KING SHAMAN

3D Accelerator

Installation Manual

Thank you for purchasing this product. Doing so, you contributing in future development of retro hardware solutions.

Contents:

1. Introduction.

The King Shaman is a dedicated 3D accelerator based on 3Dfx's SST-1 architecture. SST-1 is 3Dfx's code name for its original Voodoo Graphics solution, commonly referred to as the Voodoo 1. This card has distinct features when compared to other V1's. Most notably, the King Shaman includes two Voodoo Graphics solutions on a single board.

The two onboard V1's are connected by an internal SLI interface, with each V1 consisting of 2 TMUs. Each King Shaman comes with an expansion connector for an optional video module. The King Shaman's features are maxed out when compared to other Voodoo 1 solutions on the consumer market.

This manual assumes that you have some basic skills dealing with PC hardware and software from the last decade of the 20th century.

Successful installation requires familiarity with Windows 9x and DOS environments. This includes installing drivers, copying files, managing files in DOS, and running applications within DOS. The user should also know how to deal with 3Dfx hardware, and what to expect from it.

2. System Recommendations.

For best compatibility and better diagnostics choose motherboard based on chipset of pre hub-based era. Intel's 440 series would be a good choice.

> **For an optimal experience choose a Pentium III CPU @ 100Mhz bus, on a 440BX based motherboard, with a fresh Windows 9x install.**

OK

Choosing a CPU with 100MHz or lower bus: Due to software bugs, Voodoo 1 drivers do not like a 133MHz bus in most cases. Finally, the ideal CPU would operate at 1000MHz or less.

For example: On systems equipped with a PIII-1400MHz, this card may not work. The same system with it's bus clocked at 100MHz (CPU operating at 1050MHz) would work just fine.
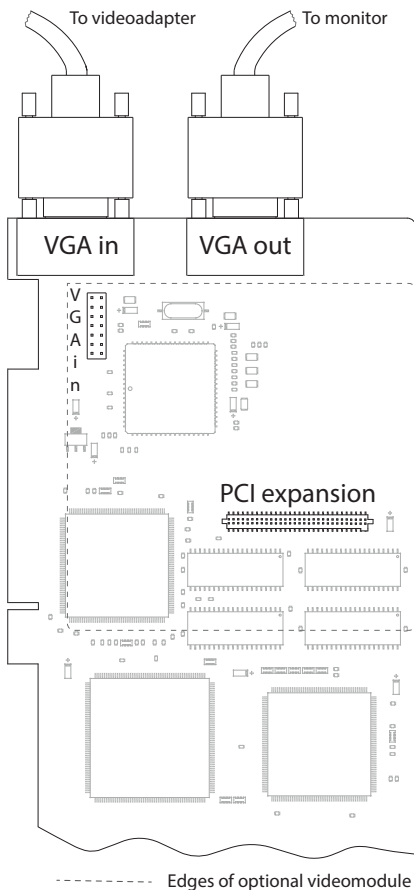
For optimum performance in demanding games like Quake1, 2, 3, Unreal, etc., choose an Intel PIII CPU.

A pure DOS system is required to run diagnostic tools (not a Win9x DOS session). DOS 7 is good too.

!

Keep in mind, an old AT 200 watt power supply may not be able to provide enough power for SLI operation, especially, with power hungry hardware environment.

3. Connector Layout.

To videoadapter · To monitor

VGA in · VGA out

VGA in

PCI expansion

-------- Edges of optional videomodule

4. Install Sequence.

This accelerator is a 3D solution. It requires an additional 2D solution for use. It supports two ways of connecting to a 2D VGA signal; internal and external. Internal goes from an optional video module. External from any AGP/PCI video adapter.

The board is 311mm in length. Prior to installation, inspect your chassis and ensure it has the required amount of space.
If you plan to use the optional video module, attach it to King Shaman before installation.

With space confirmed, and the optional video module attached, Install the King Shaman into a free PCI slot.

If you have plans to use this accelerator with a VGA card, connect it to the King Shaman "VGA In" port via a VGA passthrough cable. Connect the monitor cable to "VGA Out".

With an optional video module attached, there is no need for an additional VGA card. You may want to combine a powerful AGP accelerator in conjunction with the King Shaman and optional video module. When you use the onboard video module, it will behave as any other PCI VGA adapter. Primary VGA adapter could be selected via motherboard BIOS setup. For example, you may distribute tasks between graphic cards like this:

AGP accelerator for demanding 3D games
King shaman for Glide games
Videomodule for DOS games

OK

! Consider to provide good air flow across installed card, especially regarding old AT or ATX cases.

5. VGA Switching.

The subsystem consists of two MAX4885AE IC's. Each chip is a high frequency 2:1 VGA multiplexer. High performance of these chips prevents VGA signal degradation, thus you may use VGA passthrough without hesitation, even for highest resolutions. High quality passthrough and monitor cables are required.

For a better understanding, see the following schematic
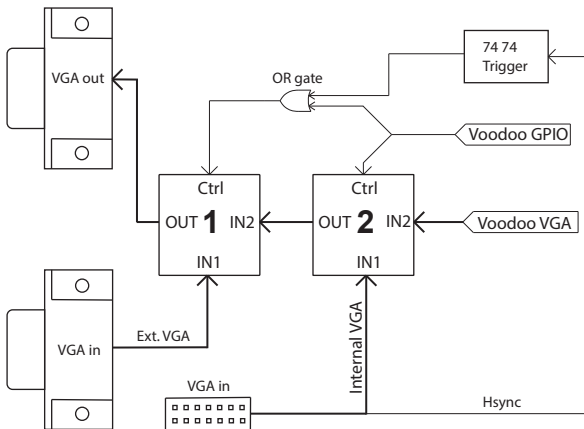
Multiplexer IC chip provides switching VGA signal from IN1 to OUT, when Ctrl pin state is low and IN2 to OUT, when Ctrl state is high.

When the Voodoo accelerator is inactive, Voodoo GPIO, which controls the second muxer, is low, so internal VGA signal is passed to OUT of muxer, otherwise the Voodoo VGA is passed.

VGA Switching contd.

First muxer controlled via OR logic: IN2 will be switched to OUT when either Voodoo GPIO is in high state or output of 74 74 trigger, which become high when it sees Hsync active on internal VGA, i.e. video module installed and active.
In other words, if either Voodoo Graphics or video module are active, VGA signal from the second muxer will be switched to the VGA out connector of the King Shaman. In case the Voodoo Graphics or video module is not active, VGA signal from the stand-alone video adapter will be passed through the VGA out port.

This means that if both the video module, and AGP video adapters are installed at the same time, then you don't need to switch cables or monitor inputs when selecting primary VGA adapter in BIOS setup.

Please note, if a video module is installed and primary video adapter is an AGP adapter, Windows may try to display image on secondary VGA device, thus VGA out will be switched to video module until reset. In this case, additional Windows configuration may be required.

6. DOS Usage.

Usually only one file: **glide2x.ovl** is required to run DOS games. Place **glide2x.ovl** in the desired app directory. This file resides in: DRIVERS/DOS folder on the included disc.

> **!** It is strongly recommended that users apply the following autoexec.bat line for DOS Glide gaming:
> SET SST_TMUMEM_SIZE=2

Please be aware, the memory limit variable: SST_TMUMEM_SIZE will affect accelerator texture memory volume availability for Windows applications, as well as DOS.

7. Installing in Windows .

Windows 9x is the recommended Windows based operating system for Voodoo 1 cards. The Quantum3D driver is recommended for SLI setup, as it's the only known driver with SLI support for D3D apps and it includes a great system info page. Feel free to test and use any Voodoo 1 driver (install it for both cards in the device list). Win9x drivers reside in: DRIVERS/Win9x folder on the included CD.
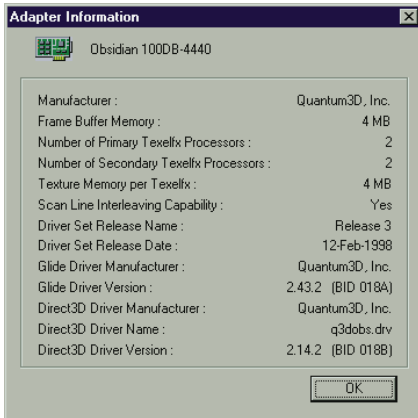
Normal install should look in device manager like this (for Q3D driver):
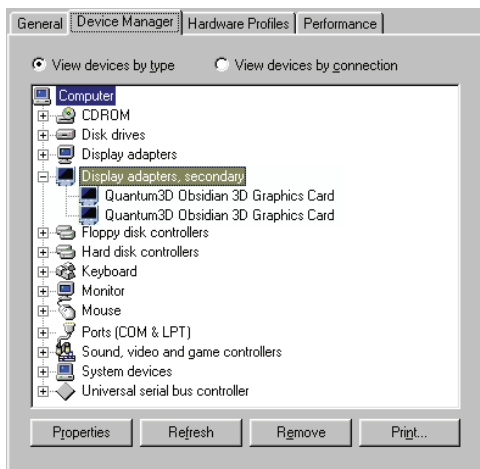
A clean Windows install highly recommended, especially, if you have installed 3DFX cards previously.

Installing in Windows cont'd.

If you choose Quantum3D drivers, hardware information page should display the following information:

Adapter Information	
Obsidian 100DB-4440	
Manufacturer :	Quantum3D, Inc.
Frame Buffer Memory :	4 MB
Number of Primary Texelfx Processors :	2
Number of Secondary Texelfx Processors :	2
Texture Memory per Texelfx :	4 MB
Scan Line Interleaving Capability :	Yes
Driver Set Release Name :	Release 3
Driver Set Release Date :	12-Feb-1998
Glide Driver Manufacturer :	Quantum3D, Inc.
Glide Driver Version :	2.43.2 (BID 018A)
Direct3D Driver Manufacturer :	Quantum3D, Inc.
Direct3D Driver Name :	q3dobs.drv
Direct3D Driver Version :	2.14.2 (BID 018B)

The following image is a demonstration of interlacing. If you see an interlace effect while playing, and don't like it, then apply SET FX_GLIDE_SWAPINTERVAL=1 to autoexec.bat. It will negatively impact FPS in DOS, and Windows Glide apps by about 30%.
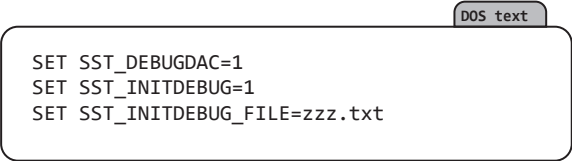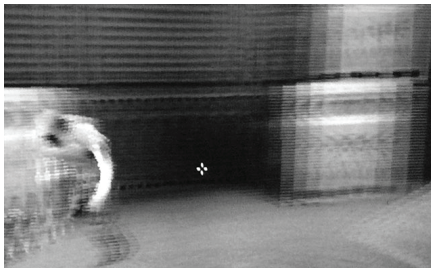
8. Troubleshooting.

If you encounter issues such as glitches, freezing, lockups, etc, and it strongly suggests a hardware issue, try to change PCI slots occupied by this card and/or apply active cooling. If it does not help, follow the steps below:

First: Copy mojo2.exe and mojo3.exe from the DOSUTILS dir of the included CD to any folder on your HDD.

Second: Place the following lines at the beginning of autoexec.bat (after reset, the start of any DOS glide app will produce a zzz.txt file in the app folder. This file contains a hardware init sequence log):

`DOS text`

```
SET SST_DEBUGDAC=1
SET SST_INITDEBUG=1
SET SST_INITDEBUG_FILE=zzz.txt
```

Third: From DOS, navigate to the folder that contains mojo2.exe, type command line: mojo2.exe > log.txt. If you'll see No Voodoo boards found message, run mojo3.exe > log.txt.

This will produce a log.txt file with configuration information, along with a zzz.txt file (don't run mojo.exe with output parameter from CD, it will be unable to save a log file).

Send these files and a comprehensive list of your PC configuration to zxc64.hw@gmail.com and you will get help in resolving hardware issues.

See example of correct mojo log on the next page:

Correct mojo log:

```
Info for Voodoo board # 0:
=======================================================
Virtual Base Address:            0x10400000 //may differ
Physical Base Address:           0xe2000008 //may differ
PCI Device Number:               0xb       //may differ
Vendor ID:                       0x121a
Device ID:                       0x1
FBI Revision:                    2
FBI Memory:                      2 MB
FBI PowerOn Sense:               0x6
TMU PowerOn Sense:               0xcd9
FBI DAC Output Color Format:     24BPP
Scan-Line Interleaved?           Yes
TMU Revision:                    1
Number TMUs:                     2
TMU 0 RAM:                       4 MB
TMU 1 RAM:                       4 MB

Info for Voodoo board # 1:
=======================================================
Virtual Base Address:            0x11800000 //may differ
Physical Base Address:           0xe3000008 //may differ
PCI Device Number:               0xf       //may differ
Vendor ID:                       0x121a
Device ID:                       0x1

FBI Revision:                    2
FBI Memory:                      2 MB
FBI PowerOn Sense:               0x6
TMU PowerOn Sense:               0xcd9
FBI DAC Output Color Format:     24BPP
Scan-Line Interleaved?           Yes
TMU Revision:                    1
Number TMUs:                     2
TMU 0 RAM:                       4 MB
TMU 1 RAM:                       4 MB
```

9. Notes Page.

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