Linux on an Advent 6418

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Contents

1 Print quality source

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- PDF file: `www.brunel.ac.uk/~icsrsss/laptop/advent6418/home.pdf`.
- PostScript file: `www.brunel.ac.uk/~icsrsss/laptop/advent6418/home.ps`.

2 Introduction

I appreciate everything on the web. Let's get that straight. But, some people are a little more terse than others (you don't want to agree, but you do). Well, I'm a teacher (sometimes) and I take pride in detail and accuracy. So this is a long document. I wrote it because the Advent 6418 is good value for money (at least within the current UK retail climate) but it is not straightforward to get a Linux/XP dual boot system up and running. I have had essential help (see below), but—as far as I know—this is the only extensive and detailed document about how to spend the money; go home; and get it working. Notice that I didn't say "get it *all* working". But, it's good enough to write this as a LaTeX 2_ε document in `kwrite` (i.e. KDE), chuck it through TtH (to get the web page) and also through `dvips` and `ps2pdf` to get the PostScript and PDF print quality files. Added to that I have also compiled and run my own X app and it worked first time.

One thing though: `xdvi` is not on the Mandrake distro, so you have to get it yourself. I used the `tetex-xdvi-0.9-17` "rpm" which, I think, came off the LXF (`www.linuxformat.co.uk`) May 2000 cover disk (Definite Linux 7.0). It works fine.

3 What's here?

This is a (tidied up) log of my experience with the Advent 6418 laptop. I purchased it from Dixon's in Ealing Broadway—that's important if you live in the area, I'll tell you why in a minute. As an aside: it seems that "Advent" is the brand name used by Dixon's and PC World to sell this machine in the UK. I have seen similar machines in Germany, but not under the "Advent" name.

I decided I needed a laptop and, at £800, this one is a pretty good bargain. Its basic spec' is: 20Gb HDD, 256MB Ram and a 1GHz Celeron. It also came with Windows XP ("X"treme "P"rice?) which I won't use much, but at least it's modern. My biggest worry was "will it run linux?", and here I have to thank all those who put entries on the *linux on latops site*: `www.cs.utexas.edu/users/kharker/linux-laptop`. *Always* check this site if you are going to buy a laptop for linux—unless you are really sure of the right product. For example, the entries for earlier Advents warned me that I would have problems with X (the dreaded SiS 630 chipset), but they looked like they were sorted so I bought it anyway.

Since the purchase I have had the need to look at many, many, web sites dedicated to the "Advent", and one person referred to them as "shitboxes" — due to the difficulties in getting Linux up and running. That's a little harsh I think. The two main problems that I have encountered (X and the `Fn` key) seem also to be relevant to IBMs and Sonys. Anyway, you should know that not everyone likes this machine as much as I do.

4 Acknowledgements

These are important—the whole GNU/Linux project depends on people cooperating. And when you're up against the might of the Micro$oft corporation's domination of the major com-

puter manufacturers and high street retailers, cooperation with linux queries is a pleasant experience. So these are the important thanks:

K. Harker, for the linux-laptop site, and all the contributors. Also, to everyone else who have put their thoughts, suggestions and experiences online.

SuSE for producing LiveEVAL CD: what a great idea!

Staff at Dixon's in Ealing Broadway and Uxbridge were tremendously helpful. They let me boot with SuSE LiveEVAL several times, go through the install just to see X "crash", go away to think, and come back and do it again. PC World at Brentford, on the other hand, were dreadful: no testing, no fiddling, and crap technical advice. Don't go there!

Also, staff at Tiny Computers in Ealing Broadway, and at Time Machines in Southall (located in the "Powerhouse" store), were as helpful as those in Dixons. (However, SuSE LiveEVAL 7.3 didn't recognise the Tiny laptop's trackpad, while the Time laptop didn't have a DVD upgrade—everything else was fine though, provided you choose *Z axiz* as the monitor type.)

5 Overview

The following sections detail how I got the laptop configured to a point where I could use XP and linux. How I got a working Linux. And, what bugs still remain. I started with Mandrake 7.1 but have now moved on to SuSE 7.3. Therefore, the first few sections are for Mandrake—SuSE comes later in Section 11.

6 The pre-install nightmare

Micro$oft's latest wheeze is to not bundle the installation disks for their dreadful product with a new machine. Instead you get a "recovery disk". This is simply a ghost image of the entire factory-set hard drive which merely dumps everything back exactly as it was when you bought the machine. Why is this a problem? Well, for some outrageously stupid reason, the Advent comes with a 20Gb C drive. . . and no others. There are no redundant partitions that you can simply delete to make room for linux—there's no free space at all!

Anyway, things are not as bad as they seem, and here the staff on the end of the Advent *national rate* helpline helped. It was a simple solution but, at least for me, far from obvious. The machine comes with no documentation on how the recovery disk works but a few hints from a person whose name I didn't write down were enough to get it sorted out. (By the way, the 75p per minute helpline was pretty hopeless: I assumed that for the extra money I'd be getting more expertise. Silly me. . . .)

So, what you do is this. Take a deep breath because you are about to wipe out that factory set XP installation with the recovery CD. Are you sure you want to do this? OK. Boot from Disc 1 of the recovery pair. Once the program gets going hit `CNTRL-C` and type `Y` to "terminate the batch job". You should have a standard DOS prompt and you have to find the drive corresponding to the CDROM (or DVD) drive. Try either `cd D:` or `cd E:`, typing `DIR` each time. You are looking for a listing of the files on the recovery disc. These should be `recover.exe` and something else, which I can't quite rememeber, but which ends in the `.GHO` suffix. The first of these is the recovery program and the second is the ghost image. Once you have found them type "`recover`", hit return, and an interactive version of the recovery program starts up. First thing is to choose to recover `disk -> from image` from the flyout menu and then proceed *very slowly* until you come to a table showing how big the disk and original image size is. The important bit is around half way along: there is a box showing what size disk to recover to. Navigate to it with the `TAB` key and wipe out what is there. Now choose the size you want your windows partition to be and type it in. I chose 5000, for 5GB, which it adjusted to 5004 for me. Now let the program do its stuff—and be ready when it asks for disk 2.

When recovery is complete (10-15 minutes) you'll get asked to "Continue" or, as the default, "Reset Computer". Don't choose the last one—it just locks the machine. Instead `TAB` to "Continue" and then choose "Quit" from the menu that appears.

That's it! you now have Windows XP on a 5GB partition, and can use the rest for Linux. So, how to do that? Read on.

7 Installing Mandrake 7.2

This is the cover disk from LXF 9. I tried many others but they all fell over on getting the screen working properly. Anyway, even if you don't have this, there may still be some stuff here that you find useful. You'll need two floppys.

Boot from the disk and choose "workstation" type of installation in "expert" mode. When you get to the bit about partitioning the drive select "wizard" and take the "use free space" option. This means that your freshly resized 5GB Windows XP partition will be left alone. When it comes to package selection I removed the check from the "individual package selection" option and elected to install everything. With everything else I just said OK to the defaults it gave me except that I didn't install lilo but instead created a boot disk. (If you install lilo at this point then you'll not automatically get an XP option at boot time. See below for more on this.)

Now, eventually you'll get to the monitor configuration screen. I tried many things here but continually got a "invalid depth" error (or something similar). The worst thing is that the installer appears to be in an infinite loop. I just got out by typing `CNTRL-ALT-BACKSPACE` to destroy the screen (although I did take the time to create the "replication" floppy that it offered to make for me, even though I have no idea what it is for, and have never had occasion to use it). Now insert the boot floppy and reboot, but stay alert.

As soon as you get the lilo prompt hit a key to stop the countdown. Now, at the prompt type:

```
linux apm=off vga=791
```

The first parameter turns off the automatic power management and the second solves the SiS630 Chipset problem! Beware of Mandrake's web site though. Somewhere there it says type `vga=761`, but this is an invalid mode.

Now, log in as root and start `Xconfigurator`. I got the preselected "Generic" monitor. Clicking "No" results in the machine hanging. Anyway, I selected:

```
Generic: High Frequency SVGA, 1024X768 16bpp at 70Hz.
```

However, when I clicked "Yes" the machine seemed to hang. After a short wile I collapsed the display with `CNTRL-ALT-BACKSPACE` and then rebooted (with the floppy). Don't forget the `apm` and `vga` parameters at the lilo prompt though. When you get to the text login prompt just sit tight and wait. A graphical login appears and you get straight into KDE.

So, now you have an X-enabled linux installation, how can you get rid of that boot floppy?

8 Dual booting Linux and XP

For this take the `lilo.conf` in `/mnt/floppy/etc` (i.e. on the boot disk) and, as root, copy it to `/etc/lilo.conf` on the hard drive. Make sure you don't inadvertantly change the permissions. Now, add the `vga` and `apm` parameters to the linux stanzas.

To get a lilo boot option for XP you need an "other" stanza. I used,

```
other=/dev/hda1
        table=/dev/hda
        label=XP
```

and for this much gratitude to the authors of the excellent *Running Linux*, [1]. Now you run lilo with

```
lilo
```

If copying files, checking permissions and *running lilo* makes you nervous then I believe the following also works.

Reboot with the LXF Mandrake CD and request an "upgrade". Don't mess with anything but do elect to install lilo. You'll now get a default `/etc/lilo.conf` but you'll still have to edit it and run lilo again.

For reference, here is how my `/etc/lilo.conf` turned out:

```
boot=/dev/hda
map=/boot/map
install=/boot/boot.b
vga=normal
default=linux
keytable=/boot/uk.klt
lba32
prompt
timeout=30
message=/boot/message
menu-scheme=wb:bw:wb:bw
image=/boot/vmlinuz
        label=linux
        root=/dev/hda5
        read-only
        vga=791
        append=" apm=off"
other=/dev/hda1
        table=/dev/hda
        label=XP
image=/boot/vmlinuz
        label=failsafe (passed to lilo)
        root=/dev/hda5
```

```
        append=" apm=off failsafe"
        read-only
        vga=791
other=/dev/fd0
        label=floppy
        unsafe
```

You should note that the simple solution where `apm=off` appears in each of the linux stanzas doesn't work. Also, you should note that `vga=791` isn't in the floppy stanza—that doesn't work either. So, and this is important, if you boot from floppy then hang around to type `linux vga=791`. Otherwise you'll get screen panic and, possibly, a broken machine.

WARNING: don't try SuSE LiveEval on a machine with Linux partitions and/or XP (i.e. NTFS). I am not sure which causes the trouble but IT WILL **** YOU UP! Whatever I did (e.g. "`vga=ask`" or "`vga=791`" at the boot screen) I got screen panic—bad enough to scare me. I think, but don't know for sure, that SuSE either can't see the NTFS partition or can see it but prefers the Linux partition. Whatever: it can't manage.

9 Annoyances

This is a list of things that either don't work properly, or do work properly but are just plain annoying.

- If you set `apm=off` then KDE doesn't give you a battery monitor and you can't tell how much power you've got left. If you leave `apm` on then KDE shuts down about every two minutes—regardless of whether or not you are doing anything.
- The Advent seems to have an auto-select built into the trackpad. It tries to guess when you are going to press the left mouse button. It means that unless you have a sharp eye you can end up selecting things that you don't want. A great way to screw up a configuration! I've tried the only BIOS option that seems relevant, in an effort to turn this "feature" off, but it didn't do the job.
- Audio doesn't work.
- The brightness and contrast controls through the `Fn` key do not work. Not sure about the volume control (see above), but the "dual-display" toggle (i.e. `Fn-F4`) does appear to work—although I haven't actually plugged a beamer in to really check that the output exists.

10 Extra notes

These may or may not be of much interest.

- To mount the XP partition do, as root,

  ```
  mount -t ntfs /dev/hda1 /mnt/disk
  ```

- To access a parallel port disk drive do, as root,

```
insmod parport (may not be needed if a printer is plugged in at boot time)
insmod imm
mount -t vfat /dev/sda4 /mnt/disk
```

- To create an `ext2` partition on a 250MB zip disk do,

  ```
  mkfs -t ext2 /dev/sda4 240000
  ```

  With an appropriate entry in `/etc/fstab` you can then mount the zip drive and make an update to a directory backup, preserving file attributes, with the following sequence

  ```
  mount /dev/disk
  cd /dev/disk
  rm lost+found
  chmod a+rwx .
  cd dir
  cp -vpru . /mnt/disk
  umount /mnt/disk
  ```

  Be a little careful when copying back to `dir`. You don't want stuff like `..`, nor stuff like `.mailbox`, or `.netscape`, or anything else that might be used differently.

  To copy back do:

  ```
  cd
  cp -vpru /mnt/disk/* .
  (filter out unwanted files manually)
  ```

  Be careful though—this doesn't copy the `.*` files! If you issue the command again but using `/mnt/disk/.*` then you'll get `..` ! (You don't want that.)

- I like `dvips` to write its output to a file so I change the (usually) default configuration. As root go to the file `/usr/share/texmf/dvips/config/config.ps` (which, confusingly enough, is not a PostScript file) and comment out (with `%`) the line

  ```
  o | lpr
  ```

  I also changed the line

  ```
  O 0pt,0pt
  ```

  to read

  ```
  O 0pt,1.75cm
  ```

  but this is not essential. On the other hand, changing it to

  ```
  O 3mm,5mm
  ```

  gets close to `pdflatex` settings.

11 SuSE 7.3 Professional

With all these lessons learnt it's time to install SuSE 7.3 (Professional). This means wiping out the Mandrake installation (but we'll keep the XP). (Note: kernel = 2.4.10-4GB.)

To start with get a fresh DOS disk ready (for a boot disk) and then fire up with the installation DVD. At the boot screen give the option `vga=791 apm=off` to linux and then hit return. You'll get a load of boot text and then sometime during it saying `"searching for a braille display"` the screen will go blank for around a minute. It's no problem, after this YaST2 starts up and the installation begins. First you'll have to set the language and time zone and next come the disk partitions...

You can accept the default here or do your own thing. I did the latter and requested the partition table:

```
Win XP     /dev/hda1  NTFS          4.9GB    (     0,   637)
/boot      /dev/hda5  ext2         23.5MB    (   638,   640)
swap       /dev/hda6                1.0GB    (   641,   771)
/          /dev/hda7  ReiserFS      9.0GB    (   772,  1946)
/home      /dev/hda8  ReiserFS      3.7GB    ( 1947,  2431)
```

Note that: the disk spans `(0,2431)`; the XP partition should remain untouched; and, all the linux partitions are in a single extended partition. I used `ext2` for `/boot` because the `lilo` manual page alerted me to a potential bug involving mixing `lilo` and Reiser FS. (In fact, the installation appears to be using Resiser FS v3.6.25 which, with the version of lilo, would suggest that the bug has been fixed in SuSE 7.3. Anyway, what's done is done.)

Next I selected to install all packages: this takes about 2 hours (and 2 minutes!) and went like a dream. Now comes a problem.

After package installation I should have got the option to configure the monitor, but instead the machine went dead. Luckily, I had a boot floppy (and you should make one too) and so switched off and used it (and ejected the DVD). After booting, YaST2 resumes right where it left off—great!—and then hung again.... I don't think it's that serious: boot again but this time pass `apm=off` to the kernel. This works fine and you can now configure the monitor. I think the problem arose due to the power saving kicking in, and there is no way (that I could find) to wake the machine up. On reflection it would probably have been better to start the whole install process with `vga=791 apm=off`, and that's what I suggest you do. (`apm` doesn't work well under linux anyway—as far as I can see.)

For the monitor I chose `LCD` and

```
1024x768@70Hz (horiz: 31 - 65 kHz; vert: 58 - 78 Hz)
```

(3D acceleration is switched off by SuSE). After configuring the sound card (a breeze) I finished the installation and rebooted from the floppy.

The modem isn't recognised and so it's a little difficult to register at `support.suse.de/en/register` as it asks (that's why we kept XP...) but otherwise you are now up and running.

To get rid of need for the boot disk log in as root and in

```
Control Centre : YaSt2 modules : System : bootloader configuration
Control Centre : YaSt2 modules : System : configure boot mode
```

install LILO in the MBR (I also took the time to create the "other" stanza to boot XP). This didn't work like the dream I wanted it to be and I wound up editing /etc/lilo.conf by hand and running lilo (as explained earlier for Mandrake). My (final) /etc/lilo.conf file is given a little later.

Last big thing: as root run SaX2 in order to get the three-button mouse emulation working.

That's it! You now have SuSE 7.3 up and running, albeit not perfectly. The next section details some of the problems that remain.

12 SuSE 7.3 annoyances

These are in place of, not in addition to, the Mandrake annoyances listed earlier.

- This is BAD: the Fn key seems to hang the machine—regardless of window manager. This means that none of: volume; brightness; dual-display; etc. are available.
- Audio seems fine in terms of desktop beeps etc. but audio CDs don't play. Well, they do, but no sound comes out!
- To start with I couldn't get the apm to work at all well, but after a lot of trial, effort and reading it now seems OK. This has a section to itself below in Section 15.
- Although it is possible to mount the XP NTFS partition from linux it turns out to be "read only". If you share files between XP and Linux this is very inconvenient. I'd suggest you reduce the XP partition and make a D: partition as FAT *before* going through the install. This way you can have a shared "read write" file system. A word of warning though: don't use *Partition Magic* after the installation. Did you get that? **Don't use *Partition Magic* after the installation.** Why? Well, it is natural to shrink the C: drive and use the extra space for a D: drive (which is actually an E: drive! Honestly!), which PM puts into the extended partition. This is no good. The /boot partition is lost because (I think) it is no longer the first logical partition. The obvious thing to do is delete E:, move /boot to the front of the extended partition, and then recreate the E: drive after /boot. "Obvious", did I say? Well, maybe, but it's Wrong! *Wrong!* ***Wrong!*** I had an awful time with this and ended up—in pure frustration—installing SuSE again (keeping the /home partition intact). Bottom line? If you want to share files then create a FAT partition during the install process, not afterward.

  For the record, after the installation I ended up with the following partition table (issue the fdisk command as root):

```
linux:~ # fdisk -l /dev/hda

Disk /dev/hda: 255 heads, 63 sectors, 2432 cylinders
Units = cylinders of 16065 * 512 bytes

   Device Boot    Start       End    Blocks   Id  System
/dev/hda1   *         1       510   4096543+   7  HPFS/NTFS
/dev/hda2           511      2432  15438465    f  Win95 Ext'd (LBA)
/dev/hda5           642       772   1052226   82  Linux swap
/dev/hda6           773      1947   9438156   83  Linux
```

```
/dev/hda7            1948      2432   3895731   83  Linux
/dev/hda8             511       513     24066   83  Linux
/dev/hda9             514       641   1028128+   b  Win95 FAT32

Partition table entries are not in disk order
```

- After exiting KDE and getting back to the login manager the mouse is sometimes dead. You can sometimes tab around the menus, or hit CNTRL-ALT-DEL, which restarts, or even CNTRL-ALT-BACKSPACE. However, sometimes the machine just hangs and you have to switch off. (This is a persuasive reason not to use `ext2`—you'll spend a lot of time running `fsck`!)
- Related to this: as I am writing it occurs to me that I haven't tried switching to a virtual console with, say, CNTRL-ALT-F2. If this works then you could issue `shutdown` (as root) and exit gracefully…

The first of these is my priority, and I have made a little progress. First, Mandrake did accept the dual display toggle (`Fn-F4`), and so I knew there was a solution. I didn't know what it was, but it was worth a look.

I noticed that the SuSE installer passed `enableapic` to the kernel through an "`append`" in `/etc/lilo.conf`, and Mandrake hadn't done this. So I did a search on `www.google.com` to see what this parameter does. Now, I am not sure that I have this right, but it seems that `apic` messes around at a low level with the BIOS calls. And, it seems, the `Fn` key sequences are processed by the BIOS. . . .

Next, I went back to `google` and searched for "`Fn key`", and ended up reading a lot of documents. I didn't find anything definitive, but the general sense was that turning `apic` off can solve problems.

So, I passed `disableapic` to the kernel instead and things started to work a lot better—but not perfectly.

First, under KDE the volume controls (`Fn-F5` and `Fn-F6`) work and so does the dual-display (`Fn-F4`). However, the speakers emit, sprodically, an unsettling high-pitched "squeaking" sound. It doesn't sound like any of the KDE sounds in `/opt/KDE2/share/sounds` and I am not at all comfortable with it. This doesn't seem to happen with Gnome.

UPDATE: there is more to this. Similar sounds are also emitted when `apm` is enabled at boot (i.e. `enableapic` is retained).

I also experimented with `apm`, but cannot get it to work properly. My `/etc/lilo.conf` is included below. You can see how many boot stanzas I have: each one has a different combination of `apic` on/off and `apm` on/off (Note: this is `/etc/lilo.conf` *after* the re-install mentioned above in connection with *Partition Magic*).

```
boot = /dev/hda
vga = 791
read-only
menu-scheme = Wg:kw:Wg:Wg
lba32
prompt
timeout = 100
message = /boot/message
```

```
image  = /boot/vmlinuz
label  = linux
root   = /dev/hda6
initrd = /boot/initrd
append = "enableapic vga=791 apm=off "
vga    = 791

image  = /boot/vmlinuz
label  = linux-apm
root   = /dev/hda6
initrd = /boot/initrd
append = "enableapic vga=791 "
vga    = 791

image  = /boot/vmlinuz
label  = linux-apm-crt
root   = /dev/hda6
initrd = /boot/initrd
append = "disableapic vga=791 "
vga    = 791

image  = /boot/vmlinuz
label  = linux-crt
root   = /dev/hda6
initrd = /boot/initrd
append = "disableapic vga=791 apm=off "
vga    = 791

other = /dev/hda1
table = /dev/hda
label = XP

image = /boot/vmlinuz.suse
label = failsafe
root = /dev/hda6
initrd = /boot/initrd.suse
append = "disableapic ide=nodma vga=791 apm=off"
optional

image = /boot/memtest.bin
label = memtest86
```

Notice that "`vga=...`" appears many times. These are as a result of trial and error and I recommend that you don't assume that *any* are redundant unless you have thoroughly tested. Why? Well, the only stanza in the above that seems robust is the one labelled "`linux`". For the others the screen sometimes goes into a panic, and sometimes doesn't: it seems random. Also, it can happen a while after you have booted, and even when you have started work. So, if you want to use the other stanzas then never go more that an arm's length from the screen, and never take your eye off it! (At least until some significant time has passed.)[1]

I have no idea how to fix the occasional machine freeze after exiting KDE. Maybe change the display manager, `kdm`, to `gdm` or `xdm`?

I am going to persevere with this and will update this document when I have some more answers. In the meantime, if anyone reading this can help please email me at `simon.shaw@brunel.ac.uk`.

Thanks, and Good Luck!

13 Additional notes

These may or may not be of interest.

Video RAM. KDE seemed a bit "slow" and I wondered if it was due to video RAM not being used effectiviely. This is what I did to try and fix it.

In the BIOS, change the shared memory to 32MB (it was 8MB for me). Now login and run SaX2 (using detected settings). In the "Graphics Device Setup" window select "properties" under the "Expert" tab and set memory to 32M (it was set at "auto" for me). Test the configuration, exit and reboot.

If you'd rather not do this then you'll pleased to hear that it made no perceptible difference! KDE is, I think, a little hungry. Windowmaker runs much faster—but you don't get all the frills!

Installing Prosper. Download `prosper-1.00.4.tar.gz` and `PPRblends.sty` from the `Prosper` web site at `prosper.sourceforge.net` then, as root, extract the files with `tar xvzf` in `/usr/share/texmf/tex/latex/misc` to get a "`prosper`" directory. Move `PPRblends.sty` into this directory and make sure everything is readable by all users.

Next, still as root, `cd` to `/var/lib/texmf/db/` and observe that there is an `ls-R` database file. This needs to be updated: just issue the command `mktexlsr` and everything is installed and ready for use.

Just one annoyance: my slides are shifted to left a little too far. To fix this just run `dvips` with a shift, such as:

```
dvips -O0cm,-1cm prosper-tour.dvi
```

Experiment to get the right value.

fundus:

```
get fundus from CTAN and callig15.mf and calligra.mf

as root:

in /usr/share/texmf/fonts/source
mkdir calligra (drwxr_xr_x)
put callig15.mf and calligra.mf here ("a+r")
```

[1] It seems that this is not a problem after all—it seems to have fixed itself!

```
then run "mf" with
\mode=ljfour; input callig15.mf
to get callig15.log, callig15.600gf and callig15.tfm
delete the first and
mkdir /usr/share/texmf/fonts/tfm/calligra
and put callig15.tfm in here (a+r)

In /usr/share/texmf/tex/latex/misc
mkdir calligra (go-x), and put in calligra.dtx and calligra.ins (a+r)
run "latex calligra.ins"
run "latex calligra.dtx"
remove the .aux and .log files

then run mktexlsr

Do this for
calligra
la - need fonts
outline - need fonts
pvscript - need fonts
startrek - need fonts
suetterl - need fonts
twcal - need fonts
va - need fonts

Also, get calrsfs from CTAN and tar xvzf it. Follow the read me:
put calrsfs into /usr/share/texmf/tex/latex/misc
and run mktexlsr
```

Some nice (fun) stuff

- `xpenguins` and `xsnow` (but run them in a *simple* window manager).
- `catdoc` and `word2x` (M$ Word interpreters).
- `felix` (computer algebra) and `octave` (matlab-like environment).
- `cmatrix`...
- `Eterm --trans -x --geometry 80x25-0-0` gives you a transparent, borderless, terminal. Create your own configuration file if you want to cut down on typing the options: it should be `~/.Eterm/user.cfg`. Here is mine, as an example:

  ```
  <Eterm-0.9>
  # Written by Simon Shaw, 5 April 2002, and fashioned from:
  # /usr/X11R6/share/Eterm/themes/auto/theme.cfg
  begin main
  begin imageclasses
  begin image
      type background
      state normal
      mode trans allow image trans viewport auto
  ```

```
    border 0 0 0 0
end image
end imageclasses
begin toggles
    borderless true
end toggles
end main
```

14 Sound troubles

For unknown reasons my sound went dead. To fix it (search in the SuSE help center under "sound") I ran, as root, `alsaconf` after `rcalsasound stop`. This seemed to do it...but it's still unstable.... Once it's working (even if it's not?) the command line `amixer set Master 70% unmute` seems to control the volume. Another example is: `amixer set CD 70% unmute`

15 Configuring APM

To start with this didn't work well. In particular, the Fn-F1 "suspend" key didn't function (even if booted with the right options), and nor did closing the lid throw the machine into suspend. It now seems to be OK. First, some background.

According to the laptop manual, "suspend" switches off only a few devices and is not particularly energy conserving unless it is enabled as "save to disk". This facility is, apparently, not supported by the linux kernel.

On the other hand, `man apmd` and `man apm` give the following:

`apm -s` should bring the laptop to "suspend" mode which shuts power to everything except the CPU and memory;

`apm -S` should bring the laptop to the less aggressive "standby" mode which shuts power to fewer components (e.g. the screen);

However, after installation, I was left with the following state of affairs:

- You have to be root to use `apm`. This is easily fixed by issuing the following commands as root (ref. KDE Help Center):

  ```
  cd /usr/bin ; chown root apm ; chmod +s apm
  ```

  Now any user can invoke `apm`. (Be sure that you want this.)

- The Fn-F1 (suspend) key combination didn't work, nor did closing the lid, nor did a quick tap on the power button. (They should all have the same effect.)

- `apm -S` (standby) worked fine but `apm -s` (suspend) gave an "I/O error". Of course, it's "suspend" that we really want.

To try and fix these I spent a lot of time trawling through the manual pages and SuSE docs... and got nowhere. It turns out that it's not linux's fault at all—it's the BIOS! It had "suspend" disabled.

To fix this reboot and enter the BIOS. Select "Power Management Setup" from the main menu and then:

- Change the "Power Management" item to "Enabled".
- Change the "Suspend Mode" item from "disabled" to "POS (S1)".

Save and quit, boot linux again and Hey Presto! Both of `apm -S` and `apm -s` work, as do Fn-F1, closing the lid, and tapping the power switch!

However, it doesn't give the possibility of never needing to turn the laptop off (see the SuSE 7.3 Reference Manual, page 192). As an experiment, with KDE, konqueror, a terminal and a text editor running—but no "jobs", Fn-F1 uses about 20% of the battery power in about an hour. It makes no difference whether the hard disk spindown (in the BIOS) is set to "1 minute" or (the default) "disable". Also, the fan stays on throughout. Also, the same behaviour is evident with `apm -s` and `apm -S` and, it seems, the machine treats "suspend" and "standby" in exactly the same way.

As an aside, if the laptop keeps going into standby when you are trying to use it (a common problem), Fn-F1 seems to cure it...

References

[1] Matt Welsh, Matthias Kalle Dalheimer, and Lar Kaufman. *Running Linux*. O'Reilly, third edition, 1999.