

VIA K8M800 Display Driver Installation Guide in Fedora Linux Core 1 and Mandrake Linux 9.2

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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 Fedora Linux Core 1 and Mandrake Linux 9.2. The K8M800 chip integrates UniChrome Pro graphics controller. This document provides the driver binary for K8M800 in Fedora Linux Core 1 and Mandrake Linux 9.2. The system display resolution and color depth are customized in addition with the special resolutions provided by the driver. The “XVidTune Tool” is used to adjust different refresh rate. The “TV Out”, “Hardware Video Overlay”, and “3D DRI library” 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 three files as described below.

15,538,106	05-11-04 13:53	K8MXF0044_20040511.zip	K8M800 Binary FC1/M19.2
8.039	05-04-04 17:25	XF86Config-4	Sample XFree86 Config File
		Readme	this file

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

3. Install OS built-in display driver

Both Fedora Linux Core 1 and Mandrake Linux 9.2 are 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. Install Driver and Configure XFree86

Refer to the "**Installation.txt**" in the **K8MXF0044_20040511.zip** driver package to install the K8M800 display driver. Decompress the driver by using the command "**unzip K8MXF0044_20040511.zip**", and there will be two files "**K8MXF40044.tgz**" and "**DRI.tgz**". Decompress those two files again by using the commands:

```
# tar zxvf K8MXF40044.tgz
# tar zxvf DRI.tgz
```

Go into the two directories and install the driver by using "**./vinstall**" in the **KMXF40039** folder and "**./mininstall**" command in the **DRI** folder.

```
# cd K8MXF40044
# ./vinstall
# cd DRI
# ./mininstall
```

Follow the step 3 in the "**Installation.txt**" file to customize the XFree86 setting. In Mandrake Linux 9.2, edit the "**XF86Config-4**" file in **/etc/X11** directory for the X Windows display setting, and edit the "**XF86Config**" file in **/etc/X11** directory for Fedora Linux Core 1.

Alternatively, users can use the "**XF86Config-4**" file provided in the package. First backup the default file and replace it with the one provided in the package. For Fedora Core 1, when copying the "**XF86Config-4**" file to **/etc/X11**, the system will automatically choose to read the "**XF86Config-4**" file. Then proceed to setup different resolutions, color depths and the video cards by following step 3.

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.

Fedora Linux Core 1 and Mandrake Linux 9.2 provides the tool in X Window to setup different refresh rate (Vertical Sync in Hz). To use the "**xvidtune**" tool, open a console window and type the command "**#xvidtune**". It is important to note that the incorrect use of the program can cause permanent damage to the monitor and/or video card. Click the "Taller" or "Shorter" Button to change the vertical synchronization in the vertical display section then click the "test" button.

6. Display modes supported

The following table summarizes the display modes supported by the K8M800 display driver. 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. Alternatively, users can use the “**XF86Config-4**” file provided in the package. Unmark the “#” to set the display modes used.

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”**. This option is provided in the “**XF86Config-4**” file provided in the package. Unmark the “#” to enable the function. The table below summarizes the display mode supported.

Resolution	Color Depth	Fedora Core 1 Refresh Rate (Hz)	Mandrake 9.2 Refresh Rate (Hz)
640x480	8, 16, 24	85	85
720x480	8, 16, 24	60	60
720x576	8, 16, 24	60	60
800x600	8, 16, 24	85	85
848x480	8, 16, 24	60	60
856x480	8, 16, 24	60	60
1024x512	8, 16, 24	60	60
1024x768	8, 16, 24	85	85
1280x768	8, 16, 24	60	60
1280x1024	8, 16, 24	75	75
1400x1050	8, 16, 24	60	60

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

*The CRT does not display properly when enabling TV out function in PAL mode.

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:

OS		Fedora Core 1	Mandrake 9.2
Test item			
640x480	VCD -xv mode	Pass	Pass
	DVD -xv mode	Pass	Pass
800x600	VCD -xv mode	Pass	Pass
	DVD -xv mode	Pass	Pass
1024x768	VCD -xv mode	Pass	Pass
	DVD -xv mode	Pass	Pass

9. Install 3D DRI Library

This driver supports 3D functionality; follow the step 1 in the “**installation_m.txt**” file to install the library by using the command “**./install**”. To verify whether the 3D functionality is enabled, use the commands “**glxinfo**” and “**glxgears**” to check in X-Window. If the 3D function is enabled, you should see the following output:

```
# glxinfo
    name of display: :0.0
    display: :0 screen: 0

direct rendering: Yes

server glx vendor string: GLX_EXT_visual_info GLX_EXT_visual_rating
GLX_EXT_import_context GLX_SGIX_fbconfig GLX_SGIX_pbuffer
.....

# glxgears
2284 frames in 5.0 seconds = 456.800 FPS
2285 frames in 5.0 seconds = 457.000 FPS
2287 frames in 5.0 seconds = 457.400 FPS
2287 frames in 5.0 seconds = 457.400 FPS
2287 frames in 5.0 seconds = 457.400 FPS
.....
```

In the “**glxinfo**” command, you should see the “**Yes**” output for the direct rendering. And for using the “**glxgears**” tool, the program should run more than 300 frames per second.

10. 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: 1400x1050