

Wonderful World of Mactel Debian TLUG

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Who am I?

- Junichi Uekawa 上川 純一

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- Debian Developer

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- Junichi Uekawa 上川 純一
- Debian Developer
- Bought MacBook at end of June 2006

What's new in Debian on MacBook

- New architecture
Boots with EFI
Want to play with machine with weird architecture
- Everything is connected via USB, including built-in keyboard, mouse, iSight, IR-remote.
- Intel Core Duo: dual-core CPU

EFI: a Good News

	BIOS	EFI
Partition	MBR: 4 (basic)	GPT: 128
Filesystem	Mystery	Reads FAT
Execution format	What?	PE32+

EFI: command-line

Allows use of MS-DOS-like command-line

You can enter commands even before boot-loader starts!

```
EFI> fs0:
```

```
EFI fs0:> cd EFI
```

```
EFI fs0:\EFI> cd dancer
```

```
EFI fs0:\EFI\dancer> cd refit
```

```
EFI fs0:\EFI\dancer\refit> dir
```

```
refit.efi
```

```
EFI fs0:\EFI\debian\refit> refit
```

dual-booting Mac OS X and Debian

- Buy MacBook
- Process partition from Mac OS X
- Install rEFIt
- Install Debian
- Configuration

Buy MacBook

- Click!

Process partition from Mac OS X

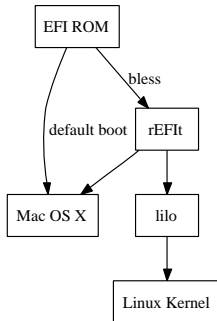
- Online resize possible with recent Mac OS X

```
Mac OS X# sudo diskutil resizevolume disk0s2 20G
```

Install rEFIt

- run bless on Mac OS X, make rEFIt at boot
- When downloading binary from <http://refit.sourceforge.net/>
 - Extract files to /efi, or somewhere
 - Run ./enable.sh (It will run bless for you)
- When using Debian refit package
 - copy /usr/lib/refit/ to Mac OS X partition
 - `sudo bless --folder [full path to directory with refit.efi] --file [full path to refit.efi]`
- rEFIt screen will show after a reboot

Boot sequence



Install Debian

- etch after July 2006 will probably work
Install partition must be partition 3 or 4.
- Boot loader is lilo, but it won't work
- parted will create GPT table, but destroy MBR.
move to command-console with Alt-F2
synchronise with gptsync command
return with Alt-F1
- Install lilo to partition
- Linux is now selectable from rEFIt after reboot

MBR vs GPT

Shows up differently even on same disk

MBR

Disk /dev/sda: 80.0 GB, 80026361856 bytes

255 heads, 63 sectors/track, 9729 cylinders

Units = cylinders of 16065 * 512 = 8225280 bytes

Device Boot Start End Blocks Id System

/dev/sda1 1 26 204819+ ee EFI GPT

/dev/sda2 26 2637 20971520 af Unknown

/dev/sda3 * 2637 2758 976563 ef EFI (FAT-12/16/32)

/dev/sda4 2758 5190 19531250+ ef EFI (FAT-12/16/32)

GPT

major minor #blocks
name

8 0 78150744 sda

8 1 204800 sda1

8 2 20971520 sda2

8 3 976563 sda3

8 4 19531250 sda4

8 5 2929688 sda5

X configuration

- `i810`
- use `915resolution` to set to 1280x800
- `xkbset m` will help with lack of right/middle mouse buttons

kernel configuration

- Older kernels before 2.6.17 seems to panic 4/5 times.
- rtc.ko seems to be broken, use rtc-dev.ko
- `sound:snd_hda_intel`
- NW: sky2
wifi: madwifi
- CPU frequency can be controlled with `cpufreq_centrino`;
`apt-get install cpufreqd`

madwifi

- `sudo apt-get install madwifi-source madwifi-tools madwifi-doc`
- `sudo m-a prepare`
- `sudo m-a a-i madwifi`
- `sudo modprobe ath_pci`

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- sometimes seems to hang at boot; stability is not too good.

linux-uvc

- `sudo apt-get install linux-uvc-source
linux-uvc-tools`
- `sudo m-a prepare`
- `sudo m-a a-i linux-uvc`
- `sudo macbook-isight-firmware-loader
/mnt/mac/System/Library/Extensions/IOUSBFamily.kext/Contents/Resources/
AppleUSBVideoSupport.kext/Contents/MacOS/AppleUSBVideoSupport.kext`
- `sudo modprobe uvcvideo`
- `sudo apt-get install ekiga libpt-plugins-v4l2`

Patches I made for this presentation

Using Debian enough for preparing for presentations.

- 377198: module-assistant: kernel modules cannot be built for 2.6.18-rc1

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- IR receiver hack: do presentation with IR remote.

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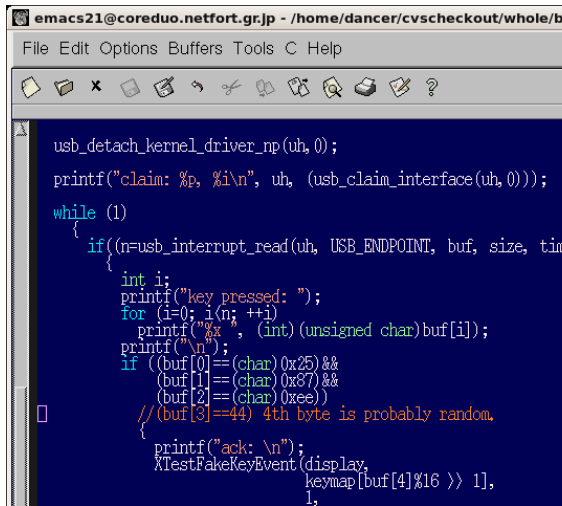
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USB device

- IR remote
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- libusb and libXtst
3-minute hacking

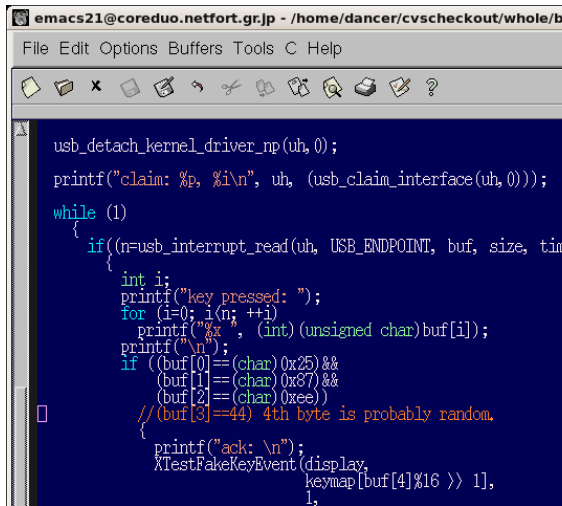


```
emacs21@coreduo.netfort.gr.jp - /home/dancer/cvsccheckout/whole/b
File Edit Options Buffers Tools C Help

usb_detach_kernel_driver_np(uh, 0);
printf("claim: %p, %i\n", uh, (usb_claim_interface(uh, 0)));
while (1)
{
    if((n=usb_interrupt_read(uh, USB_ENDPOINT, buf, size, tim
    {
        int i;
        printf("key pressed: ");
        for (i=0; i<n; ++i)
            printf("%x ", (int)(unsigned char)buf[i]);
        printf("\n");
        if ((buf[0]==(char)0x25)&&
            (buf[1]==(char)0x87)&&
            (buf[2]==(char)0xee))
            //(buf[3]==44) 4th byte is probably random
        {
            printf("ack: \n");
            %TestFakeKeyEvent(display,
                            keymap[buf[4]%16 >> 1],
                            1,
```

USB device

- IR remote
- USB HID device
- libusb and libXtst
3-minute hacking
- There is already a
kernel driver, you
could do all this with
xmodmap.



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What next?

Devices that I haven't touched yet

- suspend/sleep
- CD-R writing
- backlight control
- bluetooth
- other yet unknown features ..