ASICmaster Installation and Licensing Guide

This document describes the system requirements, and procedures for installing and licensing Actel's ASICmaster software on PCs running Windows® NT ™ and UNIX® workstations running Sun OS, Solaris, or HP-UX.

What's on the CD

The ASICmaster CD-ROM includes design kits for the following EDA software vendors:

- Symbol and synthesis libraries that support Exemplar Leonardo Spectrum 4.2.2 and later

- Symbol, synthesis, simulation and timing verification libraries that support the Synopsys Design Compiler®, Version 1998.02 and later

- Verilog simulation library that supports Verilog, OVI, Version 2.0 and later.

- VHDL simulation library that supports VHDL, IEEE standard 1076-1987 and VITAL, IEEE standard 1076.4.

System Requirements

This section describes the system requirements for installing the ASICmaster software.

PC

- 200 MHz Pentium or equivalent microprocessor

- Microsoft Windows NT version 4.0 or later, with the TCP/IP protocol installed and running

- Ethernet Network Interface Card

- 200 MB disk space

- 128 MB of RAM for an A500K050 device.

- 128 MB of RAM for an A500K130 device.

- 256 MB of RAM for an A500K180 device.

- 384 MB of RAM for an A500K270 device.

Unix

Sun Sparc Stations

- SunOS™ 4.1.3 or higher or Solaris™ 2.5 (SunOS 5.5) or higher

- 210 MB RAM (minimum) 260 MB RAM (recommended)

- X-Windows Display (OpenLook™, CDE, or Motif® recommended)

HP 9000/700

- HP-UX® 10.20 or higher

- 210 MB RAM (minimum) 260 MB RAM (recommended)

- X-Windows Display (OpenLook™, CDE, or Motif® recommended)

Software Licenses

The ASICmaster software uses the FLEXlm license manager from Globetrotter Software, Inc. Please refer to"Licensing Under Windows NT" on page 11, for information on obtaining and installing licenses for Windows NT. For Unix licenses, please refer to "Licensing Under Unix" on page 17.

ASICmaster uses a floating license. Once the license is installed on one machine, it is possible for other machines on the same network to run the ASICmaster software using the license installed on the first machine.
(See "Using the Floating License" on page 27).

Note: Only one copy of ASICmaster can be run at any one time using the same license.

ProASIC Series Manuals

The ASICmaster Installation CD includes the following documents in the doc directory on the root level of the CD. For the latest version of these documents please check on the Actel website at:

http://www.actel.com/products/proasic

ASICmaster Installation and Licensing Guide provides information and procedures for installing and licensing the ASICmaster software.

ASICmaster User's Guide provides information about the design flow for creating designs for ProASIC device. It includes information and procedures for placing and routing designs and also information on using timing constraints.

MEMORYmaster User's Guide provides information and procedures for generating embedded and distributed memories and instantiating then into a design.

ProASIC Macro Library Guide provides descriptions of ProASIC library elements for Actel's ProASIC device families. Symbols, truth tables, and timing parameters are included for all macros.

ProASIC Interface Guide provides information and procedures for designing Actel's ProASIC devices in Exemplar synthesis, Synopsys synthesis, Verilog simulation, and VHDL simulation environments.

1

Installing ASICmaster

Installation on a PC

The following procedure describes how to install the ASICmaster software on a PC running Windows NT. ASICmaster must be installed by an "administrator" account on your Windows NT system. The license server installed with ASICmaster will only run if installed with "administrator" privileges.

1. **Insert the ASICmaster CD into your CD-ROM drive.** The ASICmaster CD automatically launches the installation program if you have Autoplay enabled on your CD-ROM drive.

2. **Click the "Install ASICmaster" button in the DemoShield installation screen.** If the DemoShield program does not automatically launch, run the installation program by choosing Run from the Start menu and type the following command in the Open box:

   ```
   d:\autorun\setup.exe
   ```

   The "d" in the above command represents the drive letter of your CD-ROM. If your CD-ROM is not the "d" drive, substitute the letter of your CD-ROM drive for "d" above.

3. **Follow the instructions on the screen.**

Installing Adobe Acrobat Reader

To install the Adobe Acrobat Reader required to view the on-line documentation, click the "Install Acrobat Reader" button. After Acrobat reader is installed, you can view the included documentation by clicking the "Documentation" button from the install screen.

Visit Actel's Website by clicking the "www.actel.com" button from the install screen.

To request a license for ASICmaster, click the "Request License" button.

The "Exit" button will quit the Installation Program.

Installation on a UNIX Workstation

Installation Executive is a graphical installation program on the ASICmaster CD that guides you through installing the ASICmaster software. The Installation Executive can be run by any account. However, many UNIX operating systems require the user to be root to mount a CD-ROM drive. ASICmaster can be installed anywhere as long as there is sufficient disk space, the user installing the software can write to that directory and all users who plan to run ASICmaster can access the ASICmaster installation directory.

Use the following procedure to mount the CD and install ASICmaster:

1. **Log in as root. If the machine does not have a CD-ROM drive, log onto a machine that has a CD-ROM and that is NFS-accessible from the machine on which you wish to install the ASICmaster software.**

   Note: Invoking the ASICmaster Installation Executive as root will allow the Installation Executive to configure your system's start-up (rc) files to allow your system to automatically start the license server when the system is rebooted. Running the Installation Executive will allow the program to start the license server, but no modifications to the start-up files will be made.

2. **Create a mount-point directory for the CD-ROM, if it does not already exist, as follows:**

   ```
   # mkdir /cdrom
   ```

3. **Place the ASICmaster CD-ROM into the drive.**

4. **Mount the CD-ROM as follows:**

   SunOS 4

   ```
   # /etc/mount -o ro -t hsfs /dev/sr0 /cdrom
   ```
   HP-UX

   ```
   # /etc/mount -F cdfs -o ro /dev/dsk/c1t2d0 /cdrom
   ```
   Note: CD-ROM device names vary from machine to machine. You may need to adjust the mount command.

On SunOS 5 (Solaris 2.x), the CDROM will automatically be mounted to "/cdrom/<CDROM Volume name>".

Where <CDROM Volume name> is the name of the volume name of the CDROM disc.

Note: If the CD-ROM drive is not on the host on which you plan to install the ASICmaster software, use NFS facilities to export the CD-ROM drive's mount point from its host. Then, mount the CD ROM directory on the host on which you plan to install the ASICmaster software. For example:

On the host with the CD-ROM drive, execute the following command:

```
# /etc/exportfs -i -o ro /cdrom
```

On the host where you plan to install the ASICmaster software, execute the following command:

```
# mount <drive-host>:/cdrom cdrom
```

5. **Create the directory where you plan to install the ASICmaster software.** For example, if you plan to install the ASICmaster software into the /usr/local/asicmaster directory, use the following command:

```
% mkdir /usr/local/asicmaster
```

Copy the license file to the installation directory. For the example directory from above, use the following command.

```
$ cd /usr/local/asicmaster
$ cp <license file> /usr/local/asicmaster/license.dat
```

If you have a new license file for ASICmaster, the Installation Executive can automatically set up the license. If you have not obtained an ASICmaster license or already have a functioning ASICmaster license, and would like to configure the license later, skip to the next step. For information on how to obtain and install an ASICmaster license for the UNIX operating system, refer to "Licensing Under Unix" on page 17.

6. **Run the Installation Executive.** Type:

```
$ /cdrom/install/aminstall
```

Solaris

```
$ /cdrom/<CDROM Volume name>/install/aminstall
```

After prompting you for information and performing the initial installation setup, the Installation Executive Window is displayed as shown in Figure 1.
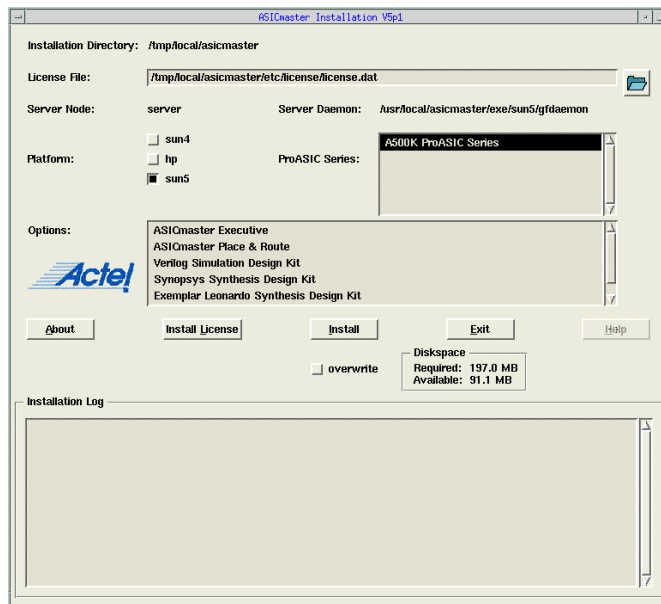

Figure 1. Installation Executive Window

7.   **Select the installation options.**

By default, the Installation Executive will set the options to install ASICmaster for the operating system you're installing with and all available design kits.

The Installation Executive window displays the following:

Installation Directory - the path where ASICmaster will be installed.

License file - shows that path to which the license file will be copied. If you skipped step 6, you do not have to worry about this.

Server Node - the name of the machine you are installing to. The Installation Executive assumes this machine is the license server.

Server Daemon - shows the location of the license server daemon executable.

Platform - the platforms the ASICmaster executable will be installed. To install executables for other platforms. Check the appropriate check boxes.

ProASIC Series - illustrates which ProASIC families will be installed.

Options - allows you to select what will be installed. ASICmaster Executive and ASICmaster Place and Route are required for the ASICmaster tool to run.

Select the Install License button to install your license on the specified host and update the /etc/rc area, such that your license server will automatically start at boot time. Do not use this option if you skipped step 6.

Note: During installation, the Server Node and Server Daemon text fields in the Installation Executive window are set automatically. If the word "NONE" appears in these fields, there is a problem with your license file. Check the license file location and that your license file is valid and current.

Check the overwrite box if you are replacing an existing version of ASICmaster.The Installation Log windows displays a log of messages during installation. This log file is automatically saved in the "<installation directory>/install/aminstall.log." For the example above, the file will be saved in "/usr/local/asicmaster/install/ aminstall.log."

8. **Click the "Install" button to begin the installation process.**

2

Licensing Under Windows NT

This chapter provides information and procedures for obtaining and configuring license for ASICmaster on PCs running Windows NT.

Obtaining a License

Use the following procedure to obtain a license for ASICmaster:

1. **Insert the ASICmaster CD into your CD-ROM drive.** The ASICmaster CD automatically launches the installation program if you have Autoplay enabled on your CD-ROM drive.

2. **Click the Request license button from the install screen.** The license Wizard in displayed.

3. **Answer the questions in the license Wizard.** The license Wizard stores your answers as a text file in the Windows clipboard.

4. **Copy the contents of the clipboard.** Paste the contents of the clipboard in the body of an email and send it to asicmaster.license@actel.com

    You will receive an email with your ASICmaster license file attached at the email address you provide to the License Wizard. Please do not send questions to that address. They will not be answered. If you have any questions, please contact Actel Technical Support at
    408-522-4460 or email them at tech@actel.com.

    Note: Your email will be sent to an automatic email processor. Please send the email in plain text. Do not attach the information in a Microsoft Word document or any other format other than plain text.

Installing a license

The ASICmaster license that you receive by email must be installed before the ASICmaster software can run. The ASICmaster license is a license key used by the Flexlm network license server.

Use the following procedure to install the ASICmaster license and configure the license server:

1. **After receiving your license email, copy the attached license.dat file to the directory is C:\asicmaster5 installation directory.**

2. **Modify the license file to include the proper hostname and directory path information.** The license you receive should appear as follows:

```
#Customer Site ID : MyCompany
#
#FLEXlm license file for hostid 00a024545ccd:
#
SERVER <put.hostname.here> 00a024545ccd 1702
DAEMON GATEFLD <put.correct.path.here>/gfdaemon
DAEMON CLKCAD  <put.correct.path.here>/CLKCAD

FEATURE FPGA_GF_PLACE CLKCAD 1.01 4-july-2000 1 32525A5B3605

FEATURE ampro GATEFLD 5.0 04-july-2000 1 0F5DE6BBF95A0D65 ck=119

#NOTE: You can edit the hostname on the server line (1st arg).
#      The (optional) daemon-path on the VENDOR line (2nd arg).
#      Most other changes will invalidate this license.
```

   Replace `<put.hostname.here>` with the hostname of your system. For example, if the machine this license was generated for is called mypc, then the SERVER line should read:

```
SERVER mypc 00a024545ccd 1702
```

   Replace the `<put.correct.path.here>` with the correct path to the gfdaemon and CLKCAD files on your system. These files are located in the `<ASICmaster install directory>\exe\WINNT` directory.

   If the ASICmaster software has been installed in the default directory, C:\asicmaster5, then the DAEMON lines should read:

```
DAEMON GATEFLD C:\asicmaster5\exe\WINNT\gfdaemon.exe
DAEMON CLKCAD C:\asicmaster5\exe\WINNT\CLKCAD.exe
```
Save these changes to the license.dat file.

The modified license file should appear as follows:
```
#Customer Site ID : MyCompany
#
#FLEXlm license file for hostid 00a024545ccd:
#
SERVER mypc 00a024545ccd 1702
DAEMON GATEFLD C:\asicmaster5\exe\WINNT\gfdaemon.exe
DAEMON CLKCAD C:\asicmaster5\exe\WINNT\CLKCAD.exe

FEATURE FPGA_GF_PLACE CLKCAD 1.01 4-july-2000 1 32525A5B3605

FEATURE ampro GATEFLD 5.0 04-july-2000 1 0F5DE6BBF95A0D65 ck=119
```

3. **From the Start menu choose Programs then ASICmaster5.0. then FLEXlm License Manager**. The "FLEXlm License Manager" window is displayed. (see Figure 2).
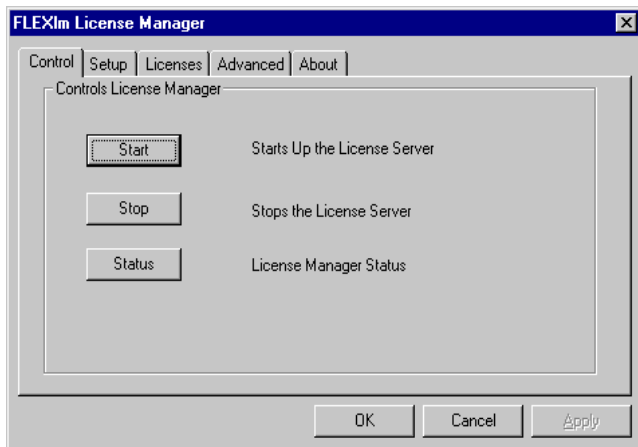

Figure 2. FLEXlm License Manager

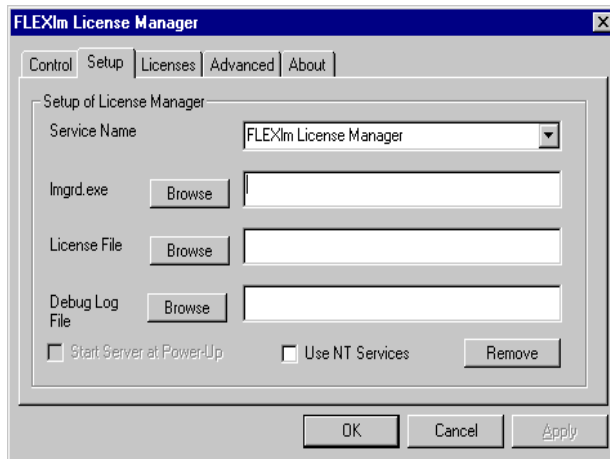4. **Click the "Setup" tab. (see Figure 3 on page 14).**

Figure 3. Set up Tab

5. **Next to "lmgrd.exe." Click the Browse button.** Browse to the ASICmaster installation Directory \exe\WINNT directory and select "lmgrd.exe" then click "Open". By default, this file should be in the following directory:

   `C:\asicmaster5\exe\WINNT`

6. **Next to License File Click the Browse button.** Select the license.dat file you copied into the ASICmaster installation directory. Click open.

7. **Select a directory for the debug log file.** This file can be placed anywhere. However, Actel recommends that the file be placed in the ASICmaster installation directory. Click the Browse button next to "Debug Log File" ASICmaster installation directory, then click the "Save" button to create the file.

   Note: Do not delete this file. It stores messages from the Flexlm license server and can be very useful for debugging. Also, it logs who is using the ASICmaster.

8. **Check the Use NT Services box.**

9. **Check the Start Server at Power-Up box.** This is only available if the Use NT Services box has already been checked.

10. **Click the Apply button and select the Control tab.**

11. **In the Control tab window, click the Start button.** The license server should now be running.

3

Licensing Under Unix

This chapter provides information and procedures for obtaining and configuring licence for ASICmaster on UNIX Workstations.

Obtaining a License

Use the following procedure to obtain a licence for ASICmaster:

1. **From the CDROM, run the following command:**

```
% ./license.csh
```

   The script will prompt you to answer several questions. At the end of the questionnaire, the script will give you the option to automatically send the required information to Actel or save that information to a file.

2. **If you save the information to a file, please email the information to asicmaster.license@actel.com.** You will receive an email with your ASICmaster license file attached at the email address you provided to the License Wizard.

   Note: Your email will be sent to an automatic email processor. Please send the email in plain text. Do not attach the information in a Microsoft Word document or any other format other than plain text.

   Please do not send questions to that address. They will not be answered. If you have any questions, please contact Actel Technical Support at 408-522-4460 or email them at tech@actel.com.

Installing a License

The ASICmaster license you receive by email must be installed before the ASICmaster software can be run. If you installed the license during the installation of ASICmaster, you do not need to proceed. Otherwise, use the following procedure.

Using the Installation Executive

The Installation Executive, as shown in Chapter 1 in Figure 1 on page 8, can install and configure a new license file.

Note: These instructions assume that the ASICmaster software has already been installed onto your UNIX workstation.

1. **After receiving your license email, copy the attached license.dat file to the location where ASICmaster is installed.** Using the example from Chapter 1, copy the file to the /usr/local/asicmaster directory.

2. **Insert and mount the ASICmaster Installation CD.** See "Installation on a UNIX Workstation" on page 6 for details of how to mount a CD-ROM drive.

3. **Start the Installation Executive.** Type the following command:

   $ /cdrom/install/aminstall

   Solaris

   ```
   $ /cdrom/<CDROM Volume name>/install/aminstall
   ```

   Note: Invoking the ASICmaster Installation Executive as root will allow the Installation Executive to configure your system's start-up (rc) files to allow your system to automatically start the license server when the system is rebooted. Running the Installation Executive will allow the program to start the license server but no modifications to the start-up files will be made.

4. **Enter the path for the ASICmaster installation directory.**

   This path should be displayed on the "Installation Directory:" line.

   The value for the "License File:" field should read:

   ```
   <Installation Directory>/license/license.dat
   ```

   Your machine name should be in the Server Node: line

   The Server Daemon line should read:

   ```
   <Installation Directory>/exe/<platform>/gfdaemon
   ```

   Where <platform> is the operating system you are using. This should be sun5 for Solaris, sun4 for SunOS 4.1.x, hp for HP-UX.

5. **Click the "Install License" button.** The Installation Executive saves the changes to the file:

   <install directory>/etc/license/license.dat.

   Note: During installation, the Server Node and Server Daemon text fields in the Installation Executive window are set automatically. If the word "NONE" appears in these fields, there is a problem with your license file. Check the license file location; also check that your license file is valid and current.

6. **In the "Installation Log" window the values for AMHOME and AM_LIC_FILE are displayed.** Remember these two values. Both the AMHOME and AM_LIC_FILE must be set properly for the ASICmaster software to run. In C-Shell, use the following commands to set these variables:

   ```
   % setenv AMHOME /usr/local/asicmaster
   % setenv AM_LIC_FILE /usr/local/asicmaster/etc/license/
   license.dat
   ```

   The Installation Executive will also start the license server.

7. **To run ASICmaster, make sure the environment variables above are set, the license server is operational, and <Install Directory>/exe/<platform> is in the path, then type:**

   ```
   % asicmaster
   ```

Troubleshooting

This section contains information and procedures for troubleshooting the installation and licencing of the ASICmaster software. ASICmaster uses the FLEXlm license manager from Globetrotter Software, Inc. The license manager requires TCP/IP networking to be installed and operational on both (the client) and the machine running the license manager (server)running ASICmaster.

Note: Both the client and server machines can be the same machine.

Licence Error Messages

The section describes possible error messages users may encounter with the FLEXlm license manager and possible solutions.

Cannot Connect to a License Server

This message indicates that ASICmaster is unable to communicate with the license server. There are several reasons for this problem. Check one of the following:

1. Make sure the machine running the ASICmaster software can communicate with the license server. Check the SERVER line of your license file. This line should appears as follows:

   ```
   SERVER <server> 8765dcba 1702
   ```

   Where <server> is the name of machine running the licence manager. To verify ASICmaster can communicate with the machine running the license manager, type in the following command on the command line of the machine running ASICmaster:

   ```
   % ping <server>
   ```

   For the example:

   ```
   % ping license
   ```

   Note: Under Windows NT, type this command into a DOS-Shell.

   Verify that the TCP/IP facilities on the licence manager and the machine running ASICmaster are running correctly.

2. Verify that the daemons GATEFLD and CLKCAD are running on the licence manager by using the following procedure:

HP-UX and Solaris

```
% ps -aef | grep GATEFLD
% ps -aef | grep CLKCAD
```

SunOS

```
% ps -auxw | grep GATEFLD
% ps -auxw | grep CLKCAD
```

Windows NT

1. **Choose ASICmaster5.0. from Programs under the Start menu
    and then select License Manager.** The FLEXlm license manager
    window is displayed.

2. **Click the Search button and browse to the location of the
    license file.** You will see the location of the file you selected in the
    "current license file" box**.**

3. **Click the Status button.** In the window that appears, select
    Display Everything then click "OK". If the tool displays lines
    containing the words "GATEFLD" and "CLKCAD" the license server
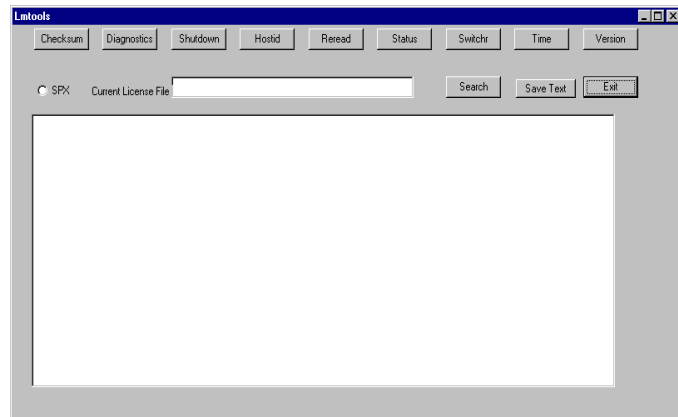   daemons are running**.**

Figure 4. LmTools Window

If these daemons are not running properly, re-install the licence as described in "Obtaining a License" on page 11 for Windows NT, and "Obtaining a License" on page 17 for UNIX workstations.

Cannot Find License File

This error indicates that the ASICmaster software cannot locate the license file. Check the following

UNIX

1. **Verify that the AM_LIC_FILE environment variable is set by typing:**

    ```
    % echo $AM_LIC_FILE
    ```

1. **Verify that the license file exists by typing:**

    ```
    % ls $AM_LIC_FILE
    ```

2. **If the variable does not exist or is pointing to the wrong location, reset the variable by typing:**

    ```
    % setenv AM_LIC_FILE <license file>
    ```

    where <license file> is the absolute path of the license file. For example, assuming you have installed ASICmaster in the default directory as follows:

    ```
    % setenv AM_LIC_FILE /usr/local/asicmaster/etc/license/
    license.dat
    ```

    Note: If you are using a network license see "Using the Floating License" on page 27 for information on how to configure your ASICmaster client to use a floating license.

Windows NT

1. **Verify that the AM_LIC_FILE environment variable is set.**
    Open the Control Panel and select System. In the System Properties window, shown in Figure 5 on page 24, select the Environment tab. Verify that the variable AM_LIC_FILE exists either as a system variable or a user variable.
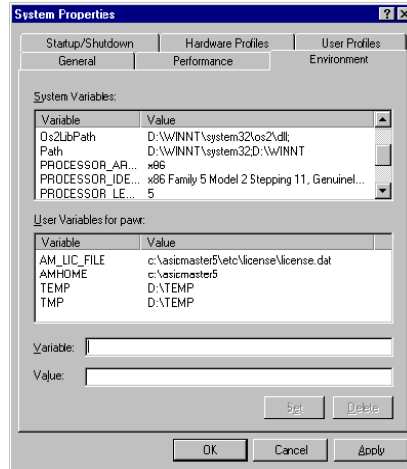
Figure 5. System Properties Window

2. **Verify that the license file exists.** Use the NT Explorer to browse to the location indicated by the value of the variable. Verify that the license.dat file exists at that location.

3. **If the variable does not exist or is pointing to the wrong location, reset the variable.** Open the Control Panel and select System. In the System Properties window, select the Environment tab. In the Variable box enter:

    `AM_LIC_FILE.`

    In the box below marked Value, enter the location of the license file. For the example:

    `C:\asicmaster\etc\license\license.dat`

4. **Click Set then Apply.**

Encryption Code File is Inconsistent

This error indicates that the license file has been corrupted. Please contact Actel's Customer Applications for assistance.

Feature has Expired

Your license for the feature you are trying to access has expired. Contact Actel Customer Applications for information on obtaining another license.

No SERVER Lines in License File

Your license file should contain the following line:

```
SERVER <hostname> <hostid> 1702
```

For example, if the name of the machine running the license is "server" and it's hostid is "8765dcba" the SERVER line should read:

```
SERVER server 8765dcba 1702
```

If you do not have this line in your license file, your license file has been corrupted. Please contact Actel Customer Applications for assistance.

No Such Feature

You are trying to access a feature that does not exist in your license file. Verify that the following feature lines exist in your license file:

```
FEATURE FPGA_GF_PLACE CLKCAD ........
FEATURE ampro GATEFLD .........
```

If you do not have both features listed in your license file, you either have the wrong license file or the license file has been corrupted. If you are pointing to the wrong license file, make sure that your AM_LIC_FILE variable is pointing to the correct location and that the license manager is pointing to the proper file.

Installation Problems

If the Installation Executive fails to start, verify that your display is set properly. Kill the Installation Executive process (use either the <CTRL-C> or the kill command). Reset the DISPLAY environment

variable. For example, if your machine is called server, the DISPLAY environment variable should be server:0.0.

To set the DISPLAY variable under C-shell, use:

```
$ setenv DISPLAY server:0.0
```

Run the Installation Executive using the aminstall command again.

Using the Floating License

All licenses generated for ASICmaster are FLEXlm floating node (network) licenses. Once a machine has the FLEXlm license server installed and running with an ASICmaster license, any other machine on the network that can directly access the machine running the license server can "check out" a license from that server.

For example, if ASICmaster is installed on a machine called server, any other machine that can access it through the TCP/IP protocol can access the license installed on that machine.

The most common configuration for this would be if the ASICmaster software is installed on a UNIX server and the license is run on that server. Any other client that has the ASICmaster executable files installed locally or that can access the executable files installed on that server can run ASICmaster using the licenses installed on the server.

Note: The client and server does not have be the same platform. For example, a UNIX client can use a license server running on a Windows NT machine and vice versa.

To instruct ASICmaster to use a license running on another machine, you must set the AM_LIC_FILE environment variable to:

```
<port>@<hostname>
```

where <port> is the TCP/IP port that the license is using and <hostname> is the name of the machine where the license server is running.

You can determine what these values are from the SERVER line of the license file. The server line of the license file is of the format:

```
SERVER <hostname> <hostid> <port>
```

For example, if the SERVER line of the license file appears as follows:

```
SERVER server 8765dcba 1702
```

The <port> will be 1702 and the <hostname> will be server. Therefore, AM_LIC_FILE should have the value:

```
1702@server
```

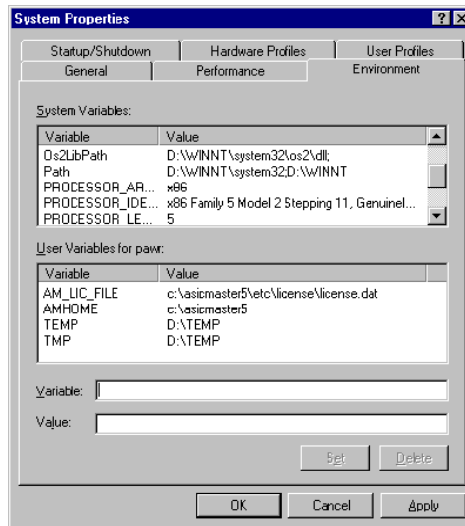## *Setting the AM_LIC_FILE*

UNIX

To set the AM_LIC_FILE to the value 1702@server on a Unix system , type the following command:

```
% setenv AM_LIC_FILE 1702@server
```

PC

1. **Open the Control Panel and select System.** In the System Properties window, select the Environment tab.

2. **Enter the following in the Variable Box:**

   ```
   AM_LIC_FILE.
   ```

3. **Enter the following in the Value Box:**

   ```
   1702@server
   ```

4. **Click Set then Click Apply**