Information for Trident Chipset Users

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Contents

1 Supported chipsets

The Trident driver has undergone major work between XFree86 1.2 and XFree86 1.3. Because of this work, all of the Trident SVGA chipsets, except the very first one, are supported by both the color and monochrome servers. Additionally support has been added for the latter four chipset with the release of XFree86 2.1:

8800CS 8900B 8900C 8900CL/D 9000 9000i 9100B 9200CX 9320 9400CX 9420

It must be noted that the 9000i chipset is treated as a 9000 by the server. Additionally the 9100B, 9200CX, 9320, 9400CX, and 9420 chipsets are treated as a Trident 8900CL. Therefore it is equivalent to putting '`Chipset "tvga8900cl"`' or '`Chipset "tvga9000"`' in the `XF86Config` file. Also, note that the 9000i, 9100B, and 9320 have not been tested with the server, but should work in this way according to the chipset documentation.

NOTE: No acceleration features of the newer chipsets have been taken advantage of.

The original Trident chipset, 8800BR, cannot be supported as an SVGA chipset by either the color or monochrome servers. The chip is supported, however, by the "generic" driver for the monochrome server.

2 Special considerations for 512k boards

There are no longer any special considerations for 512k Trident boards. The driver is now configured so that they can use modes with normal timings. The available pixel clocks are halved compared with those specified on the Clocks line

Be aware that older Trident chipsets support a maximum clock of 65Mhz. Hence the best actual clock available to the color server is 32.5Mhz. This means, in broad terms, that the color server will require an interlaced mode to be defined for resolutions above 640x480. Newer chipsets (8900CL, 9000, 9000i, 9100B, 9200CX and 9420) support up to 16 clocks, and can support much higher clocks, which will allow 800x600 modes, non-interlaced.

3 Additional Notes

We have had reports of the server failing to detect the amount of installed memory and the correct dot-clocks on older TVGA8900 boards. If the server fails to detect the correct amount of memory, use the `"Videoram"` keyword in your `XF86Config` file to specify it. (e.g. `Videoram 512` or `Videoram 1024`). If the server has problems detecting the dot-clocks, try adding the following line to your `XF86Config` file:

```
Clocks  25 28 45 36 57 65 50 40
```

This line gives the clock values provided by older Trident clock synthesizer chipsets. This also appears to be the standard first 8 clocks for the newer clock synthesizers, but you should have no problems on newer boards.

Some newer Trident 8900B/C boards are apparently being built with the clock synthesizers used on the 9000 and 8900CL boards. If your board has a chip labeled "Trident TCK900x" ("x" has been seen as 2 or 4; there may be others), your board may actually have a 4th clock select bit. The 9002 has twelve distinct clocks (the other 4 are duplicates); the 9004 has 16 clocks (the same 12 as the 9002 + 4 others). If you see such a chip on a board with an 8900B or 8900C, put the following line in the Device section of your `XF86Config` file:

```
Option "16clocks"
```

This will cause the same clock selection code as is used for the 8900CL to be used for the board.

While developing the Trident driver, an interesting and perturbing hardware phenomenon was discovered. When using the default board jumper configuration, dot-clocks above 57Mhz would frequently lock up the machine. There appear to be jumpers on all of the Trident boards that determine whether the board will operate in zero-wait-state mode on the ISA bus. Disabling the zero-wait-state mode via jumpers cured the lockups, but at the expense of performance. Whether or not a given system will experience this problem is likely a combination of (a) bus speed, (b) video memory speed, and (c) dot clock speed. So be prepared for this phenomenon to occur, and have the board documentation handy.

`$XConsortium: trident.sgml,v 1.1 95/01/06 20:29:55 kaleb Exp $`
`$XFree86: xc/programs/Xserver/hw/xfree86/doc/sgml/trident.sgml,v 3.1 1995/01/28 16:03:14 dawes Exp $`