**CHAPTER-6**

**SOFTWARE TOOL (XILINX)**

# 6. XILINX

**6.1 INTRODUCTION**

**Xilinx ISE** (**I**ntegrated **S**ynthesis **E**nvironment) is a software tool produced by Xilinx for synthesis and analysis of HDL designs, enabling the developer to synthesize ("compile") their designs, perform timing analysis, examine RTL diagrams, simulate a design's reaction to different stimuli, and configure the target device with the programmer.

Xilinx ISE is a design environment for FPGA products from Xilinx, and is tightly-coupled to the architecture of such chips, and cannot be used with FPGA products from other vendors. The Xilinx ISE is primarily used for circuit synthesis and design, while ISIM or the ModelSim logic simulator is used for system-level testing. Other components shipped with the Xilinx ISE include the Embedded Development Kit (EDK), a Software Development Kit (SDK) and Chip Scope Pro.

Since 2012, Xilinx ISE has been discontinued in favor of Vivado Design Suite, which serves the same roles as ISE with additional features for system on a chip development. Xilinx released the last version of ISE in October 2013 (version 14.7), and states that "ISE has moved into the sustaining phase of its product life cycle, and there are no more planned ISE releases."

**6.2 Migrating Projects from Previous ISE Software Releases**

When you open a project file from a previous release, the ISE® software prompts you to migrate your project. If you click Backup and Migrate or Migrate Only, the software automatically converts your project file to the current release. If you click Cancel, the software does not convert your project and, instead, opens Project Navigator with no project loaded.

**Note:**After you convert your project, you cannot open it in previous versions of the ISE software, such as the ISE 11 software. However, you can optionally create a backup of the original project as part of project migration, as described below.

**6.2.1 To Migrate a Project**

1. In the ISE 12 Project Navigator, select **File > Open Project**.
2. In the Open Project dialog box, select the .xise file to migrate.

**(Note**You may need to change the extension in the Files of type field to display .npl (ISE 5 and ISE 6 software) or .ise (ISE 7 through ISE 10 software) project files.**)**

1. In the dialog box that appears, select **Backup and Migrate** or **Migrate Only**.
2. The ISE software automatically converts your project to an ISE 12 project.

**Note**If you chose to Backup and Migrate, a backup of the original project is created at project\_name\_ise12migration.zip.

1. Implement the design using the new version of the software.

**Note**Implementation status is not maintained after migration.

**6.3 Properties**

For information on properties that have changed in the ISE 12 software, see ISE 11 to ISE 12 Properties Conversion.

**6.4 IP Modules**

If your design includes IP modules that were created using CORE Generator™ software or Xilinx® Platform Studio (XPS) and you need to modify these modules, you may be required to update the core. However, if the core netlist is present and you do not need to modify the core, updates are not required and the existing netlist is used during implementation.

**6.5 Obsolete Source File Types**

The ISE 12 programming backings the greater part of the source sorts that were upheld in the ISE 11 programming.

On the off chance that you are working with undertakings from past discharges, state graph source documents (.dia), ABEL source records (.abl), and test seat waveform source documents (.tbw) are no more upheld. For state outline and ABEL source records, the product discovers a related HDL document and adds it to the task, if conceivable. For test seat waveform documents, the product consequently changes over the TBW record to a HDL test seat and adds it to the venture. To change over a TBW record after task relocation, see Converting a TBW File to a HDL Test Bench.

**6.6 Using ISE Example Projects**

To help familiarize you with the ISE® software and with FPGA and CPLD designs, a set of example designs is provided with Project Navigator. The examples show different design techniques and source types, such as VHDL, Verilog, schematic, or EDIF, and include different constraints and IP.

**6.6.1 To Open an Example**

1. Select **File > Open Example**.
2. In the Open Example dialog box, select the Sample Project Name.

**(Note**To help you choose an example project, the Project Description field describes each project. In addition, you can scroll to the right to see additional fields, which provide details about the project.**)**

1. In the Destination Directory field, enter a directory name or browse to the directory.
2. Click **OK**.

The example project is extracted to the directory you specified in the Destination Directory field and is automatically opened in Project Navigator. You can then run processes on the example project and save any changes.

**Note:**If you modified an example project and want to overwrite it with the original example project, select **File > Open Example**, select the Sample Project Name, and specify the same Destination Directory you originally used. In the dialog box that appears, select **Overwrite the existing project** and click **OK**.

**6.7 Creating a Project**

Venture Navigator permits you to deal with your FPGA and CPLD plans utilizing an ISE® venture, which contains all the source records and settings particular to your outline. To begin with, you must make a task and after that, include source documents, and set procedure properties. After you make an undertaking, you can run procedures to execute, compel, and break down your configuration. Venture Navigator gives a wizard to offer you some assistance with creating an undertaking as takes after.

Note If you incline toward, you can make an undertaking utilizing the New Project dialog box rather than the New Project Wizard. To utilize the New Project dialog box, deselect the Use New Project wizard alternative in the ISE General page of the Preferences dialog box

**6.7.1 To Create a Project**

1. Select **File > New Project** to launch the New Project Wizard.
2. In the **Create New Project page,** set the name, location, and project type, and click **Next**.
3. For EDIF or NGC/NGO projects only: In the **Import EDIF/NGC Project page**, select the input and constraint file for the project, and click **Next**.
4. In the **Project Settings page**, set the device and project properties, and click **Next**.
5. In the **Project Summary page**, review the information, and click **Finish** to create the project

Project Navigator creates the project file (project\_name.xise) in the directory you specified. After you add source files to the project, the files appear in the Hierarchy panel

**6.8 Design panel**

Project Navigator manages your project based on the design properties (top-level module type, device type, synthesis tool, and language) you selected when you created the project. It organizes all the parts of your design and keeps track of the processes necessary to move the design from design entry through implementation to programming the targeted Xilinx® device.

**Note**For information on changing design properties, see **Changing Design Properties.**

You can now perform any of the following:

* Create new source files for your project.
* Add existing source files to your project.
* Run processes on your source files.

Modify process properties.

**6.9 Creating a Copy of a Project**

You can create a copy of a project to experiment with different source options and implementations. Depending on your needs, the design source files for the copied project and their location can vary as follows:

* Design source files are left in their existing location, and the copied project points to these files.
* Design source files, including generated files, are copied and placed in a specified directory.
* Design source files, excluding generated files, are copied and placed in a specified directory.

Copied projects are the same as other projects in both form and function. For example, you can do the following with copied projects:

* Open the copied project using the File > Open Project menu command.
* View, modify, and implement the copied project.
* Use the Project Browser to view key summary data for the copied project and then, open the copied project for further analysis and implementation

**6.10 Using the Project Browser**

Alternatively, you can create an archive of your project, which puts all of the project contents into a ZIP file. Archived projects must be unzipped before being opened in Project Navigator. For information on archiving, see **Creating a Project Archive.**

**6.10.1 To Create a Copy of a Project**

1. Select **File > Copy Project**.
2. In the Copy Project dialog box, enter the **Name** for the copy.

**Note**The name for the copy can be the same as the name for the project, as long as you specify a different location.

1. Enter a directory **Location** to store the copied project.
2. Optionally, enter a **Working directory**.

By default, this is blank, and the working directory is the same as the project directory.

However, you can specify a working directory if you want to keep your ISE® project file (.xise extension) separate from your working area.

1. Optionally, enter a **Description** for the copy.

The description can be useful in identifying key traits of the project for reference later.

1. In the Source options area, do the following:

Select one of the following options:

* **Keep sources in their current locations -** to leave the design source files in their existing location.

If you select this option, the copied project points to the files in their existing location. If you edit the files in the copied project, the changes also appear in the original project, because the source files are shared between the two projects.

* **Copy sources to the new location -** to make a copy of all the design source files and place them in the specified Location directory.

On the off chance that you select this choice, the replicated task focuses to the records in the predefined registry. In the event that you alter the documents in the replicated venture, the progressions don't show up in the first venture, in light of the fact that the source records are not shared between the two undertakings.

Alternatively, select Copy documents from Macro Search Path indexes to duplicate records from the registries you indicate in the Macro Search Path property in the Translate Properties dialog box. All records from the predetermined registries are replicated, not only the documents utilized by the configuration.

**Note:** If you included a net rundown source document specifically to the undertaking as depicted in Working with Net rundown Based IP, the record is consequently replicated as a component of Copy Project in light of the fact that it is a task source document. Adding net rundown source documents to the venture is the favored system for consolidating net rundown modules into your outline, in light of the fact that the records are overseen naturally by Project Navigator.

Alternatively, snap Copy Additional Files to duplicate records that were excluded in the first venture. In the Copy Additional Files dialog box, utilize the Add Files and Remove Files catches to upgrade the rundown of extra documents to duplicate. Extra documents are replicated to the duplicated venture area after every single other record are copied. To reject produced documents from the duplicate, for example, execution results and reports, select Exclude generated files from the copy

**6.11** **Exclude generated files from the copy**

When you select this option, the copied project opens in a state in which processes have not yet been run.

To automatically open the copy after creating it, select **Open the copied project**.

**Note:**By default, this option is disabled. If you leave this option disabled, the original project remains open after the copy is made.

Click **OK**.

**6.12 Creating a Project Archive**

A project archive is a single, compressed ZIP file with a .zip extension. By default, it contains all project files, source files, and generated files, including the following:

* User-added sources and associated files
* Remote sources
* Verilog `include files
* Files in the macro search path
* Generated files
* Non-project files

**6.13 To Archive a Project**

1. Select **Project > Archive**.
2. In the Project Archive dialog box, specify a file name and directory for the ZIP file.
3. Optionally, select **Exclude generated files from the archive** to exclude generated files and non-project files from the archive.
4. Click **OK**.

A ZIP file is created in the specified directory. To open the archived project, you must first unzip the ZIP file, and then, you can open the project.

**Note:**Sources that reside outside of the project directory are copied into a remote sources subdirectory in the project archive. When the archive is unzipped and opened, you must either specify the location of these files in the remote sources subdirectory for the unzipped project, or manually copy the sources into their original location.