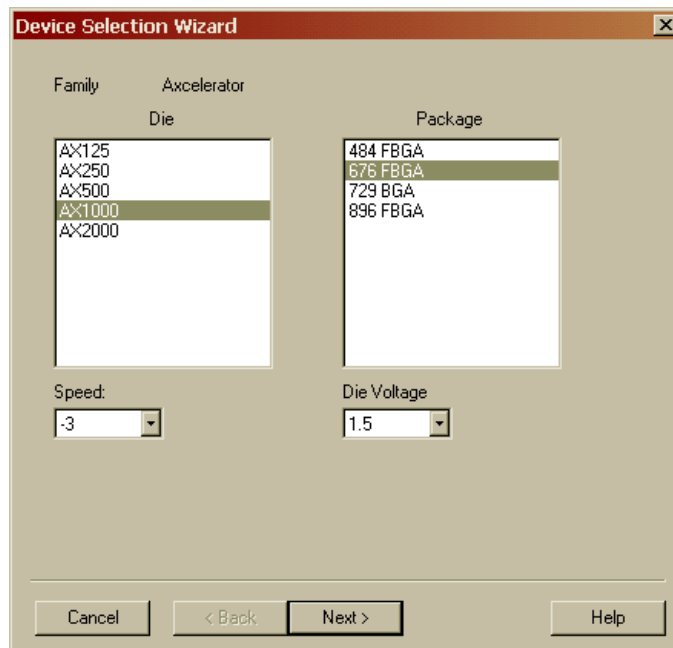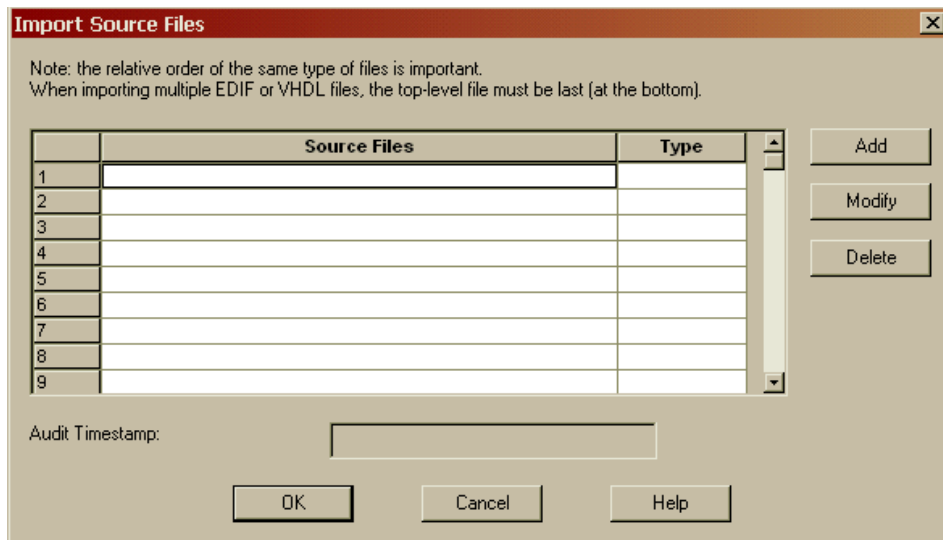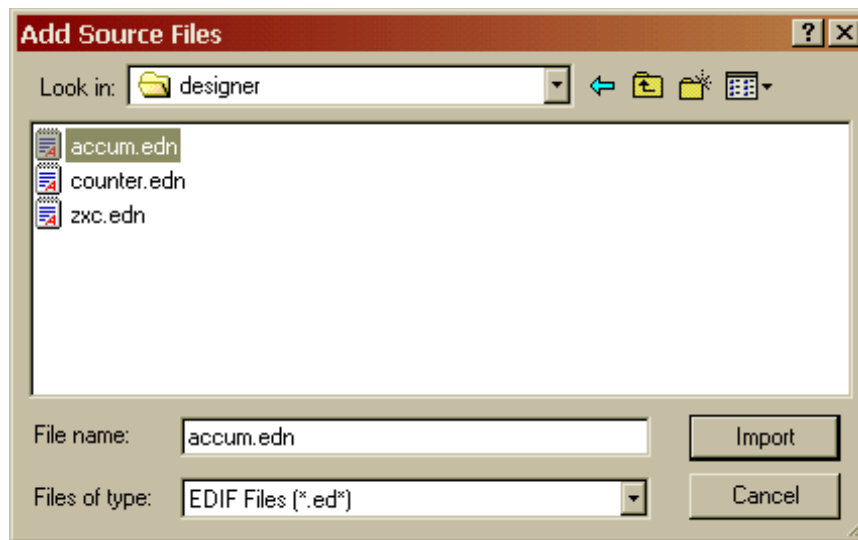

Figure 5 • *Device Selection Wizard*

Step 3

To import a source file:

3a. In the File menu, click Import Source Files. This displays the Import Source Files dialog box, as shown in Figure 6.
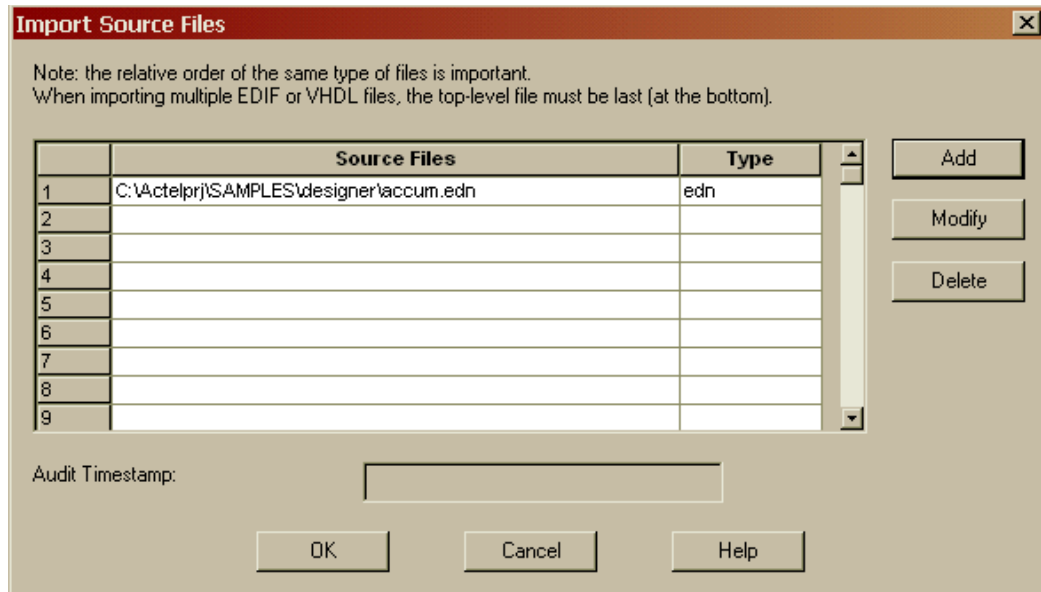

Figure 6 • *Import Source Files*

3b. Click the Add button. The Add Source Files dialog appears, as shown in Figure 7.
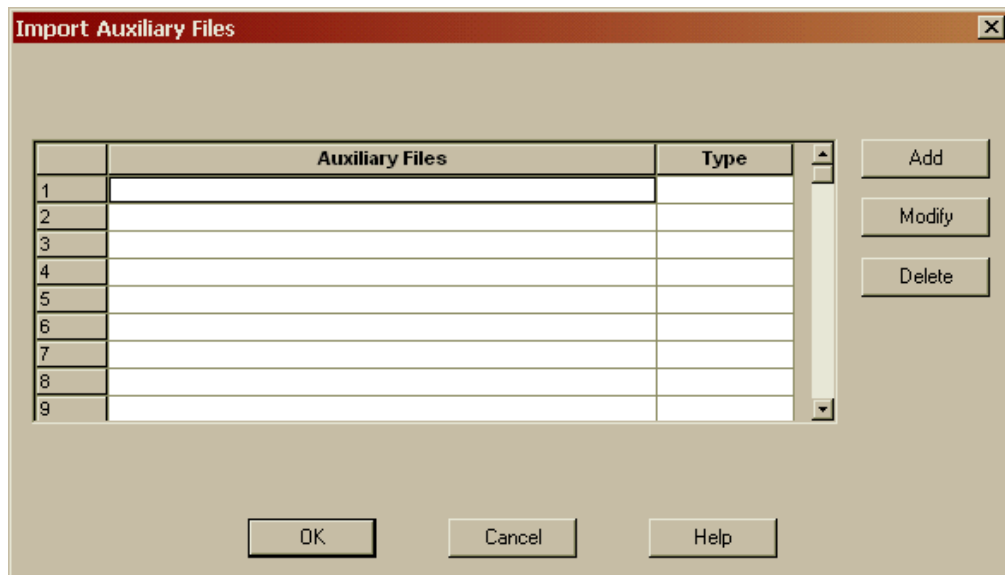

Figure 7 • *Add Source File*

3c. Select your EDIF netlist and click Import. The File is added to the Import Source Files dialog box, as shown in Figure 8.
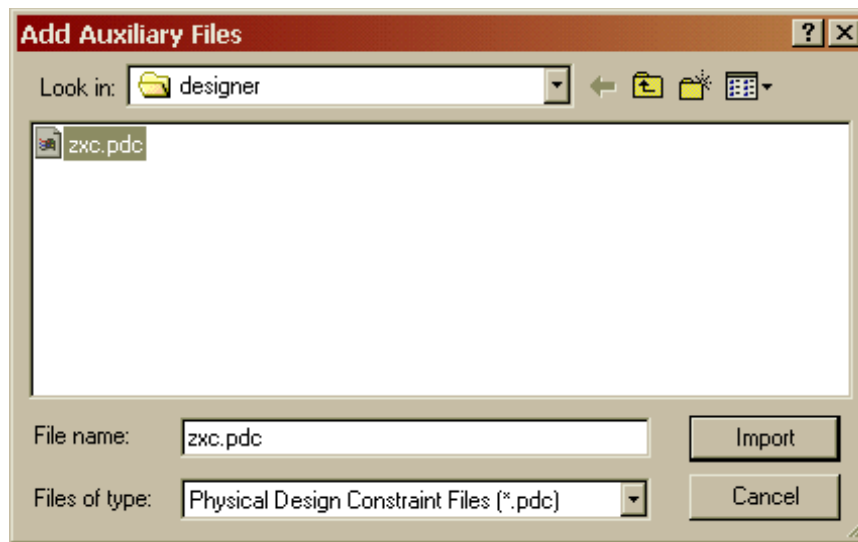

***Figure 8 • ** Import Source Files with EDIF File Added*

To import a PDC file:

3d. From the File menu, click Import Auxiliary Files. The Import Auxiliary Files dialog appears, as shown in Figure 9.


***Figure 9 • ** Importing a PDC File*

3e. Click the Add button. The Add Auxiliary Files dialog box appears, as shown in Figure 10.

Figure 10 • *Selecting the PDC File*

Filter for your PDC file by selecting Physical Design Constraint Files (*.pdc) from the Files of type drop-down list box as shown on Figure 10.

3f. Select the PDC file and click Import. The file is added to the Import Auxiliary Files dialog box, as shown in Figure 11.
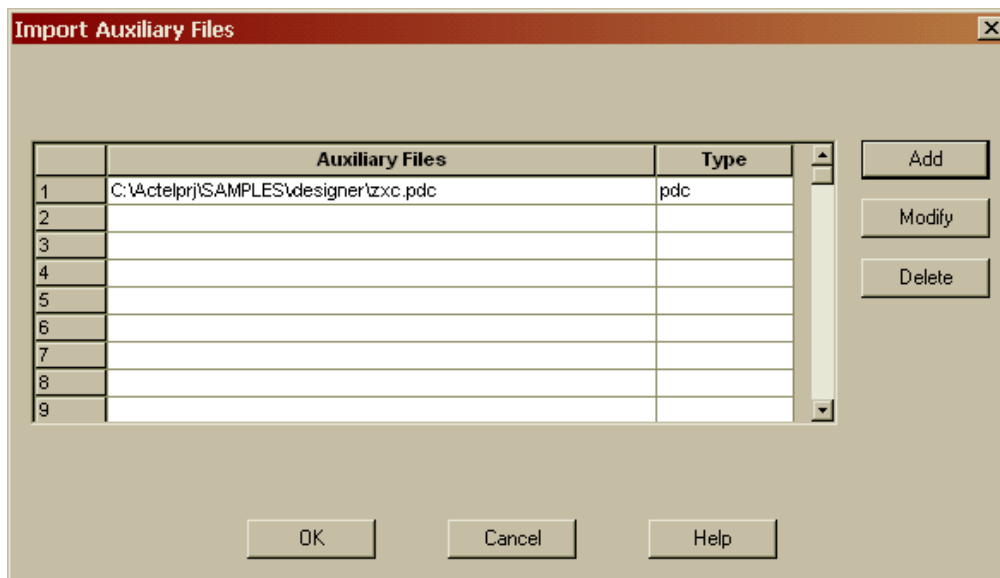
Figure 11 • *PDC File Added to the Import Auxiliary Files*

3g. Click OK. The PDC file is imported into Designer. Any errors appear in the Log Window.

Note: File names or paths with spaces may not import into Designer. Rename the file or path, removing the spaces, and re-import.
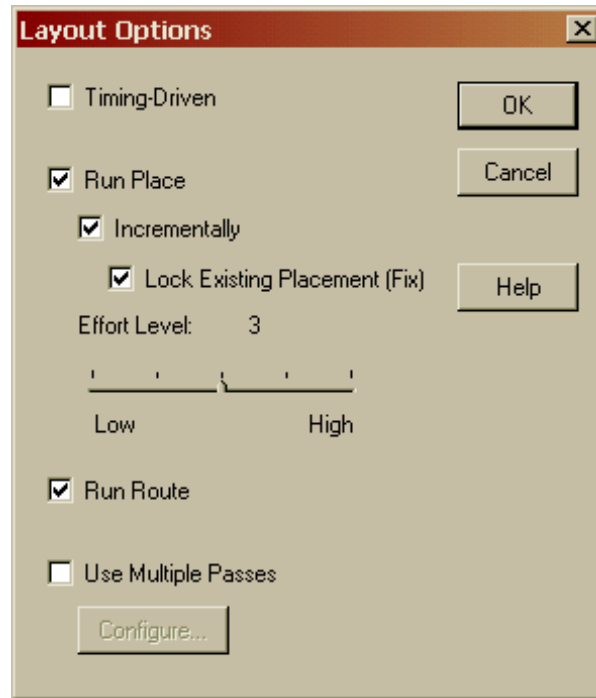
Step 4

To layout your design.

4a. There are three ways to initiate the Layout command:

• In the Tools menu, click Layout

• Click the Layout button in the Design Flow

• Click the Layout icon in the toolbar

4b. Set your Layout Options by checking Run Place, Incrementally, and Lock Existing Placement (Fix). The Layout Options dialog box should be as shown in Figure 12.

Figure 12 • *Axcelerator Layout Options*

4c. Click OK. Layout runs. Status messages appear in the Log window. The designer should then re-verify the timing. This is especially true for asynchronous designs.

Conclusion

By following the simple steps listed above, designers will have no difficulty transferring their Axcelerator ES designs to production devices and making the best use of what the family has to offer.

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