Red Hat Linux 9.0 K8M800 Display Driver Installation Guide

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1. Summary

The document describes how to install the display driver for VIA K8M800 north bridge chip with an integrated graphics controller in Red Hat Linux 9.0. The K8M800 chip integrates UniChrome Pro graphics controller. This document provides the driver binary for K8M800 in Red Hat Linux 9.0. The display resolution and color depth are customized by the "Display" tool. The "XVidtune Tool" is used to adjust different refresh rates. The "TV Out" and "Hardware Video Overlay" functions are included for user's reference. The information in this document is provided "AS IS," without guarantee of any kind.

2. File description

This package requires the two files as described below.

```
947,217   02-13-04 14:20 K8M800XF0044.tgz     K8M800 Driver Binary for RH9
                         Readme               this file
```

Users can download the K8M800 driver package from the VIA Arena website at http://www.viaarena.com/?PageID=296

3. Install OS built-in display driver

Red Hat Linux 9.0 is able to detect the configurations of the mouse, keyboard, monitor automatically, but it cannot detect the graphics card because the K8M800 graphics card is not supported yet. Use the following instructions to set up the display controller.

a. X configuration

The OS recognizes the K8M800 graphics controller as "**VESA Driver (generic)**". Accept this and accept the same frame buffer size in the BIOS setting as the value of "**Video card Ram**".

b. Monitor configuration

The monitor will be automatically detected in most cases. If your monitor does not appear on the device list, you may create a new one and modify the horizontal (in KHz) and vertical synchronization (in Hz) ranges according to your monitor specification. The **X-server** may crash if the setting you enter does not comply with your monitor specification.

4. Configure XFree86

Refer to the "Installation.txt" in the K8M800XF40044.tar.gz package to install the K8M800 display driver. Follow the step 3 in the "Installation.txt" file to customize the XFree86 setting. Edit the "XF86Config" file in /etc/X11 directory for the X Windows display setting. Then proceed to setup different resolutions, color depths and the video cards by following step 3. In X window, users also can use the "Display" tool under "Red Hat/System Settings" to adjust those settings.

5. Configure Refresh Rate by the "Xvidtune" Tool

WARNING: The incorrect use of the tool can cause permanent damage to the monitor and/or video card.

Red Hat Linux 9.0 provides the display setting tool in X Windows to setup different refresh rate (Vertical Sync in Hz). To use the "xvidtune" tool, open a console window in the GUI mode, and type the command "# xvidtune". It is really important to note that the incorrect use of the program can cause permanent damage to the monitor and/or video card. Change the vertical synchronization in the vertical display section by clicking the "Taller" or "Shorter" Button. Click on the "test" button to adjust the refresh rate.

6. Display modes supported

The following table summarizes the display modes supported by the K8M800 display driver.

Resolution	Color Depth	Red Hat 9.0 Refresh Rate (Hz)
640x480	8, 16, 24	85
720x480	8, 16, 24	60
720x576	8, 16, 24	60
800x600	8, 16, 24	85
848x480	8, 16, 24	60
856x480	8, 16, 24	60
1024x512	8, 16, 24	60
1024x768	8, 16, 24	85
1280x768	8, 16, 24	60
1280x1024	8, 16, 24	75
1400x1050	8, 16, 24	60

To use some special display modes such as "720x480", "720x576", "848x480", "856x480", "1024x512", and "1280x768", refer to the "Installation.txt" file in the package for how to add the Modeline in the "Monitor" section of the "XF86Config" file. Note: The K8M800 driver will probe the support range of monitor's resolutions

automatically. But some monitor types return wrong value so that the resolution is always "640x480". To bypass this issue, edit the "Device" section in the "XF86Config" file and add the line, Option "NoDDCValue".

7. Enable TV-Out Function

The K8M800 north bridge supports TV-Out Function, and VIA's VT1622AM serial chips support two types of TV signal which are NTSC and PAL. To enable the TV-Out function, please refer to step 3.4 and 3.6 in the "Installation.txt" file to modify the "Device" section in the XF86Config-4 file. The following table summarizes the TV-CRT Simultaneous resolutions and the TV Signal modes supported:

Resolution	640x480	720x480	720x576	800x600	848x480	1024x768
TV Signal	NTSC/PAL	NTSC/PAL	NTSC/PAL	NTSC/PAL	NTSC/PAL	NTSC/PAL
Red Hat 9.0	Pass	Pass	Pass	Pass	Pass	Pass

8. Hardware Video Overlay – VCD/ DVD playback

The K8M800 board supports the Hardware Overlay function. Mplayer video player is used to test this function. Go the X Windows and type "# mplayer -vcd 1 -vo xv" or "# mplayer -dvd 1 -vo xv" to start playing VCD or DVD. The following table summarizes the VCD and DVD playback result in different resolutions:

Test item \ OS		Red Hat 9
640x480	VCD –xv mode	Pass
	DVD –xv mode	Pass
800x600	VCD –xv mode	Pass
	DVD –xv mode	Pass
1024x768	VCD –xv mode	Pass
	DVD –xv mode	Pass

9. Test configuration

The following table summarizes the hardware configuration used for test.

CPU	AMD Athlon 64 Processor 3400+
Motherboard	VT8256E-2 (K8M800 +VT8237)
DRAM	128 MB DDR266
HDD	Seagate Barracuda ATAIV 40GB
Monitor	Philips 107B3, HorizSync: 30.0-86.0 KHz, VertRefresh: 50.0-160.0 Hz, Max resolution: 1600x1200