



# **S3 968/868 Memory Re-map Kit**

For Voodoo Graphics and Voodoo2 based 3D Accelerators

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## **Overview**

If an S3 968/868 based 2D video card is installed, system lock ups or erratic behavior can occur once DirectX is installed. The DirectX S3 drivers use mapped memory, whereas the Windows 95 default S3 drivers did not use Mapped Memory. When your system powers on, the first device that gets resources from the Plug and Play BIOS is normally the 2D Video Card. Voodoo Graphics or Voodoo2 cards (referred to here as Voodoo cards) will usually then be assigned a mapped memory range next. In this example, if the S3 card gets F0000000 - F1FFFFFF the Voodoo card will then likely get F2000000-F2FFFFFF. In theory this is fine, however the S3 968 and 868 chips report they need 32 Mbytes of memory, in reality they actually decode 64MB of physical memory. In this example the S3 card actually takes F0000000 - F2FFFFFF. When a 3D application is run, the Voodoo card will write to its own memory region which is also used by the S3 968/868 chip. Since the DirectX S3 drivers use the same mapped memory as the Voodoo card a conflict will occur and the system will lock.

Only certain newer BIOS's look for S3 968/868 chips and actually decode 64MB, however most existing systems will not include such a new BIOS. This problem was corrected by S3 when the Virge product was introduced.

## **Workaround**

There are two methods to workaround the S3 968/868 Problem.

Method 1 uses Windows 95 Device Manager to change the address of the Voodoo board. This should work on all systems except those using an Award BIOS.

Method 2 provides an alternate way to re-map the Voodoo board. A utility is run during boot that will re-map the Voodoo board to a known free memory region. This utility must be run each time the system is booted.

### **Method 1 - Memory Address reassignment in Windows 95 Device Manager**

- 1) Install the Voodoo Graphics or Voodoo2 Based 3D accelerator.
- 2) Install the drivers provided with the card.
- 3) Restart Windows 95 if any programs have been run since boot.
- 4) Open Device Manager (Click Start on Taskbar, Choose Settings, Control Panel, Double-click on System and click on the Device Manager Tab.)
- 5) Open the tree that the Voodoo card resides in: Normally "Sound, Video and Game Controllers"
- 6) Once listed on the screen, Double Click on the Voodoo based Card.
- 7) Click on the Resources Tab.
- 8) Remove the Automatic Setting Checkbox.
- 9) Double Click on the Memory Range Selection.
- 10) Move the Memory Range to a higher area not used by other devices. You may wish to try "12000000-12FFFFFF" as it is free on most systems. *Note: Do NOT manually enter a range, only use the arrow selector buttons to choose a range.*
- 11) Click OK to choose the new setting.
- 12) Click OK to close the Voodoo Card Properties
- 13) Click OK to close Device manager.
- 14) Reboot the system when prompted.

Once the system reboots try to run a Direct3D application. If the system still hangs or erratic video appears, repeat the steps above, however try a different memory range or use Method 2.

### **Method 2 - Memory Address reassignment using FXREMAP.EXE**

- 1) Install the Voodoo Graphics or Voodoo2 Based 3D accelerator.
- 2) Install the drivers provided with the card.
- 3) Restart Windows 95 if any programs have been run since boot.
- 4) Copy the four executable files included in this kit (DOS4GW.EXE, FXREMAP.EXE...etc...) to your \WINDOWS directory.
- 5) Using Notepad, Open your AUTOEXEC.BAT file and add the following to the beginning of the file:  

```
C :  
CD \WINDOWS  
FXREMAP
```
- 6) Save the AUTOEXEC.BAT file and restart your system

The memory range for the 3Dfx card should then not conflict with the S3 968/868 chipset.