Wonderful World of Mactel Debian

Technical Meeting, Tokyo Linux Users Group

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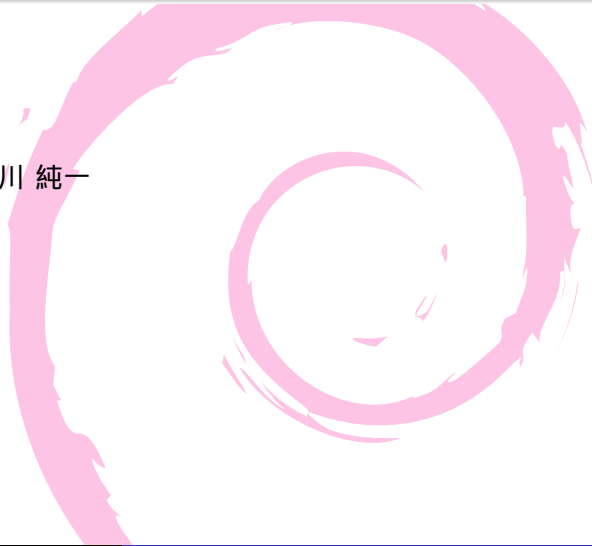
29 July 2006

Intro
Why Debian on Macbook
Installing Debian on Macbook
Other goals

Agenda
Who am I?

Agenda

- Who am I?
- Why Debian on MacBook?
- Installing Debian on MacBook: Debian + Mac OS X dual-boot setup
- Current problems and future directions

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Who am I?

Who am I?

- Junichi Uekawa

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- Junichi Uekawa
- Jan 2000, became Debian Developer

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- Jan 2000, became Debian Developer
- June 2006, bought MacBook

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Who am I?

- Junichi Uekawa
- Jan 2000, became Debian Developer
- June 2006, bought MacBook
- July 2006, installed Debian on MacBook

What's new in Debian on MacBook

- New architecture
  Boots with EFI
  Want to play with machine with
  new 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
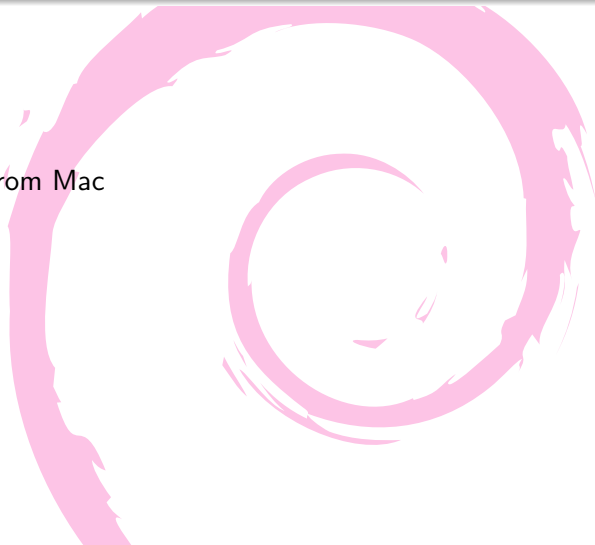EFI fs0:\EFI> cd dancer
EFI fs0:\EFI\dancer> cd refit
EFI fs0:\EFI\dancer\refit> dir
refit.efi
EFI fs0:\EFI\debian\refit> refit

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

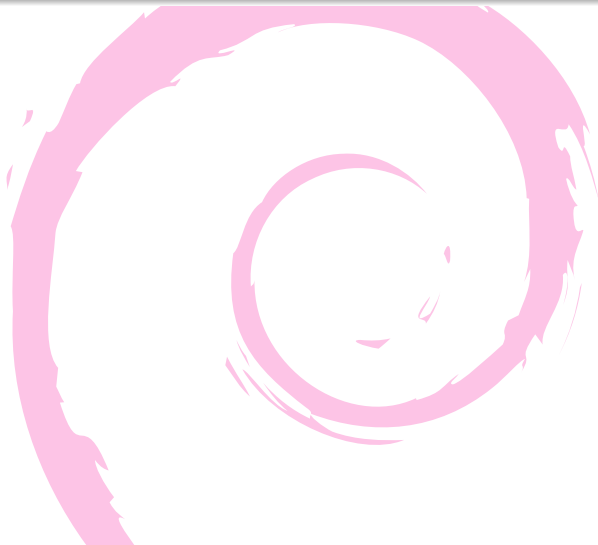# dual-booting Mac OS X and Debian

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

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Buy MacBook

- Click!

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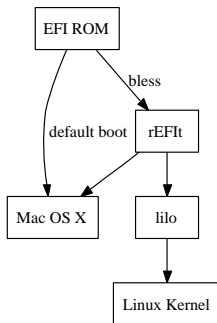Install Debian
Configuration

Process partition from Mac OS X

- Online resize possible with recent Mac OS X
  ```
  Mac OS X♯ sudo diskutil resizevolume disk0s2 20G
  ```

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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

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Boot sequence

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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

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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

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X configuration

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

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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 speedstep_centrino;
  apt-get install cpufreqd

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

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linux-uvc

- `sudo apt-get install linux-uvc-source linux-uvc-tools`
- `sudo m-a prepare`
- `sudo m-a a-i linux-uvc`
- `sudo mount /dev/sda2 /mnt/mac`
- `sudo macbook-isight-firmware-loader /mnt/mac/System/Library/Extensions/IOUSBFamily.kext/ Contents/PlugIns/AppleUSBVideoSupport.kext/ Contents/MacOS/AppleUSBVideoSupport`
- `sudo modprobe uvcvideo`
- `sudo apt-get install ekiga libpt-plugins-v4l2`

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linux-uvc

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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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- 375999: Debian refit package

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- 379239: linux-uvc package

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- 379239: linux-uvc package
- 379867: gstreamer v4l2 support

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IR Remote

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IR Remote

- IR remote
- USB HID device

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IR Remote

- IR remote
- USB HID device
- libusb and libXtst
  3-minute hacking


```
emacs21@coreduo.netfort.gr.jp - /home/dancer/cvscheckout/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");
            XTestFakeKeyEvent(display,
                              keymap[buf[4]%16 >> 1],
                              1,
```

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IR Remote

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


```
emacs21@coreduo.netfort.gr.jp - /home/dancer/cvscheckout/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)));

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    for (i=0; i<n; ++i)
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What next?

Devices that I haven't touched yet

- suspend/sleep: kernel patch floating around, ACPI sleep should be possible.
- CD-R writing (libata-PATA support required?)
- backlight control
- bluetooth
- other yet unknown features ..

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Wrap up

- Explained how to install Debian on MacBook

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- Explained how to install Debian on MacBook
- Current status on Debian on MacBook and future directions

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Wrap up

- Explained how to install Debian on MacBook
- Current status on Debian on MacBook and future directions
- Debian on MacBook is a reality, happy installing!