

Red Hat Linux 9.0 KM400 Display Driver Installation Guide

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1. Summary

The document describes how to install the display driver for VIA KM400 north bridge chips with an integrated graphics controller in Red Hat Linux 9.0. The system display resolution and color depth are customized by the “Display” Tool. 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 contains two files as described below.

7,179,705	8-22-03 16:32	KM400XF40034.zip	CLE266 driver
		Readme.doc	this file

Users are advised to visit the web link at <http://www.viaarena.com/?PageID=296> to download the latest driver package.

2. Install OS built-in display driver

Red Hat Linux 9.0 should be able to detect the configurations of the mouse, keyboard, monitor automatically, but it cannot detect the graphics card because the CLE 266 graphics card is not supported yet. Use the following instructions to set up the display controller.

a. X configuration

The OS recognizes the CLE266 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.

3. Configure display by the “Display” Tool

Refer to the “**installation.txt**” in the **KM400XF40034.zip** package to install the CLE266 display driver. Red Hat Linux 9.0 provides the “Display” settings tool in the X Windows to setup different resolutions, color depths, monitors and the video cards. Or else you can follow the “**installation.txt**” file to customize the edit the XF86Config file in **/etc/X11** directory. Go to /Red Hat/ System Settings/ Display to open the tool.

The “Display” part shows the available resolutions and color depths according to the graphics chips and the monitor used. Click on the Resolution and Color Depth, and then click the “OK” button. Then press [**Ctrl+Alt+Backspace**] to refresh the X-Windows or go to “Advanced” part to configure other settings.

The “Advanced” part allows user to configure the “Monitor” and “Video Card”. Follow the steps below for the settings:

- a. In the “**Monitor**” section, which is to configure the monitor model name, Horizontal Sync Range, Vertical refresh rate, and DPI (Physical Resolution). If your monitor type is not in the monitor model list, just type in the Horizontal Sync Range and Vertical Refresh Rate. The setting for this configuration is as follow:

```
Model Name: BRIDGE BM17C
Horizontal Sync Range: 30 - 70
Vertical Refresh Rate: 50 - 160
```

- b. In the “**video card**” section, which is to configure the Video Card type, memory size and driver being used. The driver used should be “**via**”. Click on the “configure” button if the default settings are not correct. The setting for this configuration is as follow:

```
Video Card Type: VIA
Memory Size: 32 MB
Driver: via
```

After choosing the settings, press [**Ctrl+Alt+Backspace**] to refresh the X-Windows.

4. 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 settings 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.

5. Display modes supported

The following table summarizes the display modes supported by the CLE266 display driver.

Resolution	Color Depth	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	60
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” in the package for how to add the Modeline in the “**Monitor**” section of the XF86Config file.

6. Enable TV-Out Function

The KM400 north bridge supports TV-Out Function, and VIA’s VT1622 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 file. The following table summarizes the resolutions and the TV Signal modes supported:

Resolution	640x480		800x600		1024x768	
TV Signal	NTSC	PAL	NTSC	PAL	NTSC	PAL
TV-CRT Simultaneous	Pass	Pass	Pass	Pass	Pass	Pass

7. Hardware Video Overlay – VCD/ DVD playback

The EPIA-M 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**” to start playing VCD or DVD. The following table summarizes the VCD and DVD playback result in different resolutions:

Test item \ OS		Red Hat 9.0
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

8. Install 3D DRI Library

This driver supports 3D functionality; follow the step 1.4 in the “**installation.txt**” file to install the library by using the command “**./minstall**”. To verify whether the 3D function is enabled; use the commands “**glxinfo**” and “**glxgear**” in the Windows to check. 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
.....

# glxgear
2149 frames in 5.0 seconds = 429.800 FPS
2148 frames in 5.0 seconds = 429.600 FPS
2148 frames in 5.0 seconds = 436.800 FPS
2186 frames in 5.0 seconds = 437.200 FPS
2184 frames in 5.0 seconds = 436.800 FPS
.....
```

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

9. Test configuration

The following table summarizes the hardware configuration used for test.

CPU	AMD Duron 800 MHz
Mainboard	VT8185C (KM400 +VT8235)
DRAM	128 MB DDR
HDD	Western Digital WD300BB-00AUA1 30G
Monitor	Bridge BM17C, HorizSync: 30.0-70.0 KHz, VertRefresh: 50.0-160.0 Hz, Max resolution: 1400x1050