

Presentation: **eComStation is ready for
modern notebooks and desktops**

Speaker: **Eugene Gorbunoff**



Live presentation -- ASUS A6Ja notebook

- Core Duo, 1.66 GHz (T2300)
- ATI Radeon Mobility X1600, Monitor: 15.4”
- Network: Realtek RTL8168
- Intel PRO/Wireless 3945ABG Network Connection
- Intel HDAudio CODEC (ALC880)





What is ACPI?

- Advanced Configuration and Power Interface
- Replaces IBM APM, Plug'n'Play, OS2APIC.PSD
- ACPI stores full detailed info about computer in one place
 - => simplifies development of OS and drivers
- ACPI is a part of every modern computer

When you need ACPI driver?

- Modern obstinate computer
- SMP machine (multi processor, multi core)
- Notebook (power control)
- PC without PCI BIOS (no access to PCI bus via OEMHLP\$)
- Control of idle state
- Indicators of system state

Comparison of ACPI in different OSeS



eComStation: Universal driver; Using snooper (no modules)

Linux: they are modifying sourcecode; Using modules;
Mixing kernel and ACPI driver

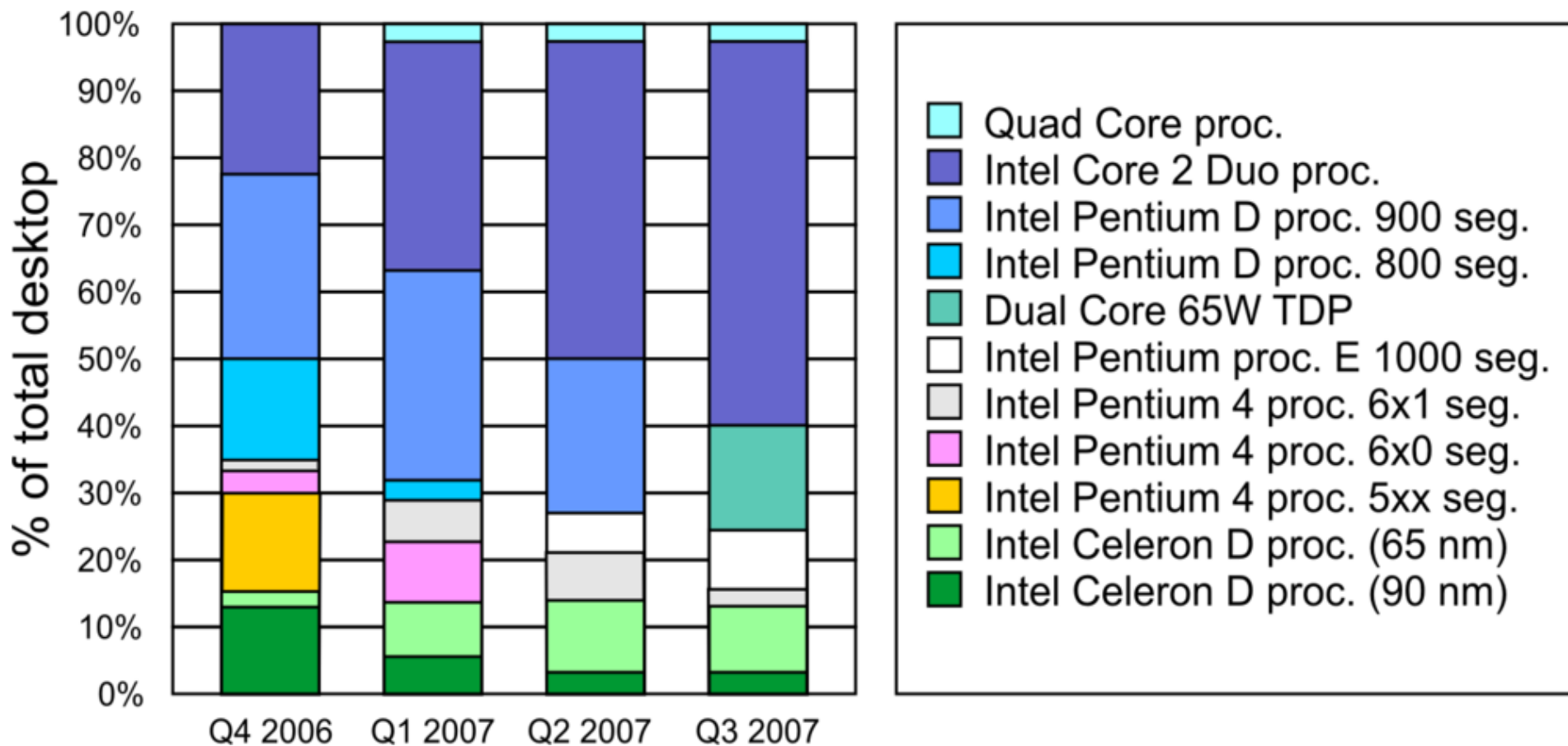
Windows: CD for every PC

Advantages of eComStation ACPI:

- Follows the specifications
- No modifications in Intel code
- Continues to work if you move harddisk to other PC

Forecast of Intel Corporation (IDF Taipei Fall 2006)

Multicore processors occupy more than 65% of the market



How to install ACPI driver

- Copy files: acpi.psd, ~~acpica.add~~, acpi32.dll
- CONFIG.SYS:
 psd=acpi.psd
 ~~basedev=acpica.add~~
- Update drivers (RESOURCE.SYS, Network, ..)
- ~~NVidia PC switches~~
- ~~Dell switches~~
- Remove dust from your PC



Advantages of SMP

- Performance increase (-10% .. +80%)
- Use all processors! => Smooth work
- Use SMP kernel without fee
(for owners of Software Subscription)

SMP installation:

- Install SMP kernel (doscall.dll)
- psd=acpi.psd /SMP
- Update device drivers (ready for SMP mode)

Use APIC if running multi-core PC!



PIC mode

- Programmable Interrupt Controller
- Some PCs don't work in PIC
- Normal speed



APIC mode:

- More interrupts
- Interrupts are processed faster
- Maximal performance

ACPI snooper

- If Intel ACPI machine can't interpret ACPI tables.
- execute commands on boot
- Enable full hardware detect
- Allows run old drivers on SMP (if high irq not supported by driver)

SMP kernel

- (APIC) REMAP – devices should use IRQm instead of IRQn
- Prohibit IRQ for group of devices

UNI kernel

- Load modified ACPI tables
- Set/change IRQs for group of devices
- Prohibit IRQ for group of devices

APM.ADD driver installation

- Copy apm.add
- CONFIG.SYS
 - basedev=apm.add
 - RUN=x:\OS2\CMD.EXE /Q /C x:\OS2\ACPIDAEMON.EXE
- ACPIID.cfg
 - LID = Off
 - PowerButton = Off
 - SleepState = S3
 - LogFile = AcpiDaemon.log

Usage of power management

- Transparent for existing applications
- ACPI Power management has more states
- S1 – useful for screensavers (turnoff monitor and switch to S1)
- S3 – it is implemented but can't be used



Turn your desktop into large notebook (UPS support)



- APC UPS (Serial port, USB port)
- We need your feedback!

eComStation is ready for modern notebooks and desktops

```
F_BLK: 0xF810
F_BLK len: 0x6
Status Evaluate _PCT 0x5 AE_NOT_FOUND
Status Evaluate _CST 0x5 AE_NOT_FOUND
Processor (CPU1)
Status Evaluate Processor PBC 0x5 AE_NOT_FOUND
Status Evaluate Processor 0x0 AE_OK
HwInfo:2 Counter:1
CPU id to N:1
ProcId: 0x1
F_BLK: 0xF810
F_BLK len: 0x6
Status Evaluate _PCT 0x5 AE_NOT_FOUND
Status Evaluate _CST 0x5 AE_NOT_FOUND
Status 0x0 0
Total use:160216 unuse:20344 count:1901
Get GpeHd1 Status = 0 - AE_OK
Event I_L0B1
Install GPE B Status 0
Event I_L1B1
Install GPE 1B Status 0
EndScan GPE Status 0
***** Leave Sleep Status = 5 - AE_NOT_FOUND
```

Experience of users:

- Read <http://ecomstation.ru/hardware.php> (notebooks, Intel, Nvidia chipsets)
- Join #ecolabs irc-channel
- Pay attention to version of every dev.driver
- Read docs: how to save log, make photos

Don't lazy to share your experince with other users!

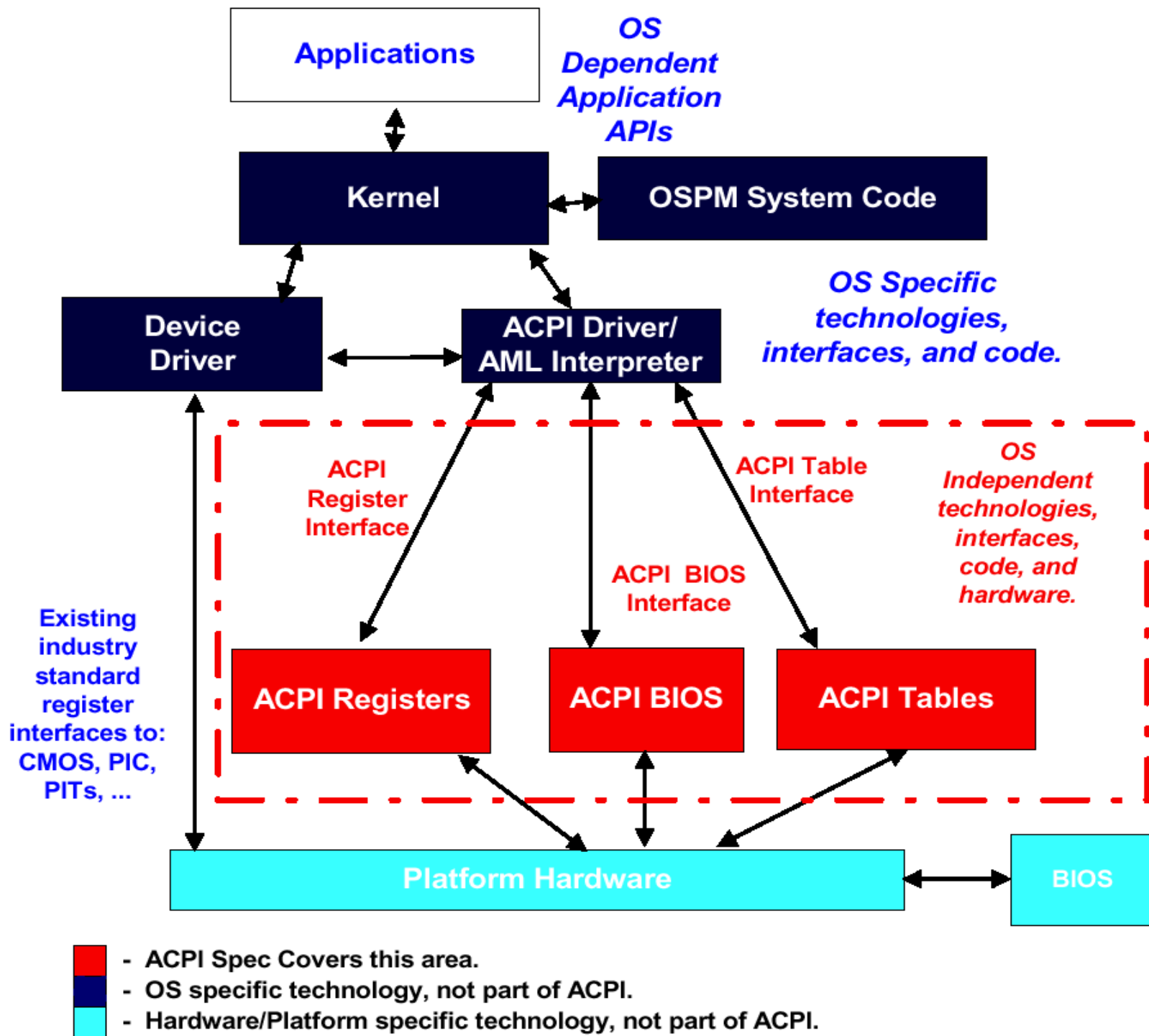


Figure 1-1 OSPM/ACPI Global System

ACPI ToDo

- Device drivers should be improved to support more APM states
- We need utilities. To measure performance and energy consumption.
- Automate installation of ACPI drivers for non-standard computers

ACPI stops at Kernel

- It's necessary make improvements in kernel
- SciTech SNAP should be improved
- It's time to contact Intel and influence on them

ACPI opens new perspectives for eComStation

- ACPI is doing what kernel doesn't
- Update OS to support PC without PCI BIOS
- eComStation resellers are discussing eComStation PC

- ACPI driver opened possibility to use modern hardware and continue development of the operating system!

Battery-Saving Tips – use Power Patrol

- Turn off WiFi if you're not using it
- Disconnect peripherals not in use
- Quit applications not in use
- Eject CDs and DVDs not in use



Extend life of battery
up to 15%

Conclusion: You can upgrade part of your computers to modern multiprocessor systems in this week

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