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Condor 2000 Series
User's Guide

Addendum Information

Changes made to:

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1 Introduction

1.1 Purpose of this Guide

- To provide general information about the Condor 2000 Series cards.
- Confirm the user has the necessary system requirements required for the 2000 series card.
- Provide instructions for obtaining and installing the AMD Catalyst Proprietary Display Driver.
- How to install the Condor 2000 Series card in a SBC (single board computer).
- Better understand the use of this product.

1.2 Overview of Condor 2000 Series

The Condor 2000 Series graphics cards are XMC/PMC based products designed for the embedded, defense and avionics markets. Products in this series offer outputs, through either the front panel or rear I/O connectors. The output types and formats that are supported depend upon the model. The products come in several variations such as: air cooled or conduction cooled and commercial (standard) or rugged. The Condor 2000 Series currently includes the Condor 2000 and the Condor 2001. All of this information is discussed in detail in the **Condor 2000 Series Technical Manual**.

The Condor 2000 Series is based on the AMD E4690 Embedded GPU. The Windows and Linux display drivers for the product are available for download from AMD's support side (discussed in **Section 3** and **Section 4**). If RTOS (real time operating system) drivers are needed drivers, they are available separately at additional cost and are beyond the scope of this manual. Please contact Tech Source directly for details on how to purchase the RTOS driver for your application, project or program.

While Condor series products are commercial off-the-shelf (COTS) products, in some instances, products may be customized to meet the application requirements. In these instances, separate software or hardware specifications may be provided.

1.3 Minimum System Requirements

The Condor 2000 Series graphics cards require the following minimum system hardware and software capabilities

- Single Board Computer with a XMC interface (VME, VPX or cPCI).
- AMD, Intel or PowerPC CPU.
- 512MB System RAM.
- Some level of system integration will be required to handle heat dissipation in both conduction and convention cooled environments.
- The Condor 2000 Series cards can consume up to 25W from the chassis' power supply at peak performance (5V or 12V rail depending on the SBC). The cards can be configured for lower max power consumption. Please contact Tech Source to discuss such configurations.

1.4 Related Documents

Condor 2000 Series Technical Manual - Provides complete technical specifications, including exact pin-out, interface information and ordering information.

2 Hardware Installation

2.1 Installation Instructions

The Condor 2000 Series graphics card installation is simple and consists of a few easy steps.

Step 1: Shut down the system and turn the power OFF. Remove the single board computer. Be mindful of ESD, and be sure to use proper ESD precautions.

Step 2: Install the Condor 2000 Series graphics card using the provided mounting hardware. Attach the Condor graphics card to the PMC/XMC connector and screw down the standoffs. For a conduction cooled board, the SBC company should have provided mounting screws.

Step 3: Re-install the single board computer, attach any previously removed cables, and connect the video cable to your monitor.

The Condor 2000 Series graphics card is now installed and the system is ready for display driver installation.

Refer to **Section 3** for installing and configuring the display driver on Linux.

Refer to **Section 4** for installing and configuring the display driver on Windows.

> **NOTE:** Once cables are connected, you may want to label them and the connectors to avoid any confusion should they need to be disconnected.

> **NOTE:** Rear I/O will require a special/custom cable, RTM or PIM to get a video output. For rear I/O pin-out info, please refer to the **Condor 2000 Series Technical manual**

3 Linux Software Installation

3.1 Linux Display Driver

The following section describes how to install and configure the display driver for the Condor 2000 Series graphics card for the Linux operating system.

ATI Catalyst Proprietary Display Driver can be obtained from AMD's support page :
http://ati.amd.com/support/driver.html

From the choices provided, select the type of system (Embedded Graphics), the product family (Radeon Embedded), the product (E4690), your Linux operating system, and then select 'Display Results'.

Direct link to the Linux display driver:
http://support.amd.com/us/gpudownload/linux/Pages/radeon_linux.aspx

The ATI Catalyst Proprietary Display Driver for Linux is designed to support the following Linux distributions :

- Red Hat Enterprise Linux Suite
- Novell/SuSE Linux Enterprise
- Ubuntu

3.2 Linux Installation Requirements

Before attempting to install the AMD Catalyst proprietary driver, the following software must be installed:

- X.org 6.9, 7.0, 7.1, 7.2, 7.3, 7.4, 7.5 or 7.6
- Linux kernel 2.6 or above
- glibc version 2.2 or 2.3
- POSIX Shared Memory (/dev/shm) support is required for 3D applications.

The following packages must be installed in order for the AMD Catalyst driver for Linux to install and work optimally:

- XFree86-Mesa-libGL
- libstdc++
- libgcc
- XFree86-libs
- fontconfig
- freetype
- zlib
- gcc

When installing the Linux driver, make sure the kernel and kernel-devel package versions match. The YUM updater can be used as well as other update tools to get the packages above. The RPM utility should be installed and configured correctly on the system if the install will be done using RPM packages. Please contact Tech Source directly for more support

This information can also be found in the Release Notes for the ATI Catalyst Proprietary Display Driver for Linux.

3.3   Linux Installation Procedure

Follow the steps below to install the ATI Catalyst Proprietary Display Driver for Linux.

1. Install a supported Condor 2000 Series graphics card in the single board computer and boot the system. Refer to **Section 2** for installation steps.

2. Log in as root on the target system.

3. Uninstall any previous versions of the ATI software that may be on the system.

    To remove the software, navigate to the folder such as /usr/share/ati which holds the uninstall file *fglrx-uninstall.sh* and type the following command:
    ```
    prompt# sh ./fglrx-uninstall.sh
    ```

4. Create a local location for your ATI Proprietary Linux drivers, such as: /usr/share/ati
    This is done by using the following command:
    ```
    prompt# mkdir /usr/share/ati
    ```

5. The E4690 Linux driver can be obtained from AMD's website.

    http://support.amd.com/us/gpudownload/linux/Pages/radeon_linux.aspx

6. Click on the **Release Notes** link for more advanced installation instructions.

7. Click on the download button to begin downloading the software. Save the software package to the local location you created in step 4.

8. Continue with the software download. A dialog window will appear. Follow each dialog prompt until the software is properly installed.

9. After the download is complete, change your directory to the local location and type '**sh**' followed by the package name.

    For example :
    ```
    prompt# cd /usr/share/ati
    prompt# sh ./ati-driver-installer-*.run
    ```

    A software dialog box will open and prompt you to continue with the installation.

10. Read the License Agreement and then click 'I Agree' to continue the installation, or click 'Cancel' to terminate the installation. Select **Install Driver** and click **Continue**. The 'Mode of Installation' dialog box is displayed.

11. Select '**Automatic'** and click '**Continue'**. The ATI Proprietary Linux Driver is installed, and the 'Installation Complete' dialog box is displayed.

12. Click 'View HTML Release Note' for last minute driver information, or 'Exit' to close the ATI Proprietary Linux Driver Installer.

13. After downloading the software in the location, you then need to use '`aticonfig'` to configure all display devices.

14. Launch the Terminal Application/Window and, as super user, change directories to /usr/bin for X.Org versions newer than 7 or /usr/X11R6/bin for X.Org versions older than 7 and type one of the following commands:

    For single screen mode type:

    ```
    prompt# aticonfig --initial
    ```

    For dual screen mode type:

    ```
    prompt# aticonfig --initial=dual-head
    ```

    If **'aticonfig'** fails to work refer to the **'aticonfig'** help by typing the command: **'aticonfig –help'**

15. Reboot the system.

16. The ATI Catalyst Proprietary Display Driver is now installed.

4 Windows Software Installation

4.1 Windows Display Driver

The following section describes how to install and configure the display driver for the Condor 2000 Series graphics card for the Windows operating system.

AMD Catalyst Display Driver can be obtained from AMD's support page :
http://ati.amd.com/support/driver.html

From the choices provided, select the type of system (Embedded Graphics), the product family (Radeon Embedded), the product (E4690), your Windows operating system, and then select 'Display Results'.

Direct link to the AMD Catalyst Display Driver for Windows :
http://support.amd.com/us/gpudownload/embedded/Pages/embedded_windows_all.aspx

The AMD Catalyst Display Driver for Windows is designed to support the following Windows operating system versions :

- Windows XP
- Windows 7
- Windows Embedded (Please Ask)

4.2 Windows Installation Procedure

Follow the steps below to install the AMD Catalyst Display Driver for Windows.

1. Install a supported Condor 2000 Series graphics card in the single board computer and boot the system. Refer to **Section 2** for installation steps.

2. Log in to the operating system as an administrator on the target system.

3. Uninstall any previous versions of the AMD software that may be on the system.

   To remove the software, use the 'Add/Remove Programs' function found under the 'Control Panel' and select the appropriate AMD software to be removed.

4. Create a local location for your AMD Windows driver, such as: **C:\temp**

5. Open an Internet Browser in your Windows environment.

6. Navigate to the following link to install the software and drivers:
   http://support.amd.com/us/gpudownload/embedded/Pages/embedded_windows_all.aspx

7. Click on the download button to begin downloading the software. Save the software package to the local location you created in step 4.

8. After the download is complete, change your directory to the "saved" file folder and unzip the compressed file:

   For Example:
   8.90-110915a-126000C-EDG_Direct.zip

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9. Double-click the uncompressed *setup.exe* file to begin installation. A software dialog box will open and prompt you to continue with the installation.

10. Read the License Agreement and then click 'I Agree' to continue the installation, or click 'Cancel' to terminate the installation. The 'Mode of Installation' dialog box is displayed.

11. For the type of installation, select Express and then click 'Yes' to install the AMD Windows driver. When the installation is finished, the 'Installation Complete' dialog box will be displayed.

12. Select 'Yes' to restart the system or 'No' to cancel restart. (A restart is necessary to allow the drivers to attach to the Condor 2000 Series board and to install the software changes).

13. The AMD Catalyst Display Driver is now installed

5 RTOS Support

Real Time Operating System (RTOS) support for the Condor 2000 Series is available at additional cost through Tech Source or our software partner. The following RTOS versions are currently available on PowerPC platform:

VxWorks 6.7
Please ask about others

For further information please contact TechSource at
condor-support@techsource.com

6   Technical Assistance

6.1   Who To Call For Help

If you need help, please call our Technical Support Team at (800) 330-8301, or directly at (407) 262-7100 between the hours of **9:30am - 5:30pm EST** Monday through Friday.

Please have the software part number, version, and serial number for your Condor 2000 Series card(s) available when contacting Tech Source in order to expedite support. Please make a note of this information in the area below:

<u>DETAILS OF YOUR CARD(S):</u>

P/N: _____

Model Name: _____

Serial Number(s):   _____

> **NOTE:** Technical Assistance will be available only for products under standard or extended warranty.

Our email address is: condor-support@techsource.com

International customers may use email or our fax line at
(407) 339-2554.

6.2   Frequently Asked Questions

Q :   Where are the display drivers located?
A :   ATI Catalyst Proprietary Display Driver can be obtained from AMD's support page :
http://ati.amd.com/support/driver.html
From the choices provided, select the type of system (Embedded Graphics), the product family (Radeon Embedded), the product (E4690), your operating system, and then select 'Display Results'.

Q :   Why is there is no video output from the Condor card?
A :   Unplug the Condor card from the XMC site and re-seat it. Make sure that the card is fully pressed down and that no parts on the SBC are preventing this from happening. Make sure that all video cables are firmly attached and in working condition with Hot Plug. Make sure the monitor is set to the right input type. Check the system BIOS for any options that set the system for Onboard Video Only or disable the XMC site.

6.3   Company Website

Detailed product information and Frequently Asked Questions (FAQs) are available on our website located at:

www.techsource.com

If you need further assistance with any questions or concerns not found in this section, please contact our technical support group via condor-support@techsource.com

Appendix A: Warranty

The Condor products are warranted for one (1) year from date of shipment. During the warranty period, Tech Source, Inc. will, at its discretion, repair or replace a defective component at its expense. Freight charges associated with the repair or replacement of components under warranty are to be shared by Tech Source, Inc. and the customer. All customers, domestic and international, shall bear the freight charges for the product's return to Tech Source, Inc. Tech Source, Inc. shall bear the outbound freight charges up to $20.00 (USD) per returned product, whether domestic or international. Any additional freight charge shall be the responsibility of the customer. Technical support (via telephone/facsimile/email) is provided free of charge for one (1) year from date of shipment. The installation of any Tech Source, Inc. hardware/software product is the sole responsibility of the customer.

Tech Source, Inc. offers a continuing hardware/software support program that provides telephone consultation and any required hardware repair after the expiration of the warranty period.
Contact Tech Source, Inc. for further warranty information.

Customers will be charged an hourly rate plus materials ($350.00 USD minimum) for repairs and/or maintenance performed by Tech Source, Inc. that are not covered by a Tech Source, Inc. warranty or maintenance contract.

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