MAX+PLUS II Version 9.1 BASELINE READ.ME 12/14/98

Although we have made every effort to ensure that this version functions correctly, there may be problems that we haven't encountered. If you have a question or problem that is not answered by the information provided in this read.me file or MAX+PLUS II Help, please contact Altera Applications:

Technical Support Hotline: (800) 800-EPLD or (408) 544-7000
Fax: (408) 544-6401
E-mail address: sos@altera.com

You can also try visiting the Atlas on-line solutions database for additional help. The Atlas page is on the Altera world-wide web site, located at http://www.altera.com. Or, for information on other ways to contact Altera, go to "Contacting Altera" in the main MAX+PLUS II Help file.

MAX+PLUS II Version 9.1

This read.me file for MAX+PLUS II version 9.1 includes information that was not incorporated into the printed documentation or on-line help. Once you have installed and started MAX+PLUS II, this read.me file is also available from the MAX+PLUS II Help menu. This file contains the following sections:

- Installation & Operating Requirements
- Potential Problems & Recommendations
- Documents Available on Altera's World-Wide Web Site
- About MAX+PLUS II On-Line Help

MAX+PLUS II Help and this read.me file provide the most up-to-date information on MAX+PLUS II software. You should always rely on the on-line help and this read.me file for the most current information.

NOTE: Some system configurations do not include all features and applications of the complete MAX+PLUS II system. Please ignore all information in this read.me file that is not applicable to your product configuration. Contact your Altera sales representative or Altera Marketing if you wish to purchase an add-on product that offers additional features and applications.

Installation & Operating Requirements

Be sure to read all information on installation and operating requirements in this file before you install MAX+PLUS II version 9.1. The following topics are discussed:

- General Information
- Minimum Memory & Disk Space Requirements
- Obtaining a License File
- Installing MAX+PLUS II Software on a PC
- Multi-User Network Licensing for PCs
- PC-Specific Potential Installation Problems
- UNIX Workstation-Specific Potential Installation Problems

- Logic Programmer Card Support
- Configuring an HP 9000 Series 700/800 Workstation Serial Port for Programming
- Installing & Using Japanese On-Line Help for MAX+PLUS II version 6.2
- Installing MAX+PLUS II PL-ASAP2 on PCs Running Windows 3.1 or Windows for Workgroups 3.11
- Uninstalling MAX+PLUS II Software on a PC

NOTE: The MAX+PLUS II Getting Started manual, which includes installation instructions for MAX+PLUS II, is available from Altera's world wide web site. The Altera home page is located at http://www.altera.com.

General Information

1. You should install MAX+PLUS II version 9.1 in a separate directory from any previous MAX+PLUS II version. License files and authorization codes for previous versions of MAX+PLUS II will not work with MAX+PLUS II version 9.1. To enable MAX+PLUS II features and applications, you must specify your network license file with the License Setup command (Options menu) when you use MAX+PLUS II for the first time. A license file is provided to you either with your MAX+PLUS II system or after you fax the "Registration and License File Request Form" to Altera. You can also obtain a license from the Altera web site at http://www.altera.com.

2. The MAX+PLUS II Installation program and software authorization mechanism have both changed since the MAX+PLUS II Getting Started manual was last updated (for MAX+PLUS II ver. 8.1). As a result, some information in the manual is out of date.

3. MAX+PLUS II requires the Arial TrueType font and the MS Sans Serif (VGA resolution) font, which are present in normal Windows installations. In addition, TrueType fonts must be enabled with the Fonts control in the Windows Control Panel.

4. MAX+PLUS II version 9.1 EDIF, VHDL, and Verilog HDL I/O support is compatible with the following EDA vendor releases:

    - Cadence 97A
    - Exemplar Galileo Extreme 4.1.1
    - Exemplar Leonardo 4.1.3
    - Mentor Graphics C.1
    - Model Technology ModelSim EE 5.1g for UNIX workstations and ModelSim PE 4.7h for PCs
    - Motive 5.1.6
    - Synopsys Design Compiler/FPGA Compiler 97.01
    - Synopsys FPGA Express 2.1
    - Synopsys PrimeTime 1998.02-PT2.1
    - Synplicity Synplify 3.0 C.1
    - Viewlogic Powerview 6.1
    - Viewlogic Workview Office 7.4

5. MAX+PLUS II for PCs is supported on the following operating systems:

    - Windows NT 4.0
    - Windows NT 3.51
    - Windows 98

- Windows 95
- Windows 3.1 and Windows for Workgroups 3.11 support is available only for the MAX+PLUS II PL-ASAP2 (Stand-Alone Programmer) software.

6. MAX+PLUS II for UNIX workstations is supported on the following operating systems:

   - Sun SPARCstations Solaris 2.5 or higher
   - HP 9000 Series 700/800 workstations with HP-UX 10.20 or higher
   - iBM RISC System/6000 workstations with AIX 4.1 or higher

7. MAX+PLUS II for UNIX workstations supports the following X servers for displaying MAX+PLUS II on another system (this list does not necessarily indicate the support for MAX+PLUS II):

   - Digital UNIX 3.0 and higher (formerly known as OSF/1)
   - HP HP-UX 10.20 and higher
   - Hummingbird Exceed 5.1 and higher (for Windows)
   - IBM AIX 4.1 and higher
   - SGI Irix 5.1 and higher
   - Sun Solaris 2.5 and higher (for all platforms)

   Other servers may work, but are not guaranteed to do so.

8. If you use EDA tools from Cadence, Exemplar Logic, Mentor Graphics, Synopsys, Synplicity, or Viewlogic, you will need a hypertext markup language (HTML) browser such as Microsoft Internet Explorer or Netscape Navigator to be able to use the MAX+PLUS II ACCESS Key Guidelines, which are HTML topics that provide information on using these EDA tools with MAX+PLUS II software.

You can choose to install the ACCESS Key Guidelines on your hard disk when you install the MAX+PLUS II software, or view them from the MAX+PLUS II CD-ROM.

Minimum Memory & Disk Space Requirements

1. To run MAX+PLUS II version 9.1 software, you must have and maintain a minimum of 48 Mbytes of available memory, i.e., combined physical RAM and virtual memory, at least 16 Mbytes of which should be physical RAM to provide acceptable performance. The following table shows the amounts of available memory required for compiling projects targeted for the larger devices in some Altera device families:

Family:	Minimum Available Memory:	Minimum Physical RAM:
MAX 7000	48 Mbytes	16 Mbytes
MAX 9000	64 Mbytes	32 Mbytes
FLEX 6000	64 Mbytes	32 Mbytes
FLEX 8000	64 Mbytes	32 Mbytes
FLEX 10K	256 Mbytes	128 Mbytes

2. A full MAX+PLUS II installation requires approximately 370 Mbytes of free disk space. You can reduce the disk space required by choosing not to

install for some device families, for example, if you do not need support for all the different varieties of FLEX 10K devices.

Obtaining a License File

New MAX+PLUS II version 9.1 development systems for individual PCs and customers with software maintenance agreements should already have a license file. For other types of development systems, the license filemay not be included and you must first contact Altera with information about your computer hardware.

To obtain a license file for use with MAX+PLUS II, follow these steps:

1. Install and start MAX+PLUS II version 9.1.

2. Choose License Setup from the Options menu to display the License Setup dialog box. Choose the System Info button to display the System Information dialog box, which shows relevant information about your computer, including one or more of the following: your hard disk serialnumber (on PCs), your Software Guard ID (on PCs), the Network Interface Card (NIC) address number (on PCs), and a System ID (on UNIX workstations). Make a note of all information that is displayed.

3. Go to the Altera web site at http://www.altera.com to obtain your license.

or:

Fill out the "Registration and License File Request" form, which is provided with some MAX+PLUS II systems, and fax the form to Altera Corporation at (408) 544-7606.

Once Altera sends you a license.dat file, copy it into your MAX+PLUS II system directory (typically c:\maxplus2 on a PC or /usr/maxplus2 on a UNIX workstation).

Installing MAX+PLUS II Software on a PC

The MAX+PLUS II 9.1 installation program and software authorization/licensing mechanism have both been changed since the MAX+PLUS IIGetting Started manual was last updated (for MAX+PLUS II ver. 8.1).

You now install the MAX+PLUS II software by inserting the MAX+PLUS II CD-ROM into your CD-ROM drive. The MAX+PLUS II Install CD window appears automatically, offering several options. Choose the Install MAX+PLUS II Software button to install the MAX+PLUS II software. The new setup program starts automatically and guides you through the installation process.

If the setup program is not already running, you can start it manually.In Windows 98, 95, or NT 4.0, choose Run from the Start menu (in Windows NT 3.51, choose Run from the Program Manager's File menu), type the following command, and choose OK:

<CD-ROM drive>:\pc\setup.exe <Enter>

Multi-User Network Licensing for PCs

The following sections explain how to set up the license manager server and client PC. A system administrator should perform these steps after you have installed the MAX+PLUS II software.

- Setting Up the License Manager Server
- Setting Up the Client PC

Setting Up the License Manager Server

- MAX+PLUS II version 9.1 supports network license servers on Windows NT 3.51 and 4.0 platforms. System administrators should follow these steps for configuring license servers with the FLEXlm License Manager control panel for Windows NT:

1. Choose Control Panel from the Windows Start menu (in Windows NT 3.51, open the main program group from the Program Manager, then double-click button 1 on the Control Panel icon). Double-click Button 1 on the FLEXlm License Manager control panel icon. If the FLEXlm License Manager control panel icon does not appear in the Control Panel window, you will need to install it from the MAX+PLUS II CD-ROM. Perform a custom installation and turn on the FLEXlm Server Installation option in order to install the control panel.

2. Choose the Setup tab to enter information about your license server. Specify the Service Name. The default Service Name is FLEXlm License Manager, but you should change this name to Maxplus2 License Manager. Complete the other fields on the Setup tab , always including the complete pathnames to the files you specify. The lmgrd.exe executable is located in the MAX+PLUS II system directory. Specifying the debug log file is optional.

3. Set up the Maxplus2 License Manager as a service by turning on the Use NT Services option in the Setup tab. You can then use the Services control panel to adjust the starting and stopping behavior of the Maxplus2 License Manager. Altera recommends that you set up the Maxplus2 License Manager as a server so that licenses can be issued to other users after you have logged out of an NT session. If you want to have the Maxplus2 License Manager start automatically when you start your PC, you must also turn on the Start Server at Power-Up option.

4. Choose the Control tab. This tab allows you to start, stop, and check the status of your license server. Choose Start to turn on your license server and launch the Maxplus2 License Manager as a background application with the license file and debug log file locations passed as parameters.

For information about troubleshooting license installation problems, refer to the "Troubleshooting License Installation" section in Section 1: MAX+PLUS II Installation of the MAX+PLUS II Getting Started manual (pages 34 to 38). Although these instructions were written for UNIX workstations, they also apply to PCs, with the following exceptions:

- All error messages will appear in the optional debug log file, not on screen.

- All slashes (/) in pathnames should be backslashes (\) on the PC; all executables have .exe extensions for the PC; and all references to NFS, chmod, and permissions apply to UNIX only and should be ignored for the PC.

- The message /usr/maxplus2/max2protd: Command not found described on page 34 does not apply to PCs.

- For the message retrying socket bind (address) in use, which is described on page 36, you should substitute the following steps for steps 2 and 3:

2. Open the Windows Task Manager and choose the Processes tab. Select lmgrd.exe from the list and choose the End Process.

3. Repeat step 2, but select alterad.exe from the list.

- For additional information about the FLEXlm utility, you should refer to the FLEXlm End User manual at http://www.globetrotter.com/manual.htm. You can also refer to "License Administration Options File" and "License Administration FLEXlm Utilities" in Section 1: MAX+PLUS II Installation of the MAX+PLUS II Getting Started manual (pages 38 to 45). However, the lmstat, lmdown, lmremove, lmreread, lmver, and lmhostid commands that are listed are actually parameters to lmutil, rather than commands (lmgrd is still a command).

Setting Up the Client PC

Before you set up your client PC, you must obtain a license file from Altera. Refer to the instructions in Obtaining a License File for more information.

To set up your client PC, follow these steps:

1. Choose License Setup (Options menu) in MAX+PLUS II.

2. For the License File or Server Name option, specify the full pathname of your license.dat file, or the name of the server on which your license file is stored, in the format @<license server name>. You can choose the Browse button to locate your license.dat file. Altera recommends that you store the license.dat file in your MAX+PLUS II system directory, typically c:\maxplus2.

NOTE: If your license.dat file contains an error in the license server name, your computer may appear to freeze while it searches your computer network for the non-existent server. If this problem occurs, you can use the End Task button in the Windows NT Task Manager to quickly close MAX+PLUS II. Then edit your license file to correct the error and try again.

or:

- Specify the name of the server where your license file is stored by setting the LM_LICENSE_FILE variable to <port>@<host>, where <port> is the port listed in the license file, and <host> is the name of the server. You can also specify that the LM_LICENSE_FILE environment variable to @<host>. However, the License File or Server Name specification in the License Setup dialog box takes precedence over the LM_LICENSE_FILE environment variable setting.

or:

- Specify the license.dat file or the license server name in the Windows System control panel:

1. Choose Control Panel from the Windows Start menu (in Windows NT 3.51, open the Main program group from the Program Manager, then double-click Button 1 on the Control Panel icon).

2. Double-click Button 1 on the System control panel icon.

3. Choose the Environment tab and specify the LM_LICENSE_FILE variable for Variable. Specify the pathname of the license.dat file for the Value option. The license.dat file could be located on a local drive (Altera recommends that you store the license.dat file in the maxplus2 directory) or on a mounted license server drive.

PC-Specific Potential Installation Problems

- MAX+PLUS II version 9.1 uses a different installation program from previous versions. As a result, the following information replaces information in the "Installing the MAX+PLUS II Software" chapter of Section 1: MAX+PLUS II Installation of the MAX+PLUS II Getting Started manual:

  - You now install the MAX+PLUS II software by inserting the MAX+PLUS II CD-ROM into your CD-ROM drive. The MAX+PLUS II Install CD window appears automatically, offering several options. Choose the Install MAX+PLUS II Software button to install the MAX+PLUS II software. The new Setup program starts automatically and guides you through the installation process. You can also choose to view the MAX+PLUS II Help, ACCESS Key Guidelines, or read.me file before you install them or the MAX+PLUS II software.

  - On-line help is not available during the installation process.

  - The steps needed to uninstall earlier MAX+PLUS II versions vary, depending on the version. Go to "Uninstalling MAX+PLUS II Software" later in this file for more information.

- If you change or upgrade the operating system on your computer, refer to this read.me file and to the MAX+PLUS II Installation section of the MAX+PLUS II Getting Started manual for information that may apply to your new operating system. For example, if you install or upgrade Windows NT, you may need to install new Windows NT drivers.

- On Windows NT computers, you must install the ByteBlaster driver before using the ByteBlaster. Go to MAX+PLUS II Installation in the MAX+PLUS II Getting Started manual for instructions.

- The installation process now offers you the option of installing the MAX+PLUS II ACCESS Key Guidelines on your hard disk. These guidelines provide information on using MAX+PLUS II with other EDA tools, so Altera recommends installing them on your hard disk if you are using other EDA tools with MAX+PLUS II. If you do not install the ACCESS Key Guidelines on your hard disk, you can view them on the MAX+PLUS II CD-ROM by choosing the

View MAX+PLUS II ACCESS Key Guidelines button in the MAX+PLUS II Install CD dialog box. They are also available at the Altera web site at http://www.altera.com, although they are first published on the MAX+PLUS II CD-ROM.

UNIX Workstation-Specific Potential Installation Problems

- The UNIX installation script has been updated with the following changes:
  - It allows you to specify which Altera device families you want to use, so you can install device support for those families only (you can also specify that the installation script should install device support for all device families).
  - It allows you to install the MAX+PLUS II ACCESS Key Guidelines on your hard disk. These guidelines provide information on using MAX+PLUS II in conjunction with other EDA tools from Cadence, ExemplarIf you are using HP 9000 Series 700/800 and IBM RISC/System 6000 workstations, you MUST install the ACCESS Key Guidelines on your hard disk in order to use them.
  - It allows you to install the MAX+PLUS II License Server separately, and allows you to specify the platform for the License Server.
- At the time of the MAX+PLUS II ver. 9.1 release, the following information about operating system patches was up to date. However, Altera recommends visiting the Atlas solutions page on the Altera web site for late-breaking information on required operating system patches.
  - If you are using Solaris 2.5.1 and 2.6 on a PCI-based UltraSPARC workstation (i.e., Ultra 5 or Ultra 10), you must install the 105362-09 operating system patch, which is available from the Sun Microsystems support web site at http://sunsolve.sun.com.
  - If you are using HP-UX 10.2x, you must install the PHSS_14262 operating system patch, which is available from the Hewlett-Packard support web site at http://us-support.external.hp.com for Americas/Asia Pacific and http://europe-support.external.hp.com for Europe.
- Fonts may appear strange on UNIX workstations if your font setup is not correct for MAX+PLUS II. See Appendix C: "UNIX Workstation Configuration Issues" in the MAX+PLUS II Getting Started manual for information that may apply to your operating system.

Logic Programmer Card Support

- MAX+PLUS II supports the LP4, LP5, and LP6 Logic Programmer cards.

Configuring an HP 9000 Series 700/800 Workstation Serial Port for Programming

On an HP 9000 Series 700/800 workstation, you must configure the serial port as a direct connection, and not as a terminal or modem, in order to use the

BitBlaster serial download cable. This process may require you to first remove the old device driver, then configure the new one.

To remove the device driver, go through the following steps:

1. Ensure that you are logged on as a superuser.
2. Type sam <Enter> at the system prompt to bring up the System
3. Administration Manager (SAM).
4. Choose the Peripheral Devices icon.
5. Choose the Terminals and Modems icon.
6. Select the driver you wish to remove (usually /dev/tty0p0).
7. Make a note of the Hardware Path, which has the format 8/12/4.
8. This path will be needed to install the new driver.
9. Choose the Remove Modem or Remove Terminal command from the Actions menu.
10. Choose Exit (File menu).
11. Choose Exit SAM (File menu).

NOTE: To reconfigure the serial port driver, type the following command:

mksf -d asio0 -H <hardware path> -a 0 <Enter>

The new driver has a name of the format /dev/tty<card number>p0.

Installing & Using Japanese On-Line Help for MAX+PLUS II Version 6.2

The CD-ROM for MAX+PLUS II version 9.1 includes Japanese-language on-line help files for PC-based MAX+PLUS II version 6.2. It includes Japanese language versions of the main Help file and the read.me file for MAX+PLUS II version 6.2.

You can use Japanese on-line help version 6.2 with MAX+PLUS II version 6.2 or higher. However, in versions higher than 6.2, not all Help information will be up to date, and some Help menu commands and certain portions of context-sensitive Help may not operate correctly.

You can install these files in the MAX+PLUS II system directory to make them accessible from MAX+PLUS II.

To install Japanese on-line help:

1. Ensure that MAX+PLUS II is not running, and go to a DOS prompt. You can either quit Windows or open a DOS box from Windows.
2. Use the DOS cd command to go to the MAX+PLUS II system directory (the directory where MAX+PLUS II is installed). This directory is usually c:\maxplus2.

3. Insert the MAX+PLUS II CD-ROM into your CD-ROM drive and run the install program. For example, if your CD-ROM drive is e:, type:

   e:\sensei\sensei1\install <Enter>

This command installs the Japanese-language versions of the main Help file and the read.me help file as maxplusj.hlp and readmej.hlp. If these files are present in your MAX+PLUS II system directory, MAX+PLUS II will use them automatically when you request help (you must not rename the files for this feature to work). The English-language help files are not deleted. You can open the English-language maxplus2.hlp and readme.hlp files when the Help application is open with the Open command (File menu.

If necessary, you can remove the Japanese on-line help files from your system with the following command:

e:\sensei\sensei1\install -u <Enter>

Installing MAX+PLUS II PL-ASAP2 on PCs Running Windows 3.1 or Windows for Workgroups 3.11

The following instructions describe the requirements and procedures for installing the MAX+PLUS II PL-ASAP2 (Stand-Alone Programmer) software on an IBM PC-AT or compatible computer running Microsoft Windows 3.1 or Windows for Workgroups 3.11. These steps are necessary only when you are installing MAX+PLUS II PL-ASAP2 under Microsoft Windows 3.1 or Windows for Workgroups 3.11.This section covers the following topics:

- System Requirements
- Installing the MAX+PLUS II PL-ASAP2 Software
- Using Win32s Additions to Windows 3.1 & Windows for Workgroups 3.11

System Requirements

For information on system requirements for installing MAX+PLUS II PL-ASAP2 on a PC, refer to "System Requirements for PCs" on page 6 in the MAX+PLUS II Getting Started manual. In addition to this information, Windows 3.1 and Windows for Workgroups 3.11 also requires DOS version 5.0 or higher.

Installing the MAX+PLUS II PL-ASAP2 Software

1. For information on installing the MAX+PLUS II PL-ASAP2 software, refer to "Installing MAX+PLUS II Software" on page 7 in the MAX+PLUS II Getting Started manual.

2. Edit the setting for the files variable in your config.sys file, which is usually located in the top-level directory of your c: drive, as follows:

   files=50 <Enter>

3. If you receive an error message that states that the file a.azp was not extracted, disable write caching for SmartDrive by typing the following command at a DOS prompt, then reinstall MAX+PLUS II PL-ASAP2:

    smartdrv /x <Enter>

Using Win32s Additions to Windows 3.1 & Windows for Workgroups 3.11

MAX+PLUS II PL-ASAP2requires Win32s files, and the Install program installs them for you if they are not already present. These Win32s files are installed in your \windows\system\win32s directory. Other programs installed after MAX+PLUS II PL-ASAP2 may also install Win32s files. If another program installs an earlier version than the version required by MAX+PLUS II PL-ASAP2, MAX+PLUS II PL-ASAP2 may exhibit erratic behavior such as empty list boxes. If you experience this type of problem, check the version of the Win32s files by running the win32ver utility that is automatically installed in the MAX+PLUS II PL-ASAP2 system directory on your hard disk. (This utility is also available in the \pc directory of the MAX+PLUS II PL-ASAP2 CD-ROM.)

If you determine that you have an older version of Win32s, you should remove it and reinstall your MAX+PLUS II PL-ASAP2 software.

Removing Win32s Files

You can remove the Win32s files from your hard disk by following these steps:

1. Edit the [386Enh] section of your system.ini file to remove the following line:

    DEVICE=C:\WINDOWS\SYSTEM\WIN32S\W32S.386

2. Delete the following files from your \windows\system directory:

    olecli.dll
    w32sys.dll
    win32s16.dll
    winmm16.dll

3. Delete all the files from the \windows\system\win32s directory, then delete the directory.

NOTE: Under "Installing the Software" in the MAX+PLUS II Getting Started manual, you must perform step 9 on page 10 when running Windows 3.1 or Windows for Workgroups 3.11 just as you would for Windows 95 or 98.

Uninstalling MAX+PLUS II Software on a PC

The steps required to uninstall MAX+PLUS II software vary depending on the installed version of the software:

- To uninstall MAX+PLUS II version 9.1, use the MAX+PLUS 9.1 Uninstall icon that is automatically placed in the same folder as your MAX+PLUS II ver. 9.1 software icon.

- To uninstall MAX+PLUS II version 9.0, follow these steps:

1. Choose Control Panel from the Settings submenu of the Windows Start menu (in Windows NT 3.51, open the Main program group from the Program Manager, then double-click Button 1 on the Control Panel icon).

2. Double-click Button 1 on the Add/Remove Programs icon.

3. Choose the Install/Uninstall tab.

4. Select MAX+PLUS II from the list of programs to be removed.

5. Choose OK.

- To uninstall pre-9.0 versions of MAX+PLUS II, choose the Uninstall button in the MAX+PLUS II pre-version 9.0 installation program, as described in the MAX+PLUS II Getting Started manual.

Potential Problems & Recommendations

Information is available in the following categories:

- General Information
- PC-Specific Issues
- MAX+PLUS II PL-ASAP2 & Windows 3.1/3.11-Specific Issues
- UNIX Workstation-Specific Issues
- Assignment & Configuration File (.acf) and Assign Menu Commands
- Old-Style (74-Series) Macrofunctions
- Megafunctions & Library of Parameterized Modules (LPM) Functions
- Hierarchy Display
- Graphic Editor
- Waveform Editor
- Compiler
- Floorplan Editor
- Simulator
- Timing Analyzer
- Programmer
- Message Processor
- AHDL
- VHDL
- Verilog HDL
- Synopsys & MAX+PLUS II Interface
- Mentor Graphics & MAX+PLUS II Interface

General Information

1. You should install MAX+PLUS II version 9.1 in a new directory that is separate from any earlier installation. Because improvements and other changes in the latest version of MAX+PLUS II software may fit projects

differently from earlier versions, you should finish existing projects with the earlier version. Altera also recommends that you archive a project before upgrading to MAX+PLUS II version 9.1 so that you can return to an earlier version, if necessary.

2. Opening MAX+PLUS II version 9.1 files with earlier versions of MAX+PLUS II may cause internal and other errors. If you save files with MAX+PLUS II version 9.1, it is likely that you will not be able to reopen them with pre-version 6.0 releases of MAX+PLUS II.

3. Due to changes in the Hierarchy Interconnect File (.hif) format, MAX+PLUS II version 6.0 or higher cannot correctly archive projects created with earlier versions of MAX+PLUS II unless the projects have been recompiled with MAX+PLUS II version 6.0 or higher. However, since the fit of a project may change with the newer version of MAX+PLUS II, Altera strongly recommends archiving existing projects with the previous version of MAX+PLUS II.

4. MAX+PLUS II versions 5.0 and higher do not correctly convert the now-obsolete logic option assignments in Text Design Files (.tdf) into the ACF format. Therefore, you must modify all Text Design Files (.tdf) that contain Options Statements in a pre-version 5.0 project before you work with the project (i.e., before you specify the project as the current project with the Project Name command) in MAX+PLUS II version 5.0 or higher. You must delete all Options Statements or comment them out. After you start MAX+PLUS II version 5.0 or higher, you can re-enter the logic option and device option assignments with Assign menu commands to add them to the ACF for the project, and remove the "commenting out" from Options Statements containing the BIT0 option, which is still supported.

5. When you transfer programming files, such as Programmer Object Files (.pof) and JEDEC Files (.jed), to another computer for device programming, you should also transfer a copy of the <project name>.acf file. If your programming file is on a write-protected floppy disk, MAX+PLUS II will issue error messages indicating that it is unable to write the ACF to the disk. The following actions should also be avoided:

   - You should not transfer a copy of the Fit File (.fit) to a computer with an earlier version of MAX+PLUS II for device programming. If you do, the earlier version of MAX+PLUS II may generate an internal error.

   - You should not attempt to program a device with the current version of MAX+PLUS II and then reopen the same project in the same directory with an earlier version of MAX+PLUS II. If you wish to program with a later version of MAX+PLUS II, you should copy the programming file(s) and a copy of the ACF to a separate directory. Otherwise, the later version of MAX+PLUS II may overwrite the ACF with information that is incompatible with the earlier version.

6. You must use the max2win.exe file to start MAX+PLUS II software in interactive mode. Typing maxplus2 <Enter> at the command line runs MAX+PLUS II software in batch mode

7. You must not name any pin with the same name as the project. A pin with the project name that has an assignment will cause all unassigned logic

functions to have the same assignment, thus yielding numerous error messages.

8. If your third-party design entry software saves assignments in a <project name>.ini, Probe & Resource Assignment File (.prb), and/or Text Design File (.tdf), refer to "Guidelines for Working with Assignments" in MAX+PLUS II Help for information on how to ensure that your assignments are imported correctly into MAX+PLUS II version 9.1.

9. Altera recommends performing Setup/Hold Matrix timing analysis with the Timing Analyzer for all designs to reveal possible positive hold times.

10. MAX+PLUS II Help and manuals state that groups (and arrays) are limited to 256 bits (i.e., 256 member nodes). However, the only restriction on group sizes exists in the Waveform Editor and Simulator, which cannot simulate groups larger than 256 bits. Your design files can contain buses of unlimited size.

11. The Altera modem-based bulletin board service (BBS) has been discontinued. You can obtain all forms of support that were formerly available via the BBS on the Altera ftp site (ftp.altera.com) or world-wide web site (http://www.altera.com). See "Contacting Altera" in MAX+PLUS II Help for more information

12. All filename extensions for design files used in MAX+PLUS II must be three characters or fewer.

PC-Specific Issues

1. Windows NT and Windows 95/98 will allow you to run multiple copies of MAX+PLUS II from the command line. However, you should not run multiple copies of MAX+PLUS II on the same project, and Altera strongly recommends avoiding this practice. Unpredictable and/or incorrect results may occur.

2. If you are running MAX+PLUS II under Windows NT 4.0 and MAX+PLUS II or your system crashes, text in the Altera font may become invisible. This problem is especially obvious in the Hierarchy Display, which uses Altera font to display filenames. To correct the problem, reboot your system.

3. The \maxplus2\drivers directory on the MAX+PLUS II CD-ROM includes the win_95 subdirectory, which contains drivers that may be needed to run the MAX+PLUS II software on a PC running Windows 95/98 with a software guard. If your MAX+PLUS II software does not recognize a software guard that is attached to your parallel port, you can try installing these drivers. To install the drivers, mount the MAX+PLUS II CD-ROM, go to the \maxplus2\drivers\win_95 directory, and execute the install.bat program.

4. MAX+PLUS II version 9.1 no longer requires the maxplus2.idx file to map long filenames on PCs (i.e., filenames containing from 9 to 32 characters) to 8-character filenames. MAX+PLUS II now accepts and uses long filenames, and does not need to map them to shorter filenames. If you are using files that were created with pre-9.0 versions of MAX+PLUS II, and choose Open (File menu) or Project Name (File menu), MAX+PLUS II will read the existing maxplus2.idx file and restore all of the short filenames to their original

long filenames automatically. After all of the filenames have been restored, MAX+PLUS II deletes the maxplus2.idx file.

MAX+PLUS II PL-ASAP2 & Windows 3.1/3.11-Specific Issues

1. When running Windows 3.1 or Windows for Workgroups 3.11, you cannot run MAX+PLUS II PL-ASAP2 in command-line mode. Only the interactive mode is supported.

2. Random system crashes during installation or operation, memory problems, Win32s problems, and other problems in MAX+PLUS II may be the result of a video driver conflict where memory used by the video driver overwrites memory used by MAX+PLUS II. To determine whether a problem is caused by a video driver conflict, change your Windows video driver to VGA and reboot your computer. If the problem does not occur when running MAX+PLUS II with VGA video, the problem was the result of a video driver conflict. To solve this conflict, contact the video driver manufacturer to obtain a new version of the video driver.

3. The \maxplus2\drivers directory on the MAX+PLUS II CD-ROM includes the win_31 subdirectory, which contains drivers that may be needed to run the MAX+PLUS II software on a PC running Windows 3.1 with a software guard. If your MAX+PLUS II software does not recognize a software guard that is attached to your parallel port, you can try installing these drivers. To install the drivers, mount the MAX+PLUS II CD-ROM, go to the \maxplus2\drivers\win_31 directory, and execute the install.bat program.

4. If MAX+PLUS II PL-ASAP2 is installed on a computer running Windows 3.1, you may experience problems when using networked drives mounted with NFS. For this reason, Altera recommends installing and using MAX+PLUS II PL-ASAP2 on your hard disk.

5. Due to a deficiency in Windows 3.11, the MAX+PLUS II PL-ASAP2 Print Setup command (File menu) does not automatically update the default printer setting when you change the default printer in Windows 3.11 while running MAX+PLUS II PL-ASAP2. You will receive an error message indicating that the printer settings have not been changed. To update the printer settings, exit MAX+PLUS II PL-ASAP2, change the printer settings from the Windows Control Panel, and then restart MAX+PLUS II PL-ASAP2.

6. If you encounter a dialog box or message with the message "Help file does not contain any keywords," do not contact Altera Applications. This message is caused by a deficiency in Windows NT 3.1.

7. If you use the context-sensitive Help pointer to get context-sensitive help on an item in MAX+PLUS II PL-ASAP2, and then immediately return to MAX+PLUS II PL-ASAP2 and use the context-sensitive Help pointer to get context-sensitive help on the same item, an error may occur in MAX+PLUS II PL-ASAP2 Help.

8. If you have installed both Windows 3.1 and Windows NT in the same directory, you may experience unrecoverable application errors (UAEs) if you attempt to use MAX+PLUS II PL-ASAP2 Help while running MAX+PLUS II PL-ASAP2 under Windows 3.1. Altera recommends using Windows NT rather than Windows 3.1 in these cases.

9. MAX+PLUS II PL-ASAP2 for PCs version 9.1 uses the Help viewer for Windows 95/98 and Windows NT. If you are running Windows 3.1 and another application that uses the Windows 3.1 Help viewer, you cannot open its Help file unless you close the MAX+PLUS II PL-ASAP2 Help file, and vice versa.

10. In MAX+PLUS II PL-ASAP2 for PCs version 9.1, the USE_WIN95_WINNT_LONG_FILENAMES variable is set to ON by default in the maxplus2.ini file. Turning this option on directs MAX+PLUS II to use the built-in support for long filenames (i.e., filenames containing from 9 to 32 characters) that is available in the Windows NT 4.0 and Windows 95/98 operating systems. Turning this option on in Windows NT 3.51 has no effect. MAX+PLUS II PL-ASAP2 for PCs version 9.1 no longer requires the maxplus2.idx file to map long filenames on PCs to 8-character filenames; however, it will still read maxplus2.idx files from pre-9.0 versions of MAX+PLUS II.

UNIX Workstation-Specific Issues

NOTE: For more information on special requirements for UNIX workstations, refer to Appendix C: Additional Workstation Configuration Information in the MAX+PLUS II Getting Started manual.

1. If you compile an EDIF netlist file for a very large FLEX 10K design and another program is using large amounts of memory, a segmentation fault can occur in the Fitter, regardless of the available memory on the workstation. To avoid a segmentation fault, shut down all other programs that use large amounts of memory before compiling a design.

2. The Optimize Timing SNF command (Processing menu) does not create optimized timing SNFs on UNIX workstations. However, a non-optimized timing SNF provides the same functional and timing information as an optimized timing SNF. In addition, turning on this command can reduce the size of output netlists -- including VHDL Output Files (.vho), Verilog Output Files (.vo), EDIF Output Files (.edo), and Standard Delay Format Output Files (.sdo) -- by up to 30%.

3. The Print Setup command (File menu) allows you to specify PostScript or encapsulated PostScript files, portrait or landscape orientation, and scaling options only. Other features, such as paper size or source, are not available at this time.

4. Compilation with the Synopsys Design Compiler and FPGA Compiler is available only on Sun SPARCstations running Solaris 2.5 or higher.

5. The filename extensions of design files must be in lowercase letters, and must not be longer than three characters. Altera recommends using all lowercase letters in filenames.

6. If you are using a window manager other than CDE or Motif and the colors on screen in the MAX+PLUS II software or MAX+PLUS II on-line help appear strange, include the MWLOOK=windows variable in your maxplus2.ini file. See "MWLOOK" under "Environment Variables" in Appendix C: Additional Workstation Configuration Information in the MAX+PLUS II Getting Started manual for additional information.

7. Some of the information in "Environment Variables" in Appendix C: Additional Workstation Configuration Information in the MAX+PLUS II Getting Started manual has changed:

   - The default value for the MWLOOK environment variable, which is described on page 290, is now MWLOOK=motif.

   - The MWWM environment variable, which is described on page 292, has an additional value, allwm. Setting the MWWM variable to allwm specifies that the MAX+PLUS II should use the native window manager. By default, no value is set for the MWWM environment variable.

8. If you receive an error message while using MAX+PLUS II, MAX+PLUS II Help, or the MAX+PLUS II MegaWizard Plug-In Manager that says "word too long," it is because the PATH environment variable has exceeded 1024 characters, which is the limit of the C shell. To correct this error, you should use the MAX2_INITIAL_PATH environment variable to specify a shorter version of the PATH variable. MAX+PLUS II will replace the PATH variable with the version you have specified for the MAX2_INITIAL_PATH environment variable before appending any MAX+PLUS II paths to the PATH variable. However, if you plan to use the Synopsys Compiler command (Interfaces men) to allow Synopsys compilers to process your project during MAX+PLUS II compilation, you must make sure that the Synopsys software paths are included in the MAX2_INITIAL_PATH environment variable.

9. In the "License Administration FLEXlm Utilities" in Section 1: MAX+PLUS II Installation of the MAX+PLUS II Getting Started manual (pages 40 through 45), the lmstat, lmdown, lmremove, lmreread, lmver, and lmhostid commands that are listed are actually parameters to lmutil, rather than commands (lmgrd is still a command).

10. If you are running a software application other than MAX+PLUS II that uses a win.ini file in a windows subdirectory within your home directory, that software may conflict with the MAX+PLUS II software. To avoid this conflict, you should change the location of the win.ini file for the MAX+PLUS II software by setting the following environment variables:

    setenv MW_WINDOWS_DIRECTORY <new directory name>
    setenv MW_SYSTEM_DIRECTORY <new directory name>/system

    Altera recommends using <home directory>/altera as the <new directory name>.

Assignment & Configuration File (.acf) and Assign Menu Commands

1. You cannot undo edits entered with Assign menu commands. You must manually reverse any change that you wish to undo. Edits to assignment and configuration information are not undone even if you close a file without saving any edits.

2. If you delete a logic function that has an assignment, the assignment is not automatically deleted from the ACF. However, you can turn on the Obsolete Assignments option in the Clear Project Assignments dialog box (Assign menu) to delete the obsolete assignments.

3. The Pin/Location/Chip dialog box does not support simultaneous edits for items assigned to multiple different chips. All logic functions selected when you use the dialog box must be assigned to the same chip. Therefore, you should not select items that are assigned to multiple different chips before opening the dialog box.

4. In MAX+PLUS II version 8.2 and later, all options under Automatic Global in the Global Project Logic Synthesis dialog box (Assign menu) default to On for new projects. Therefore, MAX+PLUS II version 9.0 may create more automatic global signals for some devices than earlier versions of MAX+PLUS II. In general, this change will improve fitting results. However, if you have problems with fitting projects that compiled with earlier versions of MAX+PLUS II because of automatic global signal changes, you should turn off the appropriate option under Automatic Global in this dialog box. You should then use GLOBAL primitives or the Global Signal logic option (new in version 7.0) to implement global signals in your project. For example, the automatic global clocking may create problems in MAX 5000 devices, in which each LAB is allowed to have either all global or all array clocks. For MAX 5000 projects with multiple clocks, you may wish to turn off automatic global clocking with this dialog box.

5. Logic option assignments can only use a restricted subset of the hierarchical node name syntax in ACFs. To avoid problems, always enter logic option assignments with Assign menu commands. You will receive an error message if an assignment has incorrect syntax.

6. The Report File (.rpt) sometimes inaccurately reports the timing performance achieved with timing assignments entered with the Timing Requirements and Global Project Timing Requirements commands (Assign menu). You should use the MAX+PLUS II Timing Analyzer to obtain accurate information on the timing of a compiled project.

7. If you turn on the Automatic Fast I/O option in the Global Project Logic Synthesis dialog box (Assign menu), the Compiler may mistakenly attempt to implement an I/O cell register fed by a dedicated input pin, which does not have an input register, and generate the message "Illegal assignment -- I/O cell with <pin name> on pin <number>." You can work around this problem by turning the Fast I/O logic option off for the specified input pin name. You can turn this option off with the Individual Logic Options dialog box, which you can open from the Logic Options dialog box (Assign menu).

8. The Compiler will ignore a specified maximum length of 2 on the lengths of carry chains. Lengths of 3 or greater work correctly.

Old-Style (74-Series) Macrofunctions

- Macrofunction 74691 was updated in MAX+PLUS II version 8.0 to correct errors in its functionality. Pre-version 8.0 projects that contain this function will compile differently.

Megafunctions & Library of Parameterized Modules (LPM) Functions

1. The MegaWizard Plug-In Manager is available only on PCs running Windows NT 4.0 or Windows 95/98 and on UNIX workstations running Sun Solaris version 2.5 and higher, HP HP-UX 10.20 and higher, and IBM AIX 4.1 and higher. The MegaWizard plug-In Manager is not supported in other operating systems.

2. MegaCore/OpenCore functions are not available on the MAX+PLUS II CD-ROM. All MegaCore/OpenCore functions are available from Altera's world-wide web site at http://www.altera.com.

3. Due to incompatibilities between VHDL and the LPM standard, the LPM functions that contain two-dimensional bus inputs--i.e., lpm_and, lpm_mux, lpm_or, and lpm_xor--do not currently work in MAX+PLUS II VHDL. The busmux and mux functions are now available in the maxplus2 package.

4. Parameters used to load or drive out constant values are limited to a maximum of 32 bits. This restriction affects all functions that use the LPM_AVALUE and LPM_SVALUE parameters and the LPM_CVALUE parameter in the LPM_CONSTANT function.

5. The MegaWizard Plug-In for the LPM_DECODE function cannot currently generate usable VHDL or Verilog HDL output files. You must use AHDL format for the output file instead.

Hierarchy Display

1. If you name a project without first creating the top-level design file, the Hierarchy Display window displays an icon that shows the Graphic Design File (.gdf) extension. After you save a design file with the project name, the correct extension for the file will be displayed.

2. If you are running MAX+PLUS II under Windows NT 4.0 and MAX+PLUS II or your system crashes, text in the Altera font may become invisible. This problem is especially obvious in the Hierarchy Display, which uses Altera font to display filenames. To correct the problem, reboot your system.

Graphic Editor

1. In an OrCAD Schematic File (.sch) that contains an OrCAD-provided TRI symbol, you must delete the symbol and replace it with an Altera- provided TRI symbol to ensure that it compiles correctly.

2. To avoid ambiguities in bus names, you should not use a number at the end of the symbolic name that precedes a bus range. For example, the Compiler cannot distinguish between some members of the buses q1[15..0] and q11[15..0].

3. If you are using Exceed 5.1.3 with the Sun Solaris operating system, the dashed line styles on the Line Style submenu (Options menu) may all appear to be the same. To correct this problem, double-click the Xconfig icon in the Exceed menu to open the Xconfig window. In the Xconfig window, double-

click the Performance icon. In the Performance dialog box, turn on the Exact Zero-Width Lines option, and make all of the other options are turned off. Choose OK to close Xconfig.

Waveform Editor

- MAX+PLUS II cannot save group information in a Table File (.tbl) if it is created from a Simulator Channel File (.scf) in which group logic levels are shown with Gray code displayed as binary count. To save group information in the Table File, you must turn off the Display Gray Code As Binary Count option in the Enter Group dialog box (Node menu) for all groups.

Compiler

1. The Compiler will not correctly re-extract the netlists for EDIF Input Files (.edf) and Xilinx Netlist Format Files (.xnf) unless you turn on Total Recompile (Processing menu) if you have already compiled a project and then do one of the following:

    - Change the names of the GND and VCC signals specified with the EDIF Netlist Reader Settings dialog box (Interfaces menu).

    - Turn the Generate AHDL Text Design Export File (.tdx) or Translate Internal Node Names into N~<number> Format options on or off in the XNF Netlist Reader Settings dialog box (Interfaces menu).

2. The Report File (.rpt) sometimes inaccurately reports the timing performance achieved with timing assignments entered with the Timing Requirements and Global Project Timing Requirements commands (Assign menu). You should use the MAX+PLUS II Timing Analyzer to obtain accurate information on the timing of a compiled project.

3. If you are running MAX+PLUS II under Windows NT 3.51 or 4.0 and you turn on the Compiler's Timing SNF Extractor command (Processing menu), Altera recommends that you turn floating-point emulation off to improve timing Simulator Netlist File (.snf) extraction time. Type the following command at a DOS prompt:

4. pentnt -o <Enter>

5. If you do not have the pentnt.exe program, contact Microsoft. (In Windows NT 3.51, the pentnt.exe program is normally located in the system32 subdirectory of your Windows NT directory.)

6. If you are running MAX+PLUS II under another Windows operating system, there is no user control over floating-point emulation.

7. The Optimize Timing SNF command (Processing menu) does not create optimized timing SNFs on UNIX workstations. However, a non-optimized timing SNF provides the same functional and timing information as an optimized timing SNF. In addition, turning this command on can reduce the size of output netlists--including VHDL Output Files (.vho), Verilog Output Files (.vo), EDIF Output Files (.edo), and Standard Delay Format Output Files (.sdo)--by up to 30%.

8. The Smart Recompile command (Processing menu) does not recognize changes in authorization codes/licenses. Therefore, if you compile a project for an "advanced information" device or a megafunction for which no programming files are generated, and then subsequently add the password, authorization code, or license necessary to generate programming files, you must turn off the Smart Recompile command, turn on the Total Recompile command (Processing menu), and recompile in order to successfully generate programming files.

9. A specified maximum length of 2 is ignored on the lengths of carry chains. Lengths of 3 or greater work correctly.

10. You can create multi-device JTAG chains that use information from Jam Files (.jam), but each Jam File must contain data for only one device. Also, if you wish to load a multi-device Jam File before using it for device configuration or programming, you must choose the Select Programming File command (File menu) while in the "single-device" mode, i.e., the Multi-Device JTAG Chain command (JTAG menu) and Multi-Device FLEX Chain command (FLEX menu) must be turned off.

Floorplan Editor

1. You cannot enter an assignment to an unconnected input pin in the Floorplan Editor window to reserve it for future use. You must use the Pin/Location/Chip command (Assign menu) instead.

2. If you recompile a project with the Functional SNF Extractor command (Processing menu) turned on, assignments that have been back-annotated from an earlier full compilation do appear in the Floorplan Editor's LAB and Device views. However, if you cut an assignment or attempt to drag it to the Unassigned Nodes & Pins box, it will disappear. You must recompile the project with Functional SNF Extractor turned off before you can work effectively with assignments in the Floorplan Editor window.

3. The information displayed in the Routing Statistics dialog box (Options menu) for Logic Cell Fan-In and Logic Cell Fan-Out may not be accurate for signals that feed multiple devices in a partitioned project.

4. The Floorplan Editor cannot locate errors for advanced information devices, i.e., devices for which no programming files are generated.

5. The Show Paths command in the Floorplan Editor will not display any of the paths that are fed through the single (1x) Clock of a clklock megafunction. Instead, those paths will appear as though they are driven by the RESERVED_CKLK_PIN, rather than the global Clock pin that is in the design

Simulator

- Clock signals on multiple synchronous Clock pins on EP1810 EPLDs are not applied simultaneously when you perform functional testing with the MPU and the PLMJ1810 adapter. Therefore, functional testing may indicate a false failure in an EP1810 project with multiple synchronous Clock pins.

Timing Analyzer

- Altera recommends performing Setup/Hold Matrix timing analysis with the Timing Analyzer for all designs to reveal possible positive hold times.

Programmer

1. If you transfer a programming file created with MAX+PLUS II version 9.1 to a computer with an earlier version of MAX+PLUS II for device programming, you should not also transfer a copy of the Fit File (.fit). If you do, pre-version 6.0 releases of MAX+PLUS II may generate an internal error.

2. If you try to change the project name in order to program a device from a read-only drive or diskette, file write errors will be displayed in pop-up message boxes with Retry and Cancel buttons. If you choose Cancel each time the message appears (two or three times), the project will change successfully and you will be able to program the device.

3. On Windows NT computers, you must install the ByteBlaster driver before using the ByteBlaster. Go to MAX+PLUS II Installation in the MAX+PLUS II Getting Started manual for instructions.

4. On UNIX workstations, in-system programming may require up to 30 minutes for MAX 9000 devices. You may wish to program from a PC or turn off the Verify After Programming option in the Programming Options dialog box (Options menu).

5. You can create multi-device JTAG chains that use information from Jam Files (.jam), but each Jam File must contain data for only one device. Also, if you wish to load a multi-device Jam File before using it for device configuration or programming, you must choose the Select Programming File command (File menu) while in the "single-device" mode, i.e., the Multi-Device JTAG Chain command (JTAG menu) and Multi-Device FLEX Chain command (FLEX menu) must be turned off.

Message Processor

- Some error and warning messages incorrectly report the pathname for Altera-installed VHDL libraries. Regardless of the pathname specified in such messages, these libraries are always installed in subdirectories of the vhdl93 and vhdl87 subdirectories of your MAX+PLUS II system directory (usually \maxplus2 on a PC and /usr/maxplus2 on a UNIX workstation).

AHDL
----

1. In an AHDL file that uses Boolean equations to tie unused single- or dual-range group inputs to VCC or GND, the Compiler requires unambiguous numeric values. See the following equation:

   a[7..0] = (H"2", H"3")

   In this equation, the Compiler converts the non-binary numbers to the minimum number of binary bits and then sign-extends them, thereby yielding a binary value of B"0000 10 11", not B"0010 0011". Similarly, the following equation will yield an error indicating that there is an unequal number of bits on the two sides of the equation:

   a[7..0] = (B"0010", H"3")

   The Compiler interprets the value of the expression as B"001011", not B"00100011". Altera recommends using binary numbers to avoid ambiguity in these types of expressions.

2. To avoid ambiguities in group names, you should not use a number at the end of the symbolic name that precedes a group range. For example, the Compiler cannot distinguish between some members of the groups q1[15..0] and q11[15..0].

VHDL

Please report any problems with compiling VHDL designs to Altera Applications at (800) 800-EPLD as soon as possible. We welcome your feedback.

General VHDL Problems

1. Some error messages do not report the line and column number where the error was detected.

2. Context-sensitive help in the Text Editor is available for MAX+PLUS II primitive, macrofunction, and megafunction names in VHDL Design Files. It is not available for VHDL keywords.

3. MAX+PLUS II VHDL does not support initialization of variables, including variables used in a function or procedure. Using a variable that is initialized in a function body may cause a spurious error. To prevent such errors, you must assign an initial value to the variable in the function body.

4. Due to incompatibilities between VHDL and the LPM standard, the LPM functions that contain two-dimensional bus inputs--i.e., lpm_and, lpm_mux, lpm_or, and lpm_xor--do not currently work in MAX+PLUS II VHDL. However, the busmux and mux functions are now available in the maxplus2 package.

5. For additional up-to-date information on current MAX+PLUS II VHDL support, go to "MAX+PLUS II VHDL Support" in MAX+PLUS II Help, which provides access to topics that list the exact support provided for VHDL constructs in the IEEE Standard VHDL Language Reference Manual. Also refer to "New Features in

This Release" in MAX+PLUS II Help for information on the latest enhancements to VHDL support.

6. You must explicitly instantiate tri-state buses in VHDL. The MAX+PLUS II software cannot infer a tri-state bus from multiple assignments to the same variable.

7. Due to the way that the MAX+PLUS II VHDL Netlist Reader processes tri-state assignments, the following two assignments generate slightly different logic:

```
output <= 'Z' WHEN (oe = '0') ELSE input;

output <= input WHEN (oe = '1') ELSE 'Z';
```

While both assignments are functionally equivalent, the second adds an extra term on the input to the tri-state buffer. Altera recommends using the first form of the tri-state assignment for best results.

8. If you are using the lpm_component and std_logic_arith packages in the same file, and you are using SIGNED or UNSIGNED as a type in the std_logic_arith package or as a constant in the lpm_component package, the SIGNED or UNSIGNED type or constant must be explicitly specified. For example, the following example is invalid:

```
SIGNAL foo: UNSIGNED(1 DOWNTO 0)
```

In contrast, the following example is correct:

```
SIGNAL foo: ieee.std_logic_arith.UNSIGNED (1 DOWNTO 0)
```

VHDL Unsupported Feature Errors

Some VHDL designs will cause unsupported feature errors when the VHDL Netlist Reader processes your project. One such error is reported as "Unsupported feature error: independent association of formal subelements is not supported for inout and out modes." This message can occur if your design attempts to map or associate individual bits of an OUT or INOUT bus. The following example shows an example of logic that will generate the error (commented out with "--##") and a workaround (commented out with "--").

```
LIBRARY IEEE;
USE IEEE.std_logic_1164.ALL;

ENTITY example IS
END example;

ARCHITECTURE a OF example IS
  COMPONENT comp1
   PORT (out_port: OUT STD_LOGIC_VECTOR(1 DOWNTO 0)
   );
  END COMPONENT;
   SIGNAL siga, sigb: STD_LOGIC;
   SIGNAL temp_sig: STD_LOGIC_VECTOR(1 DOWNTO 0);

  BEGIN
```

```
   siga <= temp_sig(1);
   sigb <= temp_sig(0);
  U1: comp1
   PORT MAP (
     -- out_port(1) => siga,  --
     -- out_port(0) => sigb); --
     out_port => temp_sig);
END a;
```

VHDL Unknown Problem Errors

Some VHDL designs will cause unknown errors when the VHDL Netlist Reader processes your project. These errors are reported as "Unknown problem in <text>. Please refer to on-line help." If you receive unknown error messages, try to isolate the problem by commenting out sections of the VHDL Design File until it starts to compile. In all cases, contact Altera Applications for further assistance.

The following case causes one known occurrence of this error:

Comparison to a meta-logic value (e.g., X, L, H, Z, W, or -) that is logically combined in an If Statement causes the error "Unknown problem in <text> (%CC-F-InternalError, Internal Error in CDFGCritic). Please refer to on-line help." The following example shows an example of logic that will generate the error and a workaround:

```
LIBRARY IEEE;
USE IEEE.std_logic_1164.ALL;

ENTITY metaerr IS
   PORT(
      busa : IN  STD_LOGIC_VECTOR(2 DOWNTO 1);
      busb : IN  STD_LOGIC_VECTOR(2 DOWNTO 1);
      q    : OUT STD_LOGIC);
END metaerr;

ARCHITECTURE a OF metaerr IS
BEGIN
   PROCESS (busa, busb)
   BEGIN
      -- Don't use meta-logic comparisons: they always return FALSE.
      -- This logic reduces to the "busb" comparison.
      -- Replace the meta-logic comparison with a comparison to
      -- both 0 and 1
      -- IF (busa = "0X" OR busb = "11") THEN
      IF (busa = "00" OR busa = "01" OR busb = "11") THEN
         q <= '1';
      ELSE
         q <= '0';
      END IF;
   END PROCESS;
END a;
```

Verilog HDL

1. Direct compilation of Verilog Design Files (.v) with MAX+PLUS II software is available only on the following operating systems:

   - Windows 95/98
   - Windows NT
   - Sun Solaris 2.5 and higher (for all platforms)
   - HP HP-UX 10.20 and higher

2. You must explicitly instantiate tri-state buses in Verilog HDL. The MAX+PLUS II software cannot infer a tri-state bus from multiple assignments to the same variable.

Synopsys & MAX+PLUS II Interface

- Compilation with the Synopsys Design Compiler and FPGA Compiler is available only on Sun SPARCstations running Solaris 2.5 or higher.

Mentor Graphics & MAX+PLUS II Interface

- The Mentor Graphics B.1 release is the last release that supports CPLD technology for AutoLogic II users. Mentor Graphics now supports CPLD synthesis with Exemplar products, e.g., Galileo Extreme and Leonardo.

Documents Available on Altera's World-Wide Web Site

The following documents, which are provided as part of PC- and UNIX workstation-based MAX+PLUS II development systems, are now also available from Altera's world-wide web site:

- MAX+PLUS II Getting Started manual, including installation instructions, a comprehensive introduction, and a tutorial.
- MAX+PLUS II ACCESS Key EDA Interfaces Guidelines, which are also available on the MAX+PLUS II ver. 9.1 CD-ROM. Previous versions of MAX+PLUS II Software Interface Guides are obsolete.

A variety of other Altera documents, including device data sheets, are also available from the web site. The Altera home page is located at http://www.altera.com.

About MAX+PLUS II On-Line Help

- If you encounter a dialog box with the message "Invalid Keyword" or "The topic does not exist. Contact your application vendor for an updated Help file." when you request Help on any topic, you should contact Altera Applications Engineering at (800) 800-EPLD. The message simply indicates that the hypertext link to the Help information on that topic was inadvertently omitted. Even if you receive this message, you may be able to find information on the item with the Search for Help on command or another command on the Help menu.