

## Upgrading My E450 From Dual-CPU To Quad-CPU

I recently acquired two additional CPU modules for my ancient E450 through eBay.

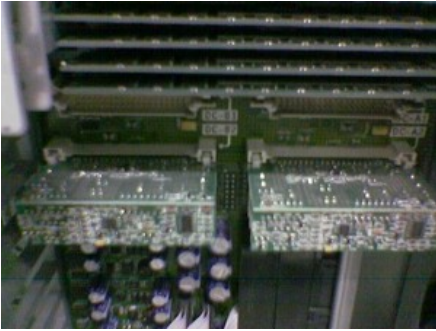
When they arrived today I couldn't resist any longer: I simply had to rip the cover off the machine and put them inside...



These are the babies, two UltraSparc II modules and the DC power converters:



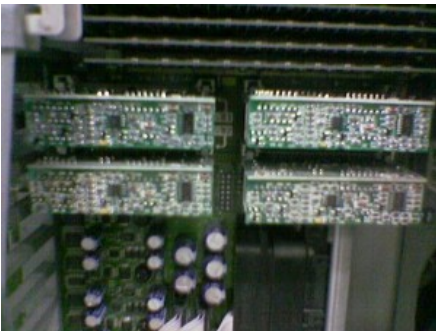
This is where the DC power converters will fit in, it's always one per CPU module. Actually it's not hard to get the CPU modules at last, it's the DC converters which are usually quite expensive. Luckily enough I could get them for only 29 ? per piece :-)



And this is what it looks like when they're fitted:



Now it's time to plug the CPU modules...



Gosh! Looks awesome, does it!?



Now it's time to see...



... if it works. Hmm.... the serial console says only 'connected' ...



\*sigh\* I'm just so nervous! After a few seconds OpenBoot reports '4 x UltraSparc-II 296 MHz'.

```
Can't open input device.
Keyboard not present. Using ttya for input and output.

Sun Enterprise 450 (4 X UltraSPARC-II 296MHz), No Keyboard
OpenBoot 3.12, 896 MB memory installed, Serial #10914633.
Ethernet address 0:0:20:a5:4:a9, Host ID: 00a504a9.

Boot device: disk0 File and args:

>> FreeBSD/sparc64 boot block
Boot path: /pci101f,4000/scsi103/disk00,0:a
Boot loader: /boot/loader
Consoles: Open Firmware console

FreeBSD/sparc64 bootstrap loader, Revision 1.0
(froot@regora.phausites.net, Sun May 21 15:31:01 CEST 2006)
bootpath="/pci101f,4000/scsi103/disk00,0:a"
Loading /boot/defaults/loader.conf
```

But before I could actually boot into FreeBSD, I had to change a setting to ensure that OpenBoot would report all installed CPUs to the OS. So in OpenBoot I typed:

```
{0} ok setenv .upa-noprobe-mask 0
{0} ok reset-all
```

This would reset the CPU probing mechanism and reboot the machine.

If I had done so in the first place (which I actually didn't), FreeBSD would have found all CPUs (which it apparently didn't, it reported only three CPUs at the beginning).

My thanks go to Marcel for helping me in finding the lost CPU.

So even FreeBSD seems to like it after all :-)

```
# dmesg|grep cpu
cpu0: Sun Microsystems UltraSparc-II Processor (296.00 MHz CPU)
cpu1: Sun Microsystems UltraSparc-II Processor (296.00 MHz CPU)
cpu2: Sun Microsystems UltraSparc-II Processor (296.00 MHz CPU)
cpu3: Sun Microsystems UltraSparc-II Processor (296.00 MHz CPU)
```