

3 Fingers' Quake 2 Tweak Guide Version 1.0

1/5/98

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Go to "edit" then "find" (Ctrl+F) to enter key words for search.

For quick set-up of the attached Q2Start.bat and Autoexec.cfg, see instructions below.

Quake 2 System Requirements

General Requirements

- English Language Version of Windows 95 or NT 4.0 with 100% compatible computer system
- Pentium 90 MHz processor (133 MHz recommended)

Memory:

- Win 95: - 16 MB RAM Required (24 MB recommended)
- Win NT 4.0 - 24 MB RAM Required
- 100% Sound Blaster-compatible sound card
- Joystick and mouse-supported (3-button mouse recommended)
- Supports LAN and Internet play using the TCP/IP protocol

Minimum Install Additional Requirements (Play from CD-ROM)

- Quad-Speed CD-ROM drive (600k/sec. sustained transfer rate)
- Hard disk drive with at least 25 MB of uncompressed space available

Normal Install Additional Requirements (Play from Hard Disk)

- Quad-Speed CD-ROM drive (600k/sec. sustained transfer rate)
- Hard disk drive with at least 250 MB of uncompressed space available

Maximum Install Additional Requirements (Play from Hard Disk)

- Dual-Speed CD-ROM drive (300k/sec. sustained transfer rate)
- Hard disk drive with at least 400 MB of uncompressed space available

GLQuake II Additional Requirements

- 24 MB RAM for all operating systems
- GLQuake II supports some OpenGL 3D accelerator cards. Consult your hardware manufacturer to determine compatibility. Latest version of Glide (2.4x) drivers can be found at: <http://www.3dfx.com/download/sdk/index.html>

VERY IMPORTANT INFORMATION ON INSTALLING QUAKE 2 ON YOUR COMPUTER

VERY IMPORTANT:

DO NOT install Quake 2 over the Q2test. This will cause many problems. If you did install Quake 2 over the Q2Test. Delete your Quake2 folder and reinstall Quake 2.

ACTIVISION REPORTS INSTALL BUG WHICH CAN COST YOU 50% IN FRAME RATE.

Quote From Activision:

"When we released HEXEN2 we had many complaints from Pentium2 owners of very low fps in 3dfx OpenGL (and all the other rez's too). We discovered that the 'splash' install routine fails to recognize the CORRECT CPU speed in the Pentium2 chipset. We have a workaround for this problem: De-install Quake2 (or Hexen2) first saving your games, then go to the cddrive and look for the 'setup' executable. Run this directly and you should have a frame rate increase."

What the above means is if you installed Quake 2 using the autorun for the cd-rom and then choose install. It could improperly detect the CPU Speed of your Pentium II Chip. You should delete/un-install Quake 2 and then go to the Quake 2 CD and double click on the "setup.exe" in the "install" folder.

DIRECT X, GLIDE & VIDEO DRIVER INFO:

You should always use the latest version of drivers available for your video card. The latest version of the Pure 3D, Monster and Orchid Drivers all come with the latest glide 2.43 drivers. Go to this website to get the latest drivers for your video card. Use the version of Direct X that your video card manufacturer recommends on their driver webpage. The Quake 2 CD has a version of Direct X 5. But using the version of Direct X recommended by your Video Card manufacturer is preferred.

<http://www.3dfx.com/download/sdk/index.html>

SETTING THE COLOR PALETTE:

Before attempting to run Quake 2 in the 3DFX Open GL Mode, you must set your color palette to: "16bit" To set: Go to "control panel", then "display", then "settings" tab. Change the color palette to "16bit", hit "apply", then "OK" and restart.

*failure to do this will give the error: "no RGB fullscreen modes available"

*DO NOT select "16 color". "High Color 16 bit" is the correct one.

*setting this to "24 bit" MAY give an error "video mode not available" when starting GL Quake.

If you are using a 3dfx Voodoo Graphics card like an Orchid, Monster or Pure 3d. Use my attached batch file and autoexec.cfg to get the best performance.

INSTRUCTIONS FOR THE INCLUDED Q2START.BAT AND AUTOEXEC.CFG

Note: Pure3D users adjust the screenrefresh, Gamma (brightness) and Clock Mhz speed from your Pure3D control panel/display tab.

Put the autoexec.cfg in the quake2/baseq2 folder with the config.cfg that's already there. Put the Q2start.bat in your Quake2 folder and double click the Q2start.bat to start the game. You can make a short cut on your desktop by right clicking on the Q2Start.bat file and select "create shortcut". Then drag the shortcut to your desktop. See possible error message fixes later in this document.

IMPORTANT: Do Not put the Q2Start.bat variables in your AUTOEXEC.BAT FILE. Read that again. I said AUTOEXEC.BAT NOT autoexec.cfg. There is a bug with Quake2 concerning the swapinterval and if you use the Autoexec.Bat for the variables, you could lose 20% in FPS under certain conditions. Don't confuse the autoexec.bat with the autoexec.cfg. Use the attached Q2Start.Bat as instructed and you won't have a problem.

SETTING THE VIDEO OPTIONS

In the video menu of Quake2, select the "3dfx opengl", select 640x480, turn ON 8bit textures by putting (yes) next to it. Select "NO" next to Full Screen and put the texture quality slider all the way to the right and select "apply" and hit <enter>.

BRIGHTNESS

The brightness slider does not work in the 3dfx opengl mode. You must adjust brightness in your batch file with the: SET SST_GAMMA=(1 to 2.5 in .1 increments).

This line SET SST_VIDEO_24BPP=1 also has to be in the batch file for gamma to work. If you have a Pure3D, adjust the gamma from the Pure3d control panel/display tab.

SOUND QUALITY MODES

You have a choice of low quality sound (11khz) or high quality sound (22khz). Selecting low quality sound in the options menu will give you 1 or 2 fps more.

GARBLED SOUND

If you are experiencing garbled sound go to the OPTIONS menu. Under "Sound Compatibility" select "Max Compatibility". If your sound still stutters sometimes add these lines to your autoexec.cfg:

```
set s_primary "0"
```

```
set s_mixahead ".14"
```

QUAKE 2 VERSION 3.10 UPDATE

ID Software released an update for Quake 2 on 1/5/97. It fixes countless bugs that came with the original version.

File name

"q2-310.exe". Download it here:

<ftp://ftp.idsoftware.com/idstuff/quake2/q2-310.exe>

Note: For Multiplayer, all players and servers must be using the 3.10 update. In other words, if a server is using 3.10, you must have 3.10 to connect to that server.

QUAKE 2 MINI GL UPDATE

ID Software released a mini gl update on 12/19/97 to fix the memory leak problems (file name q2miniinst1.exe). It replaces the 3dfxgl.dll in the Quake2 folder with an updated version. Get it here under Sat. December 20th news:

<http://www.tidalwave.net/~stapf/newz.htm>

Note: ID Software released a new minigl on Thurs and then released a updated version the next day. Make sure you get the latest version named: q2miniinst1.exe

GAMESPY

In the options menu of Gamespy under the gameplay tab, type "Q2start.bat" in the Quake2 command line box. Don't put the quotes (""). Then hit "OK" Make sure your "Quake 2 working folder" is correct. Gamespy released Version 1.52 on 12/30/97.

You should be using the latest version of Gamespy for Quake 2 Multiplayer. Get it here:

<http://www.gamespy.com/>

BATCH FILE ERROR MESSAGES

"OUT OF ENVIRONMENT SPACE" ERROR MESSAGE WHEN EXECUTING Q2START.BAT FILE:

Anything you put in your Quake2 batch file or autoexec.bat starting with the "SET " statment is a variable. There's only a finite amount of space available for these variables in DOS called Environment Space. You can make this space larger by adding this line to your C:\CONFIG.SYS file:

```
shell=c:\command.com /e:512 /p
```

Open the "config.sys" file (its on your C drive) with your notepad to add the line, after adding the line, click "file" and "save". Then restart the computer.

If you need more space in the future, increase the number from 512 to 1024

GRAY SCREEN WHEN EXECUTING Q2START.BAT

If when executing your Q2Start.bat file you get a gray screen or you are kicked back to the desk top and the Q2Start.BAT MS Dos window is there. Try this:

1. Right click on your Q2Start.bat file and select properties.
2. Select "program" tab.
3. In the space next to "run", select "minimized".
4. Put a check next to "close on exit".
5. Hit "apply" then "OK"

"ACCESS DENIED" ERROR WHEN EXECUTING BATCH FILE

DOS won't accept a command line longer than 127 characters. This error is caused by having empty space at the end of the command line which is represented as characters. Delete all the empty space at the end of the command line and then copy the little black block from the end of the command line in your old q95.bat file in the Quake folder to the end of the command line in your Quake2 Batch file. This little black block tells DOS that it is the end of the command line. The attached Q2Start.bat has the little black block at the end of the command line.

QUAKE2 WON'T RECOGNIZE CD IN CD ROM DRIVE

If your Quake2 Game tells you must have the Quake 2 CD in the drive to play and you have the CD in the drive. Add the below to your Q2Start.Bat command line. This example sets the CD-ROM directory as "E drive" and the Quake2 directory as c:\QUAKE2

```
+set cddir e:\install\data +set basedir c:\QUAKE2
```

So your command line would look like this:

```
quake2.exe +set cddir e:\install\data +set basedir c:\QUAKE2 %1 %2 %3 %4 %5 %6 %7 %8 %9
```

VIDEO MODES

To use 512x384 video mode for a boost in Framerate, add the below to the Q2Start.bat command line. If you select 512x384 in the video options menu, the setting won't hold the next time you start the game. So put it in the command line of the Q2Start.bat file. +set gl_mode 2

Example:quake2.exe +set gl_mode 2 %1 %2 %3 %4 %5 %6 %7 %8 %9

Using 512x384, you will need to change the screenrefresh in the Q2Start.bat to 75 or 85 as illustrated below.

SET SST_SCREENREFRESH=75. Below is a listing of all video modes.

Mode Resolution

0	320x240
1	400x300
2	512x384
3	640x480
4	800x600
5	960x720
6	1024x768
7	1152x864
8	1280x960
9	1600x1200

Note: The **Orchid, Monster or Pure 3d** won't run in the **GL Mode** at any higher video resolution modes than **640x480**.

AUTOEXEC.CFG SETTINGS

WEAPON POSITIONING

You can move the weapon position around on the screen with the gun x,y,z values. Try settings between "-10" and "10".

You will notice the weapon is closer to your players body with my autoexec.cfg settings. This gives a slight boost in FPS as drawing more of the weapon on the screen takes some horsepower. If you want to set the gun position to the defaults use the below values:

```
set gun_z "0"
```

This value holds the vertical position of the gun model. A negative number will bring the gun upward. A positive number will bring

the gun downward.

```
set gun_x "0"
```

This value controls the left/right position of the gun model. A negative number will move the gun left. A positive number will move right.

```
set gun_y "0"
```

This will set the distance of the gun model. A negative number will bring the gun closer. A positive number will move it away.

Note: when you sign onto a multiplayer server. Your weapon will appear with the default "0" settings as the server won't allow changes to the gun_x,y,z variables. Changes to the gun x,y,x variables only work in Single Player.

LEFT HANDED/CENTER FIRE/RIGHT HANDED WEAPON

set hand "0" Gives right handed weapon. (default)

set hand "1" Gives left handed weapon.

set hand "2" Gives projectiles firing from center of screen, but no weapon is drawn on the screen. This setting will give a 2-3 FPS boost on the timedemo test because it does not have to draw the weapon model on the screen. A weapon Icon will appear in the middle to tell you which weapon you have selected.

Currently there is no way to make the weapon appear with the hand 2 setting. These "hand" settings CAN be used in Multiplayer.

Note: There is a patch to make the projectile fire from the center and still see your weapon. But this only works in single player. Get the patch here: <ftp.cdrom.com/pub/quake/quake2/dlls/weapons/center.zip>

weapprev

Default: none

Values: Command

This command will bring up the previous available weapon that the player carries. You could bind this to a key as the below example:

```
bind p "weapprev"
```

TURN OFF ROCKET AND GRENADE SMOKE TRAILS

set cl_particles 0/1 (default 1)

0 turns off all particles that are drawn on the screen. What this means is, you won't see blood splatter from players, smoke trails and sparks when you fire rockets etc. This setting gives quite a boost in FPS during Multiplayer battles. The drawback to this setting is the railgun's blue coil projectile won't be drawn on the screen. It will still kill someone, you just won't see the blue coil.

DYNAMIC LIGHTING

set gl_dynamic

Default: 1

Values:0/1

0 turns off dynamic lighting for a big FPS boost in Multiplayer. The only drawback to this is you won't see areas lightup when a rocket explodes.

set vid_fullscreen

Default: 1

Values: 0/1

When this is set to "0", the display will be changed from fullscreen to windowed mode.

TO DISABLE 8 BIT TEXTURES

set gl_ext_palettedtexture [0/1]

0 is a higher quality image and will take a hit in FPS.

1 is 8 bit textures and will give better performance.

There is really not that much difference in the image quality. I recommend using "1" (8 bit). Disabling 8 bit textures in the video option menu won't hold the setting the next time you start the game. So put the command in your autoexec.cfg if you want to keep the setting for each game.

TEXTURE QUALITY

set gl_picmip "0" (default) is the highest texture quality and the same as setting the texture quality slider in video options all the way to the right. If you adjust the slider to a lower texture quality the setting won't hold the next time you start the game. If for some strange reason you want to lower the texture quality and keep the setting each time you start the game. You can use "set gl_picmip 0/1/2/3/4" in your autoexec.cfg. "4" is the lowest quality. Selecting lower quality textures will turn off the transparent water surface effect on the maps that have transparent water surface. Not all the maps have the transparent water surface.

set gl_ztrick

Default: 0

Values 0/1

set gl_ztrick 1 avoids clearing the z buffer at the expense of half the precision and will give a few FPS boost in speed. You may occasionally see some things poking through where they shouldn't with this enabled. If the status bar and console are flashing every other frame, clear this variable. set gl_ztrick 1 will make the selected player skin flash in the multiplayer options screen. But this is the only drawback I have seen in using set gl_ztrick 1.
* gl_ztrick 0 will lower timedemo FPS about 10%.

THE BELOW GL_TEXTUREMODE SETTINGS determines the OpenGL texture filters.

set gl_texturemode GL_NEAREST (looks almost like dos quake)

set gl_texturemode GL_NEAREST_MIPMAP_NEAREST

set gl_texturemode GL_LINEAR

set gl_texturemode GL_LINEAR_MIPMAP_NEAREST (Default)

set gl_texturemode GL_LINEAR_MIPMAP_LINEAR

These five levels of texturemodes sets the picture quality from almost raw DOS-quake picture quality to the default Quake 2quality. The last (5th) can only be used/seen on very high-end 3D hardware (NOT Monster3D/Righteous3D/Pure3D). If you think the 3D card is softening the picture too much, then try a lower texture quality - it might also improve speed. This setting goes in your autoexec.cfg

PLAYER PREDICTION

set cl_predict

Default: 1

1 turns on player prediction

0 turns off player prediction

You should always enable player prediction.

set netgraph

Default: 0

Values: 0/1

When set to "1" will display a graph of net usage. Or you can type "netgraph 1" at the console.

set rate

Default: 25000

Values: (Integer)

This setting holds the maximum amount of bytes that will be transmitted between client and server each second. Default value is

fine for single player and high speed connections. Modem users may want to cut this number back to around 2500.

reconnect

Default: none

Values: Command

This command will attempt to reconnect to the previous server. Use this if you are accidentally disconnected.

set gl_polyblend

Default: 1

Values: 0/1

"0 " turns off palette shifting.. This means your screen color doesn't change underwater or when you have quad or take damage etc..(water will be crystal clear when your in it.) Setting of "0" gives a few extra FPS. Set it to '1" and everything looks normal. (water will be cloudy when your in it, and your screen will change color when your being shot, get quad, and pentagram).

set cl_maxfps

Default: 90

This should be set to a lower value only if you are experiencing latency in multi-player games. This will cap the frames per second so that there is less information between server and client. If you are having problems a good value to try would be 25-35.

set cl_nodelta

Default: 0

Values: 0/1

This setting can disable delta compression when set to 1. This can help reduce problems with poor internet connections with a poor ISP. If you have to set this to "1", you should find a better ISP.

set cl_noskins

Default: 0

Values: 0 - 2

Changing this setting to "1" will disable multiple player skins. This may be helpful for 3D graphics cards with limited texture memory. Setting this to "2" will show only the skins that are available in the Quake2\baseq2\players\ directory and will not transfer new skins from the server.

set cl_shownet

Default: 0

Values: 0/1

When this is set to "1" it will display latency times between server and client.

set gl_bitdepth

Default: 0

Values: 0/1

When this is set to "1", textures will be loaded in 16-bit color as opposed to the default 8-bit color. Hardware with less texture memory may not be able to use this without seeing a performance decrease.

set gl_ext_swapinterval

Default: 1

Values: 0/1

Setting this to "0" will disable the use of the `gl_swapinterval` command upon the next `vid_restart`.

set gl_swapinterval

Default: 1

Values: 0/1

This is the time delay between frame swaps so long as `gl_ext_swapinterval` is enabled. For fastest performance, set this to "0"

set gl_finish

Default: 0

Values: 0/1

If your 3D hardware is having problems displaying the images properly on time, set this to "1". By default the game is not sending out finish calls to the GL driver which may result in problems for some systems.

set gl_flashblend

Default: 0

Values: 0/1

There are a few objects that emit light from the object itself. By default, this light affects the lighting upon the other entities and walls around it. If this becomes a speed problem, you can set this to "1" to have the game create a glowing ball around the object instead of affecting other surfaces.

set gl_playermip

Default: 0

Values: 0/1/2/3/4

This variable drops the resolution of each player's texture to save on total texture memory. The player's skin will be more blurry with higher values. Important variable for cards with only 2 MB of texture memory in multiplayer games.

set gl_showtris

Default: 0

Values: 0/1

If your display tears between polygons, set this variable to "1".

set r_drawworld

Default: 1

Values: 0/1

When this is set to "0" the game will remove everything from the display except for icons, particles, and entities. Since this will allow you to now see through walls since they are not being drawn, it is a cheat. You will not be able to move through walls since they still exist, but you can see opponents and powerups behind them.

set s_loadas8bit

Default: 1

Values: 0/1

When this is set to "0", the game will load all sound files into the cache at their full sizes. This may cause problems for systems with less memory. By default, the game loads the sounds as 8-bit sounds to take up less space. This results in a playback rate of 11KHz regardless of the setting of [s_khz](#). Any changes in this setting must be followed by a [snd_restart](#) for any effect to take place.

set s_khz

Default: 11

Values: 11:(low quality sound), 22: (high quality sound)

This setting adjusts the sampling rate of the sounds. This can be set to "22" for high quality sound output, but will hinder performance depending on hardware. [s_loadas8bit](#) must be set to "0" and a [snd_restart](#) must be issued afterwards to use high quality sounds. Any setting other than "22" will be read as "11".

set s_mixahead

Default: 0.2

Values: (Decimal)

This value holds the delay for sounds to be mixed. Faster systems with PCI sound cards may be able to take advantage of lower numbers. This number can be increased if gameplay seems hindered by excessive sounds, with the drawback of having a larger delay to sound effects. If your sound stutters sometimes try setting this to "0.14"

set s_primary

Default: 0

Values: 0/1

For faster performance you can try "1", but if the sound becomes garbled set it back to "0". This must be followed by a [snd_restart](#)

MUSIC

If you want to listen to music as you play. Change this line in the autoexec.cfg to read as follows:

```
set cd_nocd "0"
```

Default: 1

MOUSE

```
set in_mouse
```


Default: 1

Values: 0/1

This will disable the mouse as an input device when this is set to "0".

set m_filter

Default: 0

Values: 0/1

When this is set to "1", the game will seem to lag behind the actual mouse axis position by interpreting the position as halfway between the last recorded position and the new position. This will give smoother movements with the mouse, but will not be as accurate.

MOUSELOOK

If you want mouse look on all the time, add this line to the autoexec.cfg:

```
set freelook "1"
```

Default: 0

To invert the mouse, go to the options menu.

set in_initmouse

Default: 1

Values: 0/1

This variable is write protected. If this variable is set by the autoexec.cfg upon startup to "0", the game will completely disable the mouse. Some systems may see a performance increase. Keyboarders or Joystick users should disable the mouse for better performance.

JOYSTICK

set in_initjoy

Default: 1

Values: 0/1

This variable is write protected. If this variable is set by the autoexec.cfg upon startup to "0", the game will completely disable the joystick. Some systems may see a performance increase.

set in_joystick

Default: 0

Values: 0/1

This will enable the joystick as an input device when this is set to "1".

See also: joy_advanced

set joy_advanced

Default: 0

Values: (Toggle)

Setting this value to "1" will enable the advanced controller support. This is required for the use of an advanced controller such as the SpaceOrb 360, Cyberman 2, Wingman Warrior, or the Assassin 3D. The **advaxis?** commands can be set to the following axes:

0 - Axis not used

1 - Forward axis (forward and backward movement)

2 - Pitch axis (looking up and down)

3 - Side axis (strafing left and right)

4 - Yaw axis (turning left and right)

5 - Up axis (jumping, crouching, and swimming up and down)

These are absolute axis setting (non-proportional movements like a joystick). To assign a relative axis setting (proportional movements like a mouse), add 16 to the value.

set joy_advancedupdate

Default: none

Values: Command

This command will update all advanced controller axis settings if the values were previously changed.

set joy_advaxisr

Default: 0

Values: (Integer)

This setting controls mapping of DirectInput axis R (typically joystick rudder.)

set joy_advaxisu

Default: 0

Values: (Integer)

This setting controls mapping of DirectInput axis U (custom axis - Assassin 3D trackball left and right, Wingman Warrior SpinControl and SpaceOrb roll.)

set joy_advaxisv

Default: 0

Values: (Integer)

This setting controls mapping of DirectInput axis V (custom axis - Assassin 3D trackball forward and backward and SpaceOrb yaw.)

set joy_advaxisx

Default: 0

Values: (Integer)

This setting controls mapping of DirectInput axis X (typically joystick left and right.)

set joy_advaxisy

Default: 0

Values: (Integer)

This setting controls mapping of DirectInput axis Y (typically joystick forward and backward.)

set joy_advaxisz

Default: 0

Values: (Integer)

This setting controls mapping of DirectInput axis Z (typically joystick throttle.)

set joy_forwardsensitivity

Default: -1

Values: (Decimal)

This value controls the famp-up speed for moving forward and backward.

set joy_forwardthreshold

Default: 0.15

Values: (Decimal)

This value controls the dead-zone for moving forward and backward.

set joy_name

Default: joystick

Values: (String)

Description: This value holds the name of the controller to be displayed upon the next **joy_advanced**.

set joy_pitchsensitivity

Default: 1

Values: (Decimal)

This controls the speed that you look up and down.

set joy_pitchthreshold

Default: 0.15

Values: (Decimal)

This controls the dead-zone for looking up and down.

set joy_sidesensitivity

Default: -1

Values: (Decimal)

This controls the ramp-up speed for moving side to side.

set joy_sidethreshold

Default: 0.15

Values: (Decimal)

This controls the dead-zone for moving side to side.

set joy_upsensitivity

Default: -1

Values: (Decimal)

This controls the ramp-up speed for moving up and down.

set joy_upthreshold

Default: 0.15

Values: (Decimal)

This controls the dead-zone for moving up and down.

set joy_yawsensitivity

Default: -1

Values: (Decimal)

This controls the speed that you turn left and right.

set joy_yawthreshold

Default: 0.15

Values: (Decimal)

This controls the dead-zone for turning left and right.

TESTING FPS (Frames Per Second)

To do a timedemo to test your FPS.

Start the game and then type "disconnect" then <enter> at the console.

Then type:

```
timedemo 1 <enter>
```

```
map demo1.dm2 <enter>
```

After you finish your timedemo testing, type at the console:
timedemo 0

This will clear the timedemo mode. If you don't type timedemo 0 , when you play, the game will run very fast. Like a timedemo.

My timedemo results:

640x480- 32.3 FPS

512x384- 38FPS

My System:

PPro200 w/ 128MB

Canopus Pure3D

Using included Q2Start.bat and Autoexec.cfg (I have my Pure3d Clock MHz Speed set on 60mhz.)

Quake2 Version 3.10

Low Quality Sound

BATCH FILE COMMAND VARIABLES:

*commands are case sensitive. Use caps where indicated.

*****ANY COMMAND IN THIS GUIDE BEGINNING "SET SST" OR "SET FX" WILL ONLY WORK ON A VOODOO GRAPHICS BASED VIDEO CARD. VOODOO RUSH USERS CANNOT APPLY THESE COMMAND VARIABLES.

SCREENREFRESH RATE:

SET SST_SCREENREFRESH=60/72/75/85/120

*Canopus Pure3D users adjust the screenrefresh in the Pure3D control panel display properties.

If you use the default screenrefresh settings on your 3DFX card, then in general, raising the vertical refresh will adversely affect your frame rate in GLQuake. You'll have to decide if the performance hit is worth the improvement in the image quality. Generally, there's no noticeable frame rate penalty between running at 75 Hz as opposed to 60 Hz. As a matter of fact, the 3DFX Card won't even run at 60 Hz in 512 x 384 resolution - 75 is the lowest. I know some people get eyestrain when staring at a monitor with a 60 Hz refresh for long periods of time, but 75 Hz is usually sufficient to eliminate the problem. Setting it higher will start to bring your frame rate down a bit.

There is a way you can run the refresh up to 120 Hz without much of a performance hit: by disabling the vertical refresh sync on the 3DFX card by adding this line to your Quake2.bat file: SET FX_GLIDE_SWAPINTERVAL=0

SET FX_GLIDE_SWAPINTERVAL=0 (very important setting)

With this setting, the 3DFX Card will ignore the refresh rate and always redraw the screen as soon as it can. As a bonus, this setting will usually gain you 5 -7 fps, however it can cause some image tearing which some people may find unacceptable. I did not notice it - it looks fine to me. "0" setting raised the speed a whopping 7FPS for me, over a setting of "1"(default). Nice!

OVERCLOCK THE VOODOO CHIP:

SET SST_GRXCLK=50-57

The Orchid voodoo defaults to 50. You can gain approximately a 15% speed increase by overclocking to 55. Do not go beyond 57. In any event keep an eye out for corruption artefacts - flat shaded polygons, texture map corruption etc. This setting will almost certainly make the Voodoo Chip run hotter so beware!

My screen started slight tearing at "57". "60" gave extreme tearing. Also note that the Monster 3d's default performance setting is "57", so that can be taken as a safe setting. Be forewarned, any setting over "57 "will certainly shorten the life of your card. If your image locks and the sound is looping , your overheating the chip. Turn down the clock speed if this happens.

*Get a cooling fan to increase performance and card life.

*After installing a fan on my Orchid Voodoo Card. I could go to "60" w/o tearing. But I still leave mine at "54"

** The Pure3D needs to have the clock speed adjusted from the Pure3D control panel in display properties. The Pure3D uses 35ns RAM and can be successfully overclocked to higher numbers than the 45-50ns RAM on the Monster and Orchid. See below taken from the Pure3D help guide:

Use the spinner control in the Pure3D control panel to set your Memory Clock to a value from 50 to 60 MHz. Click OK.

Important Note: Setting your memory clock higher than 50 MHz (overclocking your Pure3D) can increase performance in some cases, but it can also cause display problems. If you notice any problems with 3Dfx games after increasing the memory clock, please lower it.

-----END PURE 3D HELP GUIDE INFO-----

The below URL ([The Voodoo 3DFX Heat Test](#)) has the results of overclocking your card and the temperature of the chip at different settings. It is commonly known that exceeding 60.C is very bad for chips. His results showed the Monster 3D card w/o a fan measured 64.3 C at a setting of "57". The fan cooled it to 46.6 C at "57" clock speed.

<http://web.inter.nl.net/hcc/FastVid/>

SET FX_GLIDE_NO_SPLASH=1

Removes the 3DFX logo on startup.

SET SST_FASTMEM=1

Tells the Voodoo you have EDO RAM and to access the RAM on your board faster. This may or may not have any perceptible difference.

SET SST_FASTPCIRD=1

Fast PCI read. 1 or 2 more FPS.

This may not have any perceptible effect.

*I have read this may cause the dreaded 999 ping on 90-120 Pentiums. Some users have reported this, but others say its fine. This problem could be caused by the PCI Bus getting overloaded on lesser machines.

SET SST_SWAP_EN_WAIT_ON_VSYNC=0

Turns off syncing to the monitors vertical refresh rate so the screen gets refreshed before its fully written on the monitor.

Dont Use Vsync "1", leave set to "0". Normally your Voodoo will wait for the electron gun to finish sweeping the screen before switching between the visible data and the in work data. Setting to "0" this means that the voodoo will not waste any time waiting, it will switch immediately.

SET SST_GAMMA=2.1

Gamma is [brightness](#). "1.7" is the default. The numbers in the gamma box can go from 0.5 to 2.5 (2.5 is brightest)

* this line must also be in your batch file to adjust the gamma (brightness): SET SST_VIDEO_24BPP=1

*Canopus Pure3D users adjust the "RGB" gamma in the Pure3D control panel display properties. If the screen refresh rate is set higher than 75 on the Pure3D, your gamma may not work.

Individual Gamma Color Batch File Commands:

SET SST_RGAMMA=0 to 2.5 (red)

SET SST_GGAMMA=0 to 2.5 (green)

SET SST_BGAMMA=0 to 2.5 (blue)

*adjustable in .1 increments. "1" is the default

*Canopus Pure3D users adjust the color gamma in the Pure3D control panel/display properties.

SST_VIDEO_24BPP=1

This sets the bits per pixel to 24. Which does nothing. READ ON!!!! If you want to adjust gamma, you must have it in the batch file. Place it there anyway, in case you forget.

HOW TO MAKE A FAN MOUNT FOR YOUR 3DFX CARD

You can easily make your own fan mount to keep your 3DFX video card running cool. Go buy a CPU fan at Radio Shack (\$14). Then take a blank plate from the back of your computer like the one you removed when you installed

your 3D video card. Go outside to a concrete surface and smash the plate's 90 degree bend out flat with a hammer. Then lay the fan on the plate and mark 2 mounting holes to be drilled to secure the fan to the plate. Drill the holes and mount the fan onto the plate using 2 sheet metals screws, or even better use threaded screws with nuts. Put a drop of Lock-Tite on these for more security. File or cut off any protruding screw tips that could touch any electrical components. Then attach the mount to an empty slot mounting hole over or near the 3D video card. Make sure the (2) fan mounting screws cannot possibly touch any electrical component in your computer. Bend the mount to whatever angle you need to point the air flow on the Voodoo Chips. I can't give you specific instructions as each system is different.

"OUT OF MEMORY" ERROR MESSAGE OR JUST TO IMPROVE PERFORMANCE:

Define your own virtual memory settings. This is a bit tedious but it really does help. This will create one continuous **PERMANENTLY DEFRAGMENTED SWAPFILE** on the hard drive. Normally Win95 actively resizes your swap file, but this causes a lot of disk accesses and keeps the swap files fragmented.

- Right click on "My Computer", click on "Properties", click on the "Performance" tab, then click on the "Virtual Memory" button.
- Click on "Let Me Specify MY Own Virtual Memory" then click "Disable virtual memory" then click "OK". The computer will reboot.
- When it reboots run the Disk Defragmenter and do a Full Defragmentation of your drive. At this point do not reboot after defrag.
- Go back into the Virtual Memory settings window and uncheck "Disable Virtual Memory" then select "Let me specify my own virtual memory settings". Set the "Minimum" to 100 and the "Maximum" to 100. Windows will reboot again to allow the settings to take effect.

If you have more than one drive on your system, you should select the fastest drive for your swap file.

*you must have at least 100mb of free drive space.

ANOTHER PERFORMANCE BOOSTER:

The setting labeled "Typical Role of This Machine "determines how much space is set aside in main memory to handle path and filename caching. The default "Desktop Computer" choice allocates space for a paltry 32 paths and 677 filenames, whereas the "Network Server" choice bumps those settings up to 64 paths and 2,729 filenames.

If you have 32 mb or more of ram, you can improve performance by increasing your disk cache size:

- Right click on "My Computer", click on "Properties", click on the "Performance" tab, then click on the "File System" button.
- Select the "Hard Disk" tab and in the box labeled "Typical role of this machine:" select "Network Server". The click on "OK" and Win95 will reboot to allow this setting to take effect.

*This works fine on the new Win95B OSR2 (ver. 4.00.950 B). To check your Win95 version, go to "control panel/system". Older versions of Win95 will need to modify their registry before changing the "typical role of this machine" setting.

Go to this site for instructions on registry modification:

<http://www.zdnet.com/pccomp/features/fea0597/secrets/sub1.html>

BEST WEAPON ALIAS

Below is an example of a Best Weapon alias I use in Multiplayer DM. I have the below in my autoexec.cfg:
bind "DEL" "use Blaster;use Shotgun;use Super Shotgun;use Machinegun;use Chaingun;use HyperBlaster"

FAQ AND NEWS GROUPS

CANOPUS PURE3D FAQ

http://www.canopuscorp.com/pure3d/p3d_support_faq.htm

DIAMOND MONSTER 3D FAQ

<http://www.diamondmm.com/products/faqs/monster-3d.html>

ORCHID RIGHTEOUS 3D (go to "TECH" then FAQ)

<http://www.orchid.com/>

3DFX NEWS GROUPS FOR ALL 3DFX BASED VIDEO CARDS AND RELATED TOPICS

http://www.3dfx.com/links/news_groups.html

If you want the most comprehensive guide on tweaking GL Quake and GL Quake World. Download the:

The 3 Fingers' Ultimate Set-Up Guide Ver. 1.13 For GL Quake & GL QW

<http://www.apex.net/users/bshelby/links.htm>

If this Quake 2 Guide helped you out. Please let me know. I love to hear from satisfied customers.

Best Regards,

Brett "3 Fingers" Jacobs

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