

Wonderful World of Mactel Debian

Technical Meeting, Tokyo Linux Users Group

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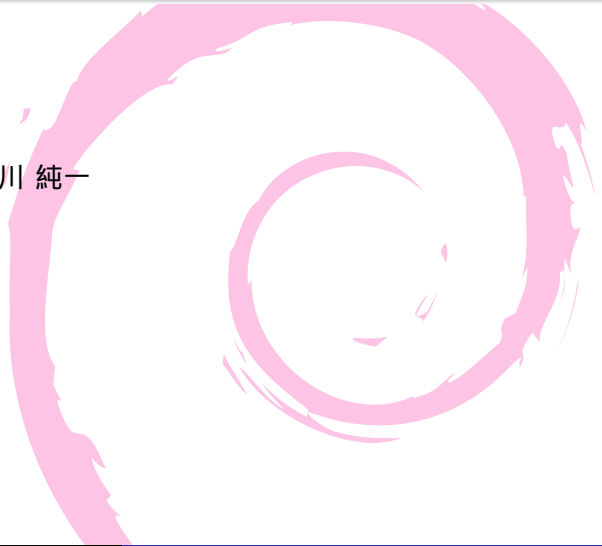
29 July 2006

Agenda

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

Who am I?

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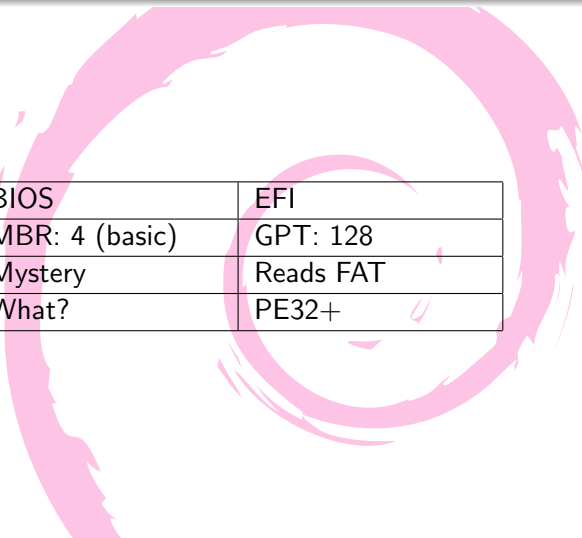
- Junichi Uekawa 上川 純一
- Jan 2000, became Debian Developer
- June 2006, bought MacBook
- July 2006, installed Debian on MacBook

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
```

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

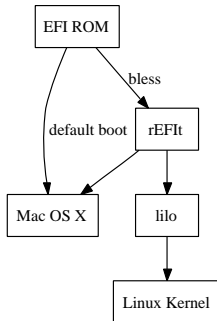
- Online resize possible with recent Mac OS X

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

linux-uvc



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

IR Remote



IR Remote

- IR remote
- USB HID device



IR Remote

- IR remote
- USB HID device
- 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,
```

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.



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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 ..

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

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!