

Mandrake Linux 8.2/8.1 ProSavageDDR

Display Driver Installation Guide

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***Disclaimer:** The information provided by this guide is meant to be used and referenced “AS IS,” without any warranted services or guarantee of any kind. It is meant to be a supplement for experienced Linux users. A cautious user should always make backups of the original, and related working files before editing.*

1. Summary

This guide provides users with two main solutions in setting up the display driver under the Mandrake Linux 8.2/8.1 environment for VIA’s ProSavageDDR series north bridge chips, which integrate a ProSavage8 AGP graphics core. The applicable models include, but are not limited to, the followings:

- VT8751 (P4M266)
- VT8703 (P4N266)
- VT8613 (PN266T)
- VT8375 (KM266)
- VT8372 (KN266)

These methods predominantly employ the use of “XFdrake -expert” command as the main tool in setting up the X server system, with the following display drivers.

1. Use of FBDev as XFree86 server.
2. Use of S3 display driver from www.probo.com/timr/savage40.html

The first method only configures the X server with version 3.3.6 capacity, but it should provide an immediate and workable GUI access for users. The alternative method utilizes the updated X server version 4.1.0 and 4.2.0 (in Mandrake Linux 8.1 and 8.2, respectively) for the best graphical capabilities. The customizable display settings such as resolution and color depth are handled by the same command, and the inter-changeable “xdrakres” command, which will also be covered by this guide.

2. File description

This release contains two files as described below:

xf41sav. tgz 33, 105 03-11-02 10: 30 <http://www.probo.com/timr/savage40.html>
Readme DOC this file

The Probo's display driver is maintained by Tim Roberts. The most up-to-date downloadable version is 1.1.23t. Visit his site for the most updated version.

3. *Display driver installations methods*

These working methods assume the user is setting up Mandrake Linux graphically, by using the DrakX installation program.

I. Use of FBDev as XFree86 server

- 1) Recommend selecting "Expert" when prompted at the installation class selection screen.
- 2) When the installation process arrives the "Configure X" portion, select "XFree 3.3.6" at the message "Which configuration of XFree do you want to have?"
(NOTE: Alternatively, should the user decide to approach from the command terminal after the installation had been completed once, this could be achieved by entering "XFdrake -expert" command at the command line, while being the root. Navigate using either the mouse clicks, or the combination of the Tab and the arrow keys.)
- 3) Select "Cancel" to return to the main screen of XFdrake setup dialog.
(NOTE: Sometimes the monitor type may have to be designated first before the "Cancel" button would bring up the main screen.)
- 4) There should be a question asking "What do you want to do?" followed by seven options for X configuration: Change Monitor; Change Graphic card; Change Server options; Change Resolution; Show information; Test again; and Quit.
- 5) Select "Change Graphic card."
- 6) Choose to expand "Other," and pick "Unlisted."
- 7) When prompted on which server to select, pick "FBDev."
- 8) Specify a desired screen resolution.
(NOTE: It is required to enter this data for the X to run, even though the FBDev will only run at 800x600 at 16 bit color depth.)
- 9) Back at the main selection screen, choose to "Test again," and decide if X is to be run at the startup.
(NOTE: It is recommended to select "No" and keep the system in terminal mode during startup to avoid complications.)
- 10) If "No" is selected, type "startx" at the prompt; or, "Ctrl-Alt-F7", followed by "Ctrl-Alt-BackSpace" to enumerate the new X server.

II. Use of S3 display driver from www.probo.com/timr/savage40.html

- 1) Follow the above “**I. Using FBDev as XFree86 server**” to establish a working X server first.
- 2) Download the latest version, e.g. **version 1.1.23t** (file *xf41sav.tgz*), of the S3 Savage driver from <http://www.probo.com/timr/savage40.html> (Specifically, <http://www.probo.com/timr/xf41sav.tgz>).
- 3) After this file has been downloaded to a temporary location (e.g. /tmp), it could be further extracted by entering these commands at the terminal prompt (“Ctrl-Alt-F1” to get into the terminal console). That should yield the driver file binary “savage_drv.o” in the same directory.

```
cd /tmp
tar zxvf xf41sav.tgz
```

- 4) Start the X configuration program by typing “XFdrake -expert” at the prompt.
- 5) Select “Cancel” to abort any itemized setup to go back to the XFdrake main setup.
- 6) Select “Change Graphic card” option.
- 7) Go to the S3 sector of the graphics card list, and pick “S3|Savage4 (generic)” and confirm it.
- 8) Select for “XFree 4.1.0” (in Mandrake Linux 8.1) or “XFree 4.2.0” (in Mandrake Linux 8.2) when prompted at “which configuration of XFree do you want to have?” Insert the set-up disc if prompted for it. (Update finish will create a new directory and some files to /usr/X11R6/lib/modules/drivers)
- 9) Select “Quit” and click “Ok” to next stage click “Yes” to keep the changes then select “Yes” or “No” to start the system in X at startup. (Select “No” then to login into the X window.)
- 10) Copy and replace this new driver binary to /usr/X11R6/lib/modules/drivers by entering this command at the prompt, “cp savage_drv.o /usr/X11R6/lib/modules/drivers”. Confirm the replacement.
- 11) Start the X configuration program by typing “XFdrake -expert” at the prompt.
- 12) Select “Cancel” to abort any itemized setup to go back to the main setup screen with the following options: Change Monitor; Change Graphic card; Change Server options; Change Resolution; Show information; Test again; and Quit.
- 13) Select “Change Graphic card” option.
- 14) Go to the S3 sector of the graphics card list, and pick “S3|Savage4 (generic)” and confirm it.

- 15) Select for “xFree 4.1.0” (in Mandrake Linux 8.1) or “xFree 4.2.0” (in Mandrake Linux 8.2) when prompted at “which configuration of xFree do you want to have?” Insert the set-up disc if prompted for it.
- 16) Pick a desired resolution and color depth setup next at “Change Resolution.”
- 17) Select “Test again” to verify the setup. A backdrop of Linux mascot penguin should be displayed if the setup is successful. Testing is necessary to enable the new settings.
- 18) Select “Yes” or “No” to start the system in the text mode. (“Quit” to keep the change.)
(NOTE: It is recommended to pick “No” and keep the system in terminal mode during startup to avoid complications.)
- 19) If “No” is selected, type “startx” at the prompt after boot-up to enumerate the new X server.

4. Varying the resolution and color depth of the X windows

Using FBDev as the X server results in a fixed resolution and color depth, whereas using the Probo’s driver enables users to freely configure the X window as desired. The simplest approach is to enter the “xdrakres” command at the terminal prompt, and follow the instructions to accomplish a preferred setup.

Using the Probo’s display driver allows users to switch the screen resolution by using “Ctrl-Alt-KeyPad (+/-)” among the pre-set modes of “640x480”, “800x600”, and “1024x768”. Nevertheless, switching to a resolution not specified by the initial “xDrake” setup would result in the “virtual desktop” situation. It is thus recommended to do the definitive customization through the use of “xdrakres” command.

5. Resolutions supported

The X server setting could be verified in the KDE mode by going into Configuration → KDE → Information → X-Server. The following tables depict the possible combinations of resolutions, color depths, and screen refresh rates as supported by the Mandrake Linux 8.1/8.2 and Probo’s S3 Savage display drivers. The table is meant to be used as a guideline for probable settings. Actual refresh rates are determined by the limitations of the monitor, while the *X Window System* should automatically assume the optimal state suitable to the monitor setting range. The tables are separated by what may be achieved through the different methods

I. Use of FBDev

The table below represents the values when configured with **FBDev** as the X server on Sampo's AlphaScan 522 and Bridge BM17C monitor.

Resolution	Depth	Refresh Rates
800x600	16	60

II. Use of Probo's S3 display driver

The table below represents the values obtained when configured with Probo's S3 Savage display drivers on Sampo's AlphaScan 522 monitor with horizontal and vertical scan ranges at 30~72 KHz and 47~160 Hz respectively (Bridge BM17C monitor with horizontal and vertical scan ranges at 30~71 KHz and 50~160 Hz). The most common color depth choices of 8-, 16-, and 24-bit are used for the evaluation. The table is meant to serve as a guideline for probable settings. Actual refresh rates are determined by the limitations of the monitor, while the *Window System* should automatically assume the optimal state suitable to the monitor setting range.

Resolution	Depth	Refresh Rates				Bridge BM17C
640x480	8, 16, 24		70	84		85
800x600	8, 16, 24			84		85
1024x768	8, 16, 24				85	85
1152x864	8, 16, 24		75			75
1280x1024	8, 16, 24	60				60

6. Test configurations

Some of the test systems' configurations are outlined as follows:

Chipsets	VIA P4M266	VIA KM266
Model	VT5555D	VT5572C
CPU	Intel Pentium®4 – 1.4 GHz	AMD Duron 800 MHz
RAM	DDR266 128 MB x2	DDR266 128 MB
Monitor	Sampo AlphaScan 522 (HorizSync: 30~72 KHz; VertSync: 47~160 Hz)	

Chipsets	VIA P4N266	VIA PN266T	VIA KN266
Model	VT6102B	VT5573C	VT5519F
CPU	Intel Pentium®4 1.8 GHz	Intel Pentium®3 866 MHz	AMD Duron 800 MHz
RAM	DDR266 128 MB	DDR266 128 MB	DDR266 128 MB
Monitor	Bridge BM17C (HorizSync: 30~71 KHz; VertSync: 50~160 Hz)		