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    Linux* Driver Release Notes For Intel(R) Desktop Boards
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Intel(R) 865G Extreme Graphics Controller Driver Version 20030425
for Red Hat* 8.0
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DATE: February 26, 2004

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Purpose
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This readme provides installation information for the Intel(R) 865G Extreme Graphics Controller Driver on Intel desktop boards.

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Text and Command Conventions for this Document
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 -- Commands are listed either as stand-alone indented lines such as:
     make install
   or surrounded by => ____ <= delimiters in sentences such as:
     Enter the => make install <= command.

 -- Special callouts, buttons, and paths are placed within quote
    marks. For example:
      Go to the "/root/test" directory and click on the "test.bin" file.
      Always press the "Enter" key after each command entry.

 -- Bullet items are called out with a double dash "--" prefix at
    the left side of the page.

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Before Installation
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1. Ensure that the motherboard you are attempting to load this driver on is an Intel(R) Desktop Board with an 865G chipset and 128 MB of system memory.

2. Verify that the specific kernel version installed in the system meets the minimum required kernel version listed below for your distribution. (If needed, use the => uname -r <= command to check the current kernel version that the system is running.)
 -- Red Hat* 8.0,(2.4.18-14)

3. The driver installation requires kernel source and development tools. The kernel source is usually located at the "/usr/src/linux" path. Choose "Custom" or "Complete" Linux installation to ensure that all required libraries and tools are installed. Tool examples include gcc and any console-based editor like vi, pico, or emacs.

4. Verify that XFree86 4.2.0 is also installed.

5. Since Red Hat 8.0 does not contain driver support for the Intel 865G Extreme Graphics Controller, you need to be running "VESA" mode.

6. If you manually install the driver using Method 2 below, ensure the system will start in text mode or the X-server can be shut down and exited to text mode. This can be accomplished by editing the /etc/inittab file and changing the default run level from 5 to 3. You will then need to re-start your system for changes to take effect.

7. Make sure you log in as a super user (as root) so you have the necessary privileges to update the system configuration.

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Installation Instructions
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Use one of the following instruction methods to install the driver:
 -- Method 1 provides a simple script-controlled driver installation.
 -- Method 2 lets the user install the driver with manually entered commands.

Method 1 (script controlled installation)
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1. Log into the system as the "root" user to ensure all necessary rights needed to compile and configure the graphics driver.

2. If you boot into the X-Windows GUI, open either a terminal or shell window.

3. Decompress the downloaded file with the following command:
     gunzip intel-i865_gfx-(version).gz

4. Go to the directory where you downloaded the driver package file.

5. Run the downloaded package using the following command:
     ./intel-i865_gfx-(version).sh

6. The script should auto-detect your hardware. Select "OK" to continue (with the "Enter" key).

7. Review and accept the license as follows:
   -- Use the "Up" and "Down" arrow keys to scroll the license.
   -- Use the "Left" and "Right" arrow keys to select.
   -- Select "Exit".
   -- Click either "Yes" or "No".
   -- Then press the "Enter" key to complete the selection.

8. Verify that the detected X-Windows module directory is correct.
   -- If the detected directory is correct, press the "Enter" key.
   -- If the detected directory is not correct, use the "Space Bar" to select the proper directory and press the "Enter" key.

9. Once the module directory has been either verified or corrected, select "OK" for the dialog box.

10. Then press the "Enter" key for any remaining dialogs to complete the installation.

11. The program will ask to restart the system. If you select "No", remember that the X-Windows system must be restarted before the drivers will work.

Method 2 (manually controlled installation)
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1. Uncompress the downloaded file with the command:
     gunzip intel-i865_gfx-(version).sh.gz

2. Extract the package with the command:
     intel-i865_gfx-(version).sh -d

3. Change to the extracted package directory.

4. Run => ./install.sh <= to complete the installation and configure your board. Follow all prompts, and accept all defaults.

5. Make a backup of the "cp /etc/X11/XF86Config XF86Config-Backup" file.
    NOTE: The XF86Config file may be named "XF86Config-4". If the "XF86Config-4" file exists, then backup and edit this file.

6. Modify the "XF86Config" file using a console text editor. Find the "Device" section and modify the "Driver" entry to "i810".

7. While editing the XF86Config file, be sure to check to the monitor and resolution settings.

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After Installation
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Verify installation by performing the following steps:

1. xvinfo | grep Intel

Start X Windows (via "startx") and execute the following command:
   xvinfo | grep Intel
If the driver has been properly loaded you should expect the output shown below:
   Adaptor #0: "Intel(R) 830M/845G/852GM/855GM/865G Video Overlay"

2. Video RAM Settings

Check and modify your video RAM settings as follows:
   1: Click on the RedHat Icon (start menu) in the task bar.
   2: Select "System Settings" and then click on "Display."
   3: Select the "Advanced" tab in the Display dialog.
   4: Click on the "Configure" button in the video card section.
   5: Check the "Custom Memory Size" box.
   6: Select your desired level of memory (64 MB or greater is recommended. Note also that this should be equal to the amount selected in BIOS. Refer
to your Intel desktop board manual for instructions on how to check or change this setting for your system BIOS.)
   7: Click "OK" and exit the dialog.
   8: Reboot the system for changes to take effect.

3. Play a 3D Game

Start X Windows (via "startx") if it's not started already and then play a 3D accelerated game (such as Tux Racer). If the video is choppy, this indicates
that either the driver has not been properly loaded, or the amount of available video memory is too small.

Restoring Your Runlevel

Set your runlevel back to 5, if desired, by editing the "etc/inittab" file using a console text editor and restarting your system.

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Known Issues
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The X Windows-"display settings"-utility (/usr/bin/redhat-config-xfree86), shows INCORRECTLY that the 3D Hardware Acceleration has been disabled. As, long as the driver has been loaded, 3D Hardware Acceleration will be enabled. Please use the aforementioned "xvinfo" command to verify proper installation of this driver.

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More Information
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AGP GART and DRM support are included with the driver package and are part of the installation process. No further actions should be required to enable AGP GART or DRM support.

Driver support for the 865G graphics component can also be obtained by installing the most recent XFree86* X-Server software update from www.xfree86.org. Support for the 865G is included from 4.3 XFree86 and newer.

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