

**arl: DATA: thinkpad total dominator: index**

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## Overview

This page is **not** for some Linux distribution installation success story! Really who actually cares? Most of the distributions can be installed on all even weird platforms; laptops are still quite common/generic hardware environment. I'm using [Linux/aow](#) distribution.

This page is for the real thing: Thinkpad hardware + Linux.

Now my T23 has around 30,000 working hours behind (20011104-20050218).

48GB disk crashed (2nd time) just one week after 3 year on-site finished..

Keyboard has lost key identifications for a,s,o,k,l,n, and m.

Plastic case (keyboard side) has broken, it started on right top, i.e. ultrabay corner - there is clear design fault there.

The machine started to tilt .. seems like keyboard connection causes problems (?). The might be an other design fault there - found it .. there are very tiny loose components (shims) which cause problems - by leading electricity. These components may be from totally wrongly designed display tilting mechanism?

## T23 (2647-9KG)

### Hardware

#### CPU (processor)

Intel Speedstep does not work correctly. When booting up the speed depends on is the machine power connected or not. When connected boots up 1133MHz when not ~700MHz. Ok, this is fine, but when you reconnect to power the speed stays because hardware does not do speed stepping - just software which was not there earlier.

Using ACPI you may set processor speed and other parameters with Linux. `/proc/acpi` - but enabling `acpi` disables suspend functionality (`apm_bios`) [2.4.27].

CPU (socketed) itself is upgradeable. Even though only to 1,3GHz?

The original CPU is  
 7122A737 SL5K  
 RH80530 1133/512  
 FRU: XXXXXXXX 11838L4564Z1J  
 OVR1800C 108  
 INTEL (m)(c) '01

[Intel: Processor Spec Finder](#) | [Intel: Mobile Intel® Pentium® III Processor - M: Technical Documents](#)

#### Ultrabay 2000

Hot-swap does not work - so it's not so hot swap.

IBM has a solution for you: reboot! .. [\[more: stinking pads\]](#)

But really - "hot swapping" may be done when the machine is suspended.

Hardware used for hot insertion contains  
 PI5C 32X384CB (5V 20-Bit Bus Switch)  
 PI5C 16862CB (5V 20-Bit Flow through Bus Switch)

#### DVD

Works fine when booted up with it. Hot-swap does not work. Device is `/dev/hdc` or `/dev/hdd` depending on the moon phase ;-). Mostly `/dev/hdc`.

Using `ogle` to view DVD movies.

Actually DVD problems can be divided into categories:

- Thinkpad problems, i.e. problems with front processor: its poor coding, lousy support by IBM, and lacking documentation.
- Linux problems: poorly coded drivers and fixed attitudes with IDE-based technology, visionless designs, and again: poorly coded drivers.

## **floppy disk**

Works fine when booted up with it. Hot-swap does not work.

## **Ethernet**

Works fine with Intel drivers (e100), no problems at all (not even 10/100 problems).

Hardware:

Intel DA82562ET Ethernet chip.

## **USB**

Works fine, but it's only USB 1.1 (slow), so need to have CardBUS card for USB 2.0 use.

Some Linux versions contain "broken" USB support (2.4.20) - and hang when hotplugging USB devices.

T23 does not have bluetooth, but you may use bluetooth through USB dongle (using "ProDigi" adapter - works).

## **CardBUS / PCMCIA**

Works fine, using USB 2.0 adapter.

Some Linux versions (2.4.20) contain "broken" hotplugging - hanging when hotplugging.

## **IrDA**

Hardish to get it working, there are many different solutions and each one has its own way to do things. Is very slow when using GPRS with Siemens ME45 (/dev/ircomm0).

## **RS232 serial**

Works fine. Using it for GPRS connection with PPP.

## **modem**

Not tested, I have no use for common telephone system based modem i.e. POTS modem.

Removed the original MicroPCI modem card. Not used, so why should power be wasted..

## **sound**

After wondering for a while which sound chip should be used with ALSA, got it working. No problems after that.

*First tried to install CS46xx modules, because the chip itself informs to be CS. But it needed intel8x0 modules.*

Notice, after starting module level is 0, so use mixer to set it up.

Also Notice, after suspend you need to set level, but use different level than original, because ALSA driver (?) remembers the original level.. aaaaaaargh .. and does not do I/O with sound chip(?)..

## harddisk

After around 9 months 48 GB drive tilted. Nice to have on-site. Real soon another 9 months have passed by... .. it still works!

The second 48GB drive tilted 200412 totally. Upgraded - new 80GB drive which is actually much slimmer than the original..

## keyboard

Although in Finland, and the keyboard has Finnish keys, I use US layout, because that's much easier for programming. Never used an external keyboard.

Specialized keys do not work (front processor takes over?). There's utility nowadays for Linux to control special keyboard keys.

## mouse

Using "internal" mouse only. Some problems with X server, like when switching virtual consoles you might automatically paste your confidential mail into irc window .. waiting couple of seconds for X to settle seems to me too much time wasted ;-)

Internal mouse (the clit ;-)) is an auxiliary device for the keyboard.

Mouse naturally also stucks after suspends (occasionally), so here's my program to fix the problem:

[reset\\_stinkpad\\_mouse](#)

After running it, you may need to suspend the machine again (by Fn+F4), because this might stuck the keyboard again.. Link it -static and put it into /sbin.

## display

Only using TFT, in mode 1400x1050. No external monitor used, because TFT picture is stabile and does not cause as much headache as CRTs do, especially when used 16 hours or more daily.

## TV out/S-Video

Using TV out for DVD and MPEG etc. (after 200410 rarely: bought DIVX capable DVD player). Took quite a while to get it working: adapter cable did not actually work and my TV needed special X11 configuration - could not find much help in Internet. S-Video to SCART needed still composite, so needed to connect S-Video pins 3 & 4 with a small value ceramic condensator (~470nF) together inside a SCART adapter. Without this end result will be B/W (black and white) - naturally this composite image quality is not good, but anyway TV sucks also, so...

X11 savage driver is not able to switch to TV mode, but another program s3switch does. So when TV out is used first do

```
s3switch tv pal
```

and start X server when using TV as monitor I use

```
xinit -- :1.0 -xf86config XF86Config.TV_PAL; s3switch lcd
X_to_tv script \[here\]. so the display will be back lcd after X server. Naturally I'm
running at the same time "normal" X server on :0.0
```

Notice:

- Do not close display (thinkpad cover), because there's some sort of a bug, which causes also TV out to be closed. I think a bad hardware design.
- Set screen saver within boot/bios menus off, because it will also save your tv out screen middle of DVD movie .. this is also due a bad hardware design.
- Naturally switching virtual console does not work correctly: you may need to have to run s3switch lcd again.
- Some SCART adapters do have 3 RCA connectors (L+R audio and video) and 1 S-Video, do **not** connect video RCA connector (will cause no video at all).
- First patched s3switch, because it seemed to put T23 graphics chip into wrong category, but the original code seems to work (have to check this).

See also:

- search google for: "s3switch", "scart", "s-video", "svideo", also sometimes referred as "svhs connector" (mistake or not).

Suitable XF86Config will be released soon.

Please use [\[contact\]](#) when you need more information - I might have hidden information.

## security chip

Does not work?

## I/O hardware

Super IO [PC87392VJG](#) |  
 Li-Ion Battery Charger [ADP3806](#) |  
 I/O Controller Hub (ICH) and AC 97' Controller [FW82801CAM](#) |  
 Firmware Hub (FWH) [E82802AC8](#) |

## Software

### Linux

No dos/windows/xp etc. partition. Just plain Linux. I have no need to use microsoftian software.

Hibernate does naturally not work with this configuration.

Also no possibility for BIOS updates (because I do not run microsoftian programs in this machine).

IBM Linux support (even though drummed in public) really is bad for their own hardware ("IBM supports Linux" is one of those urban legends you hear).

## **X11**

Using X11 with twm (I do not like "fancy" window managers).

## **Linux/aow**

Developing and using Linux/aow distribution.

[Linux/aow project home page](#)

## **Usage**

Programming: Java, Perl, C

Multimedia: DVD, and MP3, rarely CDs.

Gaming: only "brainish" games, like *kmahjongg*.

Networking: irc, mail, www (Netscape 4.7), rarely streaming MP3s.

**770 (9548 400)**

**Hardware**

**Software**

**Usage**

Testing: using as a test machine.

## mini FAQ

### **Does T23 have USB2?**

No, only USB 1.1 is supported. Use CardBus adapter (PCMCIA) to have USB2.

### **IBA?**

means Intel Boot Agent.

Check out [\[info\]](#) [\[manual\]](#)

### **T23 is beeping during run time**

Do not hot swap ultrabay devices in Linux, always do suspend the machine (Fn+F4), and then do ultrabay device swapping.

Try to suspend and activate the machine.

### **T23 is beeping during boot time**

Check out IBM documentation pages [Beep and no beep symptoms - ThinkPad A2\\*, T2\\*](#) | [Beep symptoms - ThinkPad R30, R31](#)

### **T23 has no sound after suspend**

Use mixer i.e. change values for sound volumes.

### **T23 (or other Thinkpad) is slow**

Did you boot it as accu/battery powered?

When machine is booted as accu powered CPU speed is normally (use BIOS to set otherwise) slow to save power. In Linux you may change CPU speed to normal using ACPI (/proc) or application.

Notice that CPU speed will stay slow also after connecting the machine to mains power or after suspend if booted originally using accu only.

**other good pages**

[T23,TP760](#) |

**see also**

[arl laptop project](#) | [Linux/aow project](#) | [for IBM staff](#) |

**TODO**

- More precise chip information and documentation.

## Thanks

For people asking questions.

For Google having proper referer URL entries - using referer to find out what people search.