

How to get the 2nd CPU to work?

Source: <http://linux.derkeiler.com/Mailing-Lists/Debian/2004-10/0622.html>

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Date: 10/06/04

To: debian-user@lists.debian.org
Date: Wed, 6 Oct 2004 23:34:58 +0530

Hi

I just installed debian (sarge) on a Dual P-III system. The kernel that was installed was: kernel-image-2.6.5-1-386

Then I installed kernel-image-2.6.8-1-686-smp using apt-get and added it using grub....

After re-booting... the top program shows only one CPU.

But the output of dmesg and /proc/cpuinfo appears to have recognized the 2nd CPU. Any ideas if

- (a) the 2nd CPU is being used OR
- (b) it's not being used

If it's not being used, any tips on what I should do to get Linux to use the second CPU? I've read the SMP HOWTO but did not find anything much. It said something about "MPS version 1.4 and 1.1" .. I tried to change that in the system bios.. but no joy...

Any ideas what I can do to get this to work?

Regards

Rishi

OUTPUT OF TOP

```
top - 23:17:48 up 2:56, 5 users, load average: 0.02, 0.05, 0.09
Tasks: 116 total, 1 running, 115 sleeping, 0 stopped, 0 zombie
Cpu(s): 16.6% us, 4.1% sy, 0.0% ni, 75.1% id, 2.5% wa, 0.6% hi, 1.1% si
Mem: 321332k total, 302524k used, 18808k free, 16992k buffers
Swap: 976744k total, 55324k used, 921420k free, 150444k cached
```

OUTPUT OF DMESG

```
Linux version 2.6.8-1-686-smp (dilinger@toaster.hq.voxel.net) (gcc version
```

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3.3.4 (Debian 1:3.3.4–11)) #1 SMP Mon Sep 13 23:02:39 EDT 2004

BIOS–provided physical RAM map:

BIOS–e820: 0000000000000000 – 000000000009f800 (usable)
BIOS–e820: 000000000009f800 – 0000000000a0000 (reserved)
BIOS–e820: 0000000000f0000 – 000000000100000 (reserved)
BIOS–e820: 000000000100000 – 000000001400000 (usable)
BIOS–e820: 00000000fec00000 – 00000000fec10000 (reserved)
BIOS–e820: 00000000fee00000 – 00000000fee01000 (reserved)
BIOS–e820: 00000000ffff0000 – 0000000100000000 (reserved)

0MB HIGHMEM available.

320MB LOWMEM available.

found SMP MP–table at 000f70c0

On node 0 totalpages: 81920

DMA zone: 4096 pages, LIFO batch:1

Normal zone: 77824 pages, LIFO batch:16

HighMem zone: 0 pages, LIFO batch:1

DMI 2.0 present.

ACPI disabled because your bios is from 98 and too old

You can enable it with acpi=force

Intel MultiProcessor Specification v1.1

Virtual Wire compatibility mode.

OEM ID: INTEL Product ID: DK440LX APIC at: 0xFEE00000

Processor #1 6:5 APIC version 17

Processor #0 6:5 APIC version 17

I/O APIC #2 Version 17 at 0xFEC00000.

Enabling APIC mode: Flat. Using 1 I/O APICs

Processors: 2

Built 1 zonelists

Kernel command line: root=/dev/hda1 ro

Initializing CPU#0

PID hash table entries: 2048 (order 11: 16384 bytes)

Detected 333.184 MHz processor.

Using tsc for high–res timesource

Console: colour VGA+ 80x25

Dentry cache hash table entries: 65536 (order: 6, 262144 bytes)

Inode–cache hash table entries: 32768 (order: 5, 131072 bytes)

Memory: 316176k/327680k available (1654k kernel code, 10732k reserved, 762k data, 168k init, 0k highmem)

Checking if this processor honours the WP bit even in supervisor mode... Ok.

Calibrating delay loop... 655.36 BogoMIPS

Security Scaffold v1.0.0 initialized

Mount–cache hash table entries: 512 (order: 0, 4096 bytes)

CPU: After generic identify, caps: 0183fbff 00000000 00000000 00000000

CPU: After vendor identify, caps: 0183fbff 00000000 00000000 00000000

CPU: L1 I cache: 16K, L1 D cache: 16K

CPU: L2 cache: 512K

CPU: After all inits, caps: 0183fbff 00000000 00000000 00000040

Intel machine check architecture supported.

Intel machine check reporting enabled on CPU#0.

Enabling fast FPU save and restore... done.

Checking 'hlt' instruction... OK.

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```
ACPI: System description tables not found
ACPI-0084: *** Error: acpi_load_tables: Could not get RSDP, AE_NOT_FOUND
ACPI-0134: *** Error: acpi_load_tables: Could not load tables:
AE_NOT_FOUND
ACPI: Unable to load the System Description Tables
CPU0: Intel Pentium II (Deschutes) stepping 00
per-CPU timeslice cutoff: 1461.97 usecs.
task migration cache decay timeout: 2 msecs.
masked ExtINT on CPU#0
ESR value before enabling vector: 00000000
ESR value after enabling vector: 00000000
Booting processor 1/0 eip 3000
Initializing CPU#1
masked ExtINT on CPU#1
ESR value before enabling vector: 00000000
ESR value after enabling vector: 00000000
Calibrating delay loop... 663.55 BogoMIPS
CPU: After generic identify, caps: 0183fbff 00000000 00000000 00000000
CPU: After vendor identify, caps: 0183fbff 00000000 00000000 00000000
CPU: L1 I cache: 16K, L1 D cache: 16K
CPU: L2 cache: 512K
CPU: After all inits, caps: 0183fbff 00000000 00000000 00000040
Intel machine check architecture supported.
Intel machine check reporting enabled on CPU#1.
CPU1: Intel Pentium II (Deschutes) stepping 00
Total of 2 processors activated (1318.91 BogoMIPS).
ENABLING IO-APIC IRQs
Setting 2 in the phys_id_present_map
...changing IO-APIC physical APIC ID to 2 ... ok.
init IO-APIC IRQs
IO-APIC (apicid-pin) 2-0, 2-18, 2-20, 2-21, 2-22, 2-23 not connected.
..TIMER: vector=0x31 pin1=2 pin2=0
number of MP IRQ sources: 20.
number of IO-APIC #2 registers: 24.
testing the IO APIC.....
IO APIC #2.....
.... register #00: 02000000
..... : physical APIC id: 02
..... : Delivery Type: 0
..... : LTS : 0
.... register #01: 00170011
..... : max redirection entries: 0017
..... : PRQ implemented: 0
..... : IO APIC version: 0011
.... register #02: 00000000
..... : arbitration: 00
.... IRQ redirection table:
NR Log Phy Mask Trig IRR Pol Stat Dest Deli Vect:
00 000 00 1 0 0 0 0 0 0 00
01 001 01 0 0 0 0 0 1 1 39
02 001 01 0 0 0 0 0 1 1 31
```

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```
03 001 01 0 0 0 0 0 1 1 41
04 001 01 0 0 0 0 0 1 1 49
05 001 01 0 0 0 0 0 1 1 51
06 001 01 0 0 0 0 0 1 1 59
07 001 01 0 0 0 0 0 1 1 61
08 001 01 0 0 0 0 0 1 1 69
09 001 01 1 1 0 1 0 1 1 71
0a 001 01 1 1 0 1 0 1 1 79
0b 001 01 1 1 0 1 0 1 1 81
0c 001 01 0 0 0 0 0 1 1 89
0d 001 01 0 0 0 0 0 1 1 91
0e 001 01 0 0 0 0 0 1 1 99
0f 001 01 0 0 0 0 0 1 1 A1
10 001 01 1 1 0 1 0 1 1 A9
11 001 01 1 1 0 1 0 1 1 B1
12 000 00 1 0 0 0 0 0 0 00
13 001 01 1 1 0 1 0 1 1 B9
14 000 00 1 0 0 0 0 0 0 00
15 000 00 1 0 0 0 0 0 0 00
16 000 00 1 0 0 0 0 0 0 00
17 000 00 1 0 0 0 0 0 0 00
```

Using vector–based indexing

IRQ to pin mappings:

```
IRQ0 -> 0:2
IRQ1 -> 0:1
IRQ3 -> 0:3
IRQ4 -> 0:4
IRQ5 -> 0:5
IRQ6 -> 0:6
IRQ7 -> 0:7
IRQ8 -> 0:8
IRQ9 -> 0:9
IRQ10 -> 0:10
IRQ11 -> 0:11
IRQ12 -> 0:12
IRQ13 -> 0:13
IRQ14 -> 0:14
IRQ15 -> 0:15
IRQ169 -> 0:16
IRQ177 -> 0:17
IRQ185 -> 0:19
```

..... done.

Using local APIC timer interrupts.

calibrating APIC timer ...

..... CPU clock speed is 333.0003 MHz.

..... host bus clock speed is 66.0600 MHz.

checking TSC synchronization across 2 CPUs: passed.

Brought up 2 CPUs

CPU0: online

domain 0: span 01

groups: 01

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```
domain 1: span 03
  groups: 01 02
CPU1: online
domain 0: span 02
  groups: 02
domain 1: span 03
  groups: 02 01
checking if image is initramfs...it isn't (ungzip failed); looks like an
initrd
Freeing initrd memory: 4604k freed
NET: Registered protocol family 16
PCI: PCI BIOS revision 2.10 entry at 0xfd99c, last bus=1
PCI: Using configuration type 1
mtrr: v2.0 (20020519)
ACPI: Subsystem revision 20040326
ACPI: Interpreter disabled.
Linux Plug and Play Support v0.97 (c) Adam Belay
PnPBIOS: Scanning system for PnP BIOS support...
PnPBIOS: Found PnP BIOS installation structure at 0xc00f7090
PnPBIOS: PnP BIOS version 1.0, entry 0xf0000:0xb762, dseg 0x400
pnp: 00:0c: ioport range 0x4d0–0x4d1 has been reserved
pnp: 00:0c: ioport range 0x8000–0x803f has been reserved
pnp: 00:0c: ioport range 0x7000–0x700f has been reserved
pnp: 00:0f: ioport range 0x290–0x297 has been reserved
PnPBIOS: 20 nodes reported by PnP BIOS; 20 recorded by driver
PCI: Probing PCI hardware
PCI: Probing PCI hardware (bus 00)
PCI: Using IRQ router PIIX/ICH [8086/7110] at 0000:00:02.0
PCI->APIC IRQ transform: (B0,I2,P3) -> 185
PCI->APIC IRQ transform: (B0,I3,P0) -> 185
PCI->APIC IRQ transform: (B0,I13,P0) -> 177
PCI->APIC IRQ transform: (B1,I0,P0) -> 169
VFS: Disk quotas dquot_6.5.1
Dquot-cache hash table entries: 1024 (order 0, 4096 bytes)
devfs: 2004-01-31 Richard Gooch (rgooch@atnf.csiro.au)
devfs: boot_options: 0x0
Initializing Cryptographic API
Limiting direct PCI/PCI transfers.
isapnp: Scanning for PnP cards...
isapnp: No Plug & Play device found
Serial: 8250/16550 driver $Revision: 1.90 $ 48 ports, IRQ sharing enabled
ttyS0 at I/O 0x3f8 (irq = 4) is a 16550A
ttyS1 at I/O 0x2f8 (irq = 3) is a 16550A
RAMDISK driver initialized: 16 RAM disks of 8192K size 1024 blocksize
serio: i8042 AUX port at 0x60,0x64 irq 12
serio: i8042 KBD port at 0x60,0x64 irq 1
input: AT Translated Set 2 keyboard on isa0060/serio0
NET: Registered protocol family 2
IP: routing cache hash table of 4096 buckets, 32Kbytes
TCP: Hash tables configured (established 32768 bind 32768)
NET: Registered protocol family 8
```


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Internal registers self–test: passed.
ROM checksum self–test: passed (0x49caa8d6).
Receiver lock–up workaround activated.
Capability LSM initialized
device–mapper: 4.1.0–ioct1 (2003–12–10) initialised: dm@uk.sistina.com
kjournald starting. Commit interval 5 seconds
EXT3 FS on hda3, internal journal
EXT3–fs: mounted filesystem with ordered data mode.
Linux agpgart interface v0.100 (c) Dave Jones
e100: Intel(R) PRO/100 Network Driver, 3.0.18
e100: Copyright(c) 1999–2004 Intel Corporation
es1371: version v0.32 time 23:18:47 Sep 13 2004
es1371: found chip, vendor id 0x1274 device id 0x5880 revision 0x02
es1371: found es1371 rev 2 at io 0xfcc0 irq 177 joystick 0x0
ac97_codec: AC97 Audio codec, id: 0x8384:0x7609 (SigmaTel STAC9721/23)
input: PC Speaker
inserting floppy driver for 2.6.8–1–686–smp
Floppy drive(s): fd0 is 1.44M
FDC 0 is a National Semiconductor PC87306
parport: PnPBIOS parport detected.
parport0: PC–style at 0x378 (0x778), irq 7, dma 3
[PCSP, TRISTATE, COMPAT, EPP, ECP, DMA]
input: PS/2 Generic Mouse on isa0060/serio1
mouse: PS/2 mouse device common for all mice
ts: Compaq touchscreen protocol output
agpgart: Detected an Intel 440LX Chipset.
agpgart: Maximum main memory to use for agp memory: 263M
agpgart: AGP aperture is 64M @ 0xf8000000
cpci_hotplug: CompactPCI Hot Plug Core version: 0.2
pci_hotplug: PCI Hot Plug PCI Core version: 0.5
pciehp: PCI Express Hot Plug Controller Driver version: 0.4
shpchp: shpc_init : shpc_cap_offset == 0
shpchp: Standard Hot Plug PCI Controller Driver version: 0.4
usbcore: registered new driver usbfs
usbcore: registered new driver hub
USB Universal Host Controller Interface driver v2.2
uhci_hcd 0000:00:02.2: Intel Corp. 82371AB/EB/MB PIIX4 USB
uhci_hcd 0000:00:02.2: irq 185, io base 0000fca0
uhci_hcd 0000:00:02.2: new USB bus registered, assigned bus number 1
hub 1–0:1.0: USB hub found
hub 1–0:1.0: 2 ports detected
lp0: using parport0 (interrupt–driven).
Installing knfsd (copyright (C) 1996 okir@monad.swb.de).
NET: Registered protocol family 10
Disabled Privacy Extensions on device c031ac80(lo)
IPv6 over IPv4 tunneling driver
apm: BIOS not found.
eth0: no IPv6 routers present
apm: BIOS not found.

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OUTPUT OF /PROC/CPUINFO

=====

processor : 0
vendor_id : GenuineIntel
cpu family : 6
model : 5
model name : Pentium II (Deschutes)
stepping : 0
cpu MHz : 333.184
cache size : 512 KB
fdiv_bug : no
hlt_bug : no
f00f_bug : no
coma_bug : no
fpu : yes
fpu_exception : yes
cpuid level : 2
wp : yes
flags : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca
cmov pat pse36 mmx fxsr
bogomips : 655.36

processor : 1
vendor_id : GenuineIntel
cpu family : 6
model : 5
model name : Pentium II (Deschutes)
stepping : 0
cpu MHz : 333.184
cache size : 512 KB
fdiv_bug : no
hlt_bug : no
f00f_bug : no
coma_bug : no
fpu : yes
fpu_exception : yes
cpuid level : 2
wp : yes
flags : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca
cmov pat pse36 mmx fxsr
bogomips : 663.55

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