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     Linux* Driver Release Notes For Intel(R) Desktop Boards
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=========================== PRODUCT ===========================
Intel Desktop Board Information for users of Redflag* (Hong Qi*) 4.0 Linux*
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DATE: October 15, 2003

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Purpose
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This readme provides information on what to do when installing the Redflag* 4.0 Linux* operating system with kernel 2.4.20-3 or higher on an Intel(R) desktop board based system (see "Hardware Requirements").

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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 You Begin
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Verify that the following hardware and software requirements are met:

Hardware Requirements

 -- Intel(R) Desktop Board with Intel(R) D865 or Intel(R) D875 chipsets, or

 -- Intel(R) Desktop Board D845GVA (Note: this board does not support Intel Hyper-Threading technology).

Software Requirements

 -- Redflag* (Hong Qi*) 4.0 Linux* with kernel 2.4.20-3 and newer.

 -- Check that the BIOS version is the most recent release.

 -- Check that you have all Linux kernel source files and any needed compiling tools.

 -- If your system uses Intel Hyper-Threading (HT) technology, verify that it is enabled in BIOS.

 -- If you plan to installing this operating system on a Serial ATA (SATA) disk drive, please set the device configuration to run in "Legacy Mode" through the BIOS. Note: When in Legacy Mode, you are limited to a combination of 4 storage devices. For example, 2 SATA and/or 2 Parallel ATA (PATA) disk drives, or up to 4 PATA disk drives).

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Device Support under Redflag* (Hong Qi*) 4.0 Linux*
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The following lists devices that either have integrated support for the listed Intel desktop boards, or require additional drivers with the Linux software/kernel. Note that the SMP kernel upgrade is built into this distribution of Linux. But your hardware, processor, chipset, and BIOS must support Intel Hyper-Threading technology. After installing Redflag 4.0, you may install additional device drivers in any desired order. To obtain the latest drivers for your Intel desktop board, go to:
   http://developer.intel.com/design/motherbd

 -- Intel's Hyper-Threading Technology requires that the Symmetrical Multiprocessing Support (SMP) kernel be installed. Note that System BIOS settings for HT support must be enabled BEFORE you install Redflag 4.0. Then a Redflag 4.0 installation will automatically include the SMP kernel upgrade. If BIOS is not previously set for HT support, then a later Redflag 4.0 installation will not include the SMP kernel.

 -- Currently Redflag 4.0 does not natively support Serial ATA disk drive configurations running in "Enhanced" mode. You must set the Intel(R) desktop board to run in "Legacy" mode to install the operating system on a SATA disk drive. NOTE: When in "Legacy" mode you are limited to a combination of 4 storage devices (for example, 2 SATA and/or 2 PATA disk drives, or 4 PATA disk drives).

 -- Intel(R) 865G Graphics. The DRM kernel is included in the distribution to allow 3D support for Intel integrated graphics. No configuration is necessary after installation. The Redflag 4.0 installer automatically configures the X-Server using a built-in Intel i830 graphics driver.

-- Intel(R) 845G Graphics (using an i810 driver). Direct rendering is enabled through DRM 0.99 for 3D Support.

 -- Intel(R) Pro 100 LAN Adapter is natively supported by Redflag 4.0. If using the Intel(R) Pro 1000 LAN Adapter, the "Intel Ether Express 1000" setting should be selected when using the Hardware Detection Wizard.

 -- Audio CODEC (for ADI*1985 and Realtek* ALC202A AC'97) are supported by the Redflag 4.0 audio codec. Even though these devices are not automatically detected during installation, the Redflag 4.0 Hardware Detection Wizard will be able to configure them after X-Window loads. Make sure to select "Intel 865 + ICH5" from the sound card list. After the initial sound device testing, the volume will be set to minimum levels and the volume control needs to be manually adjusted to an audible sound level. Only two channels of stereo audio is currently supported by this audio driver.

 -- On-board Audio (SigmaTel ST9750, Realtek ALC202A, and ADI ADI1985) AC' 97 audio codec are supported for Intel Desktop Board D845GVA using an ALSA driver with the Redflag Hardware Detection Wizard. Use "845G + ICH4" for the sound card list with the ALSA driver. The sound volume will be set at a minimum level, thus it needs to be manually adjusted to an audible level. Only two channels of stereo audio is currently supported by this audio driver.

 -- On-Board 1394 Controllers are supported by Redflag 4.0. However, the module initializations need to be done manually. 1394 Devices are accessible through the SCSI subsystem.

 -- IDE UDMA settings. Support for DMA up to UDMA-100 is available depending on the specific hard disk being used. See the "Known Issues" section below for Serial-ATA specific information. Note that there is no built-in support on Intel systems with 845 chipsets for SATA.

 -- USB 1.0 Devices. Thus, USB 2.0 Devices are not supported in the Redflag 4.0 kernel version 2.4.20-3.

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Hyper-Threading requires a computer system with an Intel Pentium(R) 4 processor supporting this technology, a chipset and BIOS that utilizes this technology, and an operating system that includes optimizations for this technology. Performance will vary depending on the specific hardware and software you use. See www.intel.com/info/hyperthreading   for information.

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