



These release notes for DSP Builder version 6.0 SP1 contain the following information:

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System Requirements

To use DSP Builder version 6.0 SP1, the following system requirements exist:

- A computer running a Windows 2000/XP operating system
- MATLAB version 7.0 (R14) or higher
- Simulink version 6.0 (R14) or higher
- Quartus® II software version 6.0 or higher
- Adobe Reader version 5.0 or higher, for viewing PDF documentation

DSP Builder provides automated design flows using Tool command language (Tcl) scripts as well as a manual design flow. In addition to Quartus® II native synthesis, the flow also supports:

- Synplify software version 8.5 or higher
- LeonardoSpectrum™ software version 2005b or higher
- Precision RTL synthesis software version 2005c or higher
- ModelSim® or ModelSim-Altera simulator version 6.1d or higher

New Features & Enhancements

The following enhancement has been made in version 6.0 SP1:

- The user interface to the Quartus II Global Project Assignment block has been modified to allow additional assignment arguments to be specified. Consequently, quotes are no longer automatically applied around the assignment value and you must manually insert quotes around any values or arguments that include spaces or other special characters.

The following list outlines new features and enhancements in version 6.0:

- A new `DSPBUILDER_ROOTDIR` environment variable is set during installation and points to the installation directory.
- Added support for Stratix II GX devices.
- Enhancements to SOPC Builder integration:
 - Support for the `chipselct` signal has been added to the Avalon Slave block.
 - Parameters to enable the `byteselect` and `flush` signals have been added to the Avalon Master block.
 - Additional custom instruction blocks are provided to support extended logic blocks and access to the internal register file.
- Most values in the Block Parameters dialog boxes can be now be specified using MATLAB variables. These values are annotated as “Parameterizable” in the DSP Builder Reference Manual and the block descriptions which can be accessed from the **Help** menu. Masked subsystem and workspace variables are both supported
- Support for the **Index** and **Search** tabs in MATLAB help.

Errata Fixed in This Release

The following errata are fixed in version 6.0 SP1:

- Wrong library directory in Verilog testbench Tcl scripts
- MATLAB crash if workspace variables were uninitialized when opening a model
- MATLAB fixed point license unnecessarily checked out
- Global Project Assignment block - additional arguments not allowed
- Multi-Rate FIFO output data used wrong clock

The following errata was fixed in version 6.0:

- SignalCompiler flow shortcut failed



For the most up-to-date errata for this release, refer to the errata page on the Altera website:

www.altera.com/literature/es/es_dsp_builder_60.pdf

Obtain & Install DSP Builder

Before you can use DSP Builder, you must obtain the files and install them on your computer. DSP Builder can be installed from the DSP Builder version 6.0 SP1 CD-ROM, or downloaded from the Altera web site.



The following instructions describe downloading and installing DSP Builder. If you already have installed DSP Builder from the CD-ROM, skip to “[DSP Builder Directory Structure](#)” on page 4.

Download DSP Builder

If you have Internet access, you can download DSP Builder from Altera's web site at www.altera.com. Follow the instructions below to obtain DSP Builder from the Internet.

If you do not have Internet access, contact your local Altera representative to obtain the DSP Builder version 6.0 SP1 CD-ROM.

1. Point your web browser to www.altera.com/products/software/
2. Click on **DSP Builder** and then the link to **Download DSP Builder**.
3. Fill out the registration form and click **Submit Request**.
4. Read the Altera license agreement. Turn on the **I have read the license agreement** check box and click **Proceed to Final Step**.
5. Follow the instructions on the download and installation page to download the executable and save it to your hard disk.

Install DSP Builder

Follow these steps to install the DSP Builder function on a computer running a supported version of the Windows operating system:



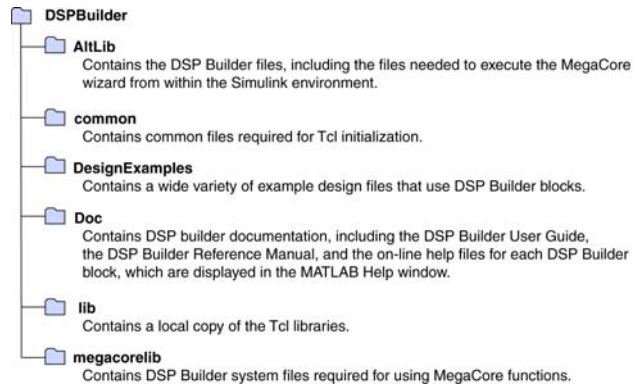
Before you install DSP Builder, Altera recommends that you install the MATLAB, Simulink and Quartus II software.

1. Close the following software if it is running on your computer:
 - The Quartus II software
 - The LeonardoSpectrum software
 - The Synplify software
 - The MATLAB and Simulink tools
 - The ModelSim simulator
 - The Precision RTL synthesis software
2. Choose **Run** (Windows Start menu).
3. Type `<path>\DSPBuilder-v6.0_SP1.exe`, where `<path>` is the location of the downloaded file.
4. Click **OK**. The **DSP Builder v6.0 SP1 - InstallShield Wizard** dialog box appears. Follow the on-line instructions to finish installation.

DSP Builder Directory Structure

The DSP Builder installation program copies files into the directories shown in [Figure 1](#).

Figure 1. DSP Builder Directory Structure



Setup DSP Builder

You are prompted to setup DSP Builder at the end of the install program. Alternatively, you can set up the default paths required by DSP Builder after installation by performing the following steps in MATLAB:

1. Start the MATLAB/Simulink software.
2. Use the `cd` command at the MATLAB prompt to change directory to the *<DSP Builder installed path>*\AltLib subdirectory. (The default DSP Builder installed path is `c:\altera\DSPBuilder`.)
3. Run the setup script by typing the following command at the MATLAB prompt:

```
setup_dspbuilder ←
```

Accessing the DSP Builder Libraries from within MATLAB

After installing DSP Builder, you can view DSP Builder libraries in the MATLAB software by performing the following steps:

1. Start the MATLAB software.

2. Click the Start icon in the lower left corner of the main MATLAB window. Point to Simulink and click **Library Browser**. The Altera DSP Builder folder is available in the Simulink Library Browser window.

Using Multiple Versions of DSP Builder

The DSP Builder install program searches for any previous installations of DSP Builder before it installs a new version. If an existing installation is found, the program prompts you to modify, repair or remove the old version.

You cannot use multiple versions of DSP Builder in Simulink at the same time. However, you can install multiple versions on the same computer and switch between them as described below.

If you would like to keep multiple versions of DSP Builder on the same computer, copy the existing *<install path>\DSPBuilder* directory to a separate location. When you run the DSP Builder installation program, go ahead and remove the older version DSP Builder as prompted. This will remove references to the old location without removing the separate copy. You can then re-run the install program which prompts you for the location of the new version.

If you have multiple versions of DSP Builder installed, the MATLAB path variable may have multiple entries for the **AltLib** folder. You should remove the old path if you do not want to use the previous version. If you would like to switch to using the older version of DSP Builder, enter these commands at the MATLAB prompt:

1. `rmpath <path to new version>\DSPBuilder\AltLib` ←
2. `addpath <path to old version>\DSPBuilder\AltLib` ←
3. `cd <path to old version>\DSPBuilder\AltLib` ←
4. `setup_dspbuilder` ←

You can switch back to the new version of DSP Builder using similar steps to change the paths to the new location.

Specifying 3rd Party Synthesis Tool Paths for SignalCompiler

To launch the LeonardoSpectrum, Precision RTL, Synplify, or Quartus II software, SignalCompiler retrieves the software's path information from your registry file.

You can specify a different path for SignalCompiler to use for each of the tools. The *<install path>* \DSPBuilder\AltLib directory contains an XML configuration file (**edaconfig.xml**) containing the paths. You can modify the file with an XML editor or a text editor such as Notepad.

The XML configuration file has three tags for each tool:

- `<GetPathFromRegistry><on or off></GetPathFromRegistry>`
- `<ForcedPath><path></ForcedPath>`
- `<ToolVersion><version></ToolVersion>`

The `<GetPathFromRegistry>` tag takes the values on and off. When it is on (default), SignalCompiler reads the path from the registry file. When it is off, SignalCompiler reads the path from the `<ForcedPath>` tag as shown in the example below:

```
<EdaConfig>
  <synplicity>
    <GetPathFromRegistry>on</GetPathFromRegistry>
    <ForcedPath>C:\synplicity\Synplify_85\bin</ForcedPath>
    <ToolVersion>8.5</ToolVersion>
  </synplicity>
  <precision>
    <GetPathFromRegistry>on</GetPathFromRegistry>
    <ForcedPath>C:\MGC\Precision2005c\Mgc_home\bin</ForcedPath>
    <ToolVersion>2005c</ToolVersion>
  </precision>
  <quartus>
    <GetPathFromRegistry>on</GetPathFromRegistry>
    <ForcedPath>c:\altera\quartus60\bin</ForcedPath>
    <ToolVersion>6.0</ToolVersion>
  </quartus>
  <leonardospectrum>
    <GetPathFromRegistry>off</GetPathFromRegistry>
    <ForcedPath>C:\MGC\LeoSpec\LS2005b\bin\win32</ForcedPath>
    <ToolVersion>2005b</ToolVersion>
  </leonardospectrum>
</EdaConfig>
```

In this example, SignalCompiler runs LeonardoSpectrum from the **C:\MGC\LeoSpec\2003b\bin\win32** directory.



If you modify the XML settings, ensure that the value tagged `<ToolVersion>` is the correct version for the software located at the path tagged `<ForcedPath>`.

Set Up Licensing

Before using DSP Builder, you must request a license file from the Altera web site at www.altera.com/licensing and install it on your computer. When you request a license file, Altera e-mails you a **license.dat** file that enables HDL file and Tcl script generation.

If you do not have a DSP Builder license file, you can create models with DSP Builder blocks but you cannot generate HDL files or Tcl scripts.



Before you set up licensing for DSP Builder, you must already have the Quartus II software installed on your computer with licensing set up.

To install your license, you can either append the license to your **license.dat** file or you can specify a separate DSP Builder license file in the Quartus II software.

Appending the License to Your license.dat File

To install your license, perform the following steps:

1. Close the following software if it is running on your computer:
 - The Quartus II software
 - The LeonardoSpectrum software
 - The Synplify software
 - The MATLAB and Simulink tools
 - The ModelSim simulator
 - The Precision RTL synthesis software
2. Open the DSP Builder license file in a text editor. The file should contain one **FEATURE** line, spanning two lines.
3. Open your Quartus II **license.dat** file in a text editor.
4. Copy the **FEATURE** line from the DSP Builder license file and paste it into the Quartus II license file.



Do not delete any **FEATURE** lines from the Quartus II license file.

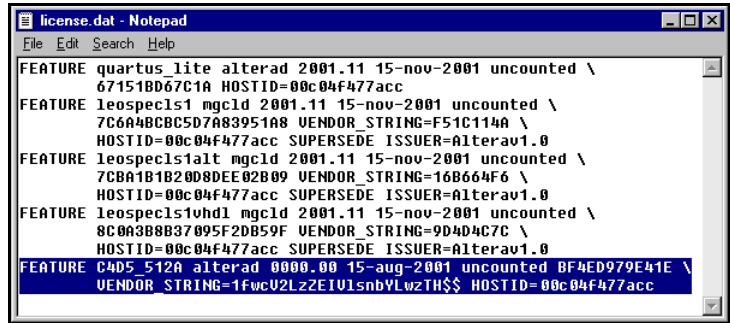
5. Save the Quartus II license file.



When using editors such as Microsoft Word or Notepad, ensure that the file does not have any extra extensions appended to it after you save (for example, **license.dat.txt** or **license.dat.doc**). Verify the filename at the system command prompt.

Figure 2–1 shows an example updated `license.dat` file that includes the DSP Builder `FEATURE` line (highlighted).

Figure 2–1. Example `license.dat` File



```

license.dat - Notepad
File Edit Search Help
FEATURE quartus_lite alterad 2001.11 15-nov-2001 uncounted \
67151BD67C1A HOSTID=00c04f477acc
FEATURE leospec1s1 mgc1d 2001.11 15-nov-2001 uncounted \
7C6A4BCBC5D7A83951A8 VENDOR_STRING=F51C114A \
HOSTID=00c04f477acc SUPERSEDE ISSUER=Alterav1.0
FEATURE leospec1s1alt mgc1d 2001.11 15-nov-2001 uncounted \
7CBA1B1B20D8DEE02B09 VENDOR_STRING=16B664F6 \
HOSTID=00c04f477acc SUPERSEDE ISSUER=Alterav1.0
FEATURE leospec1s1uhd1 mgc1d 2001.11 15-nov-2001 uncounted \
8C0A3B8B37095F2DB59F VENDOR_STRING=9D4D4C7C \
HOSTID=00c04f477acc SUPERSEDE ISSUER=Alterav1.0
FEATURE C4D5_512A alterad 0000.00 15-aug-2001 uncounted BF4ED979E41E \
VENDOR_STRING=1fwcU2Lz2E1U1snbVLwzTH$$ HOSTID=00c04f477acc

```

Specify the License File Location Using `LM_LICENSE_FILE`

The `LM_LICENSE_FILE` environment variable must point to the location of the `license.dat` file. The following instructions can be used to set this environment variable for Windows 2000 or Windows XP:

1. Choose **Settings > Control Panel** from the Windows Start menu.
2. Double-click the **System** icon in the Control Panel window.
3. Click the **Advanced** tab in the **System Properties** dialog box.
4. Click **Environment Variables**.
5. Click the **System Variable** list to highlight it.
6. If `LM_LICENSE_FILE` already exists, select **Edit**. Otherwise, select **New** and type `LM_LICENSE_FILE`.
7. Type `<path to license file>\license.dat` or `<port>@<hostname>` in the **Value** box.

If more than one application uses this environment variable, modify the existing `LM_LICENSE_FILE` variable and separate the different paths with a semicolon (;), for example:

```
c:\flexlm\license.dat;1800@myserver
```

8. Click **OK**.

DSP Builder Environment Variable

The DSP Builder install program (for version 6.0 or later) sets the DSPBUILDER_ROOTDIR environment variable to the installation directory location. (The default location is `c:\altera\DSPBuilder`)

SignalCompiler and the `setup_dspbuilder` script expect this variable to be set and will issue an error if it is not set to a valid DSP Builder 6.0 location.

If necessary, you can add or edit the value of DSPBUILDER_ROOTDIR as described in the following steps:

1. Choose **Settings > Control Panel** from the Windows Start menu.
2. Double-click the **System** icon in the Control Panel window.
3. Click the **Advanced** tab in the **System Properties** dialog box.
4. Click **Environment Variables**.
5. Click the **User Variable** list to highlight it.
6. If DSPBUILDER_ROOTDIR already exists, select **Edit**. Otherwise, select **New** and type DSPBUILDER_ROOTDIR.
7. Type `<DSP Builder install path>` in the **Value** box.
8. Click **OK** in the Environment Variables and System Properties dialog boxes.

You can set the DSPBUILDER_ROOTDIR environment variable in a command shell using the command:

```
set DSPBUILDER_ROOTDIR = <DSP Builder install path>
```

After changing the DSPBUILDER_ROOTDIR environment variable you may need to reset the MATLAB path as described in [“Using Multiple Versions of DSP Builder”](#) on page 5.

Contact Altera

Although every effort has been made to ensure that this version of DSP Builder works correctly, if any problems occur, use the following contact information to communicate issues to the appropriate Altera representative.

For technical support or other information about Altera products, go to the Altera world-wide web site at www.altera.com. You can also contact Altera through your local sales representative or any of the sources listed in [Table 1](#).

Information Type	USA & Canada	All Other Locations
Technical support	www.altera.com/mysupport/	www.altera.com/mysupport/
	800-800-EPLD (3753) 7:00 a.m. to 5:00 p.m. Pacific Time	+1 408-544-8767 7:00 a.m. to 5:00 p.m. (GMT -8:00) Pacific Time
Product literature	www.altera.com	www.altera.com
Altera literature services	literature@altera.com	literature@altera.com
Nontechnical customer service	800-767-3753	+ 1 408-544-7000 7:00 a.m. to 5:00 p.m. (GMT -8:00) Pacific Time
FTP site	ftp.altera.com	ftp.altera.com

Revision History

[Table 2](#) shows the revision history for the *DSP Builder 6.0 SP1 Release Notes*.

Version	Date	Revision
1.0	April 2006	First version of these release notes for DSP Builder 6.0.
1.1	June 2006	Updated release notes for DSP Builder 6.0 SP1.



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