

BIOS sees 4GB of RAM, not sure about the OS

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I found some information on the net about getting the BIOS to recognize 4GB of RAM, but I'm running into a problem determining if the OS is seeing all of it.

I upgraded my computer to 4GB of RAM. At first, the BIOS didn't recognize all of it. (Only saw about 3GB). openSUSE also only saw about the same amount. I enabled "Memory Remapping Feature" in the BIOS, and now the BIOS can see all of it. I have an ASUS P5B Deluxe motherboard.

I want to say that the kernel I'm using has bigsmp support. I've compiled it several times when I first installed it (December 2006) and when I run 'make menuconfig' I can see that bigsmp is enabled, so I'm hoping I enabled that when I built it.

Once I boot up openSUSE 10.2, I get conflicting information about how much RAM I have. (Well, it seems conflicting, but I'm not sure exactly what the programs are reporting.) I've run these command line utils to see what they say (the output is at the bottom)

```
top
hwinfo --memory
free
```

When I run yast2 (GUI) and run Hardware Information, the memory says 4GB. There are two pieces of information here, mem and phys_mem.

The mem section says:

```
active: yes
length: 4294078464
start: 0
```

The phys_mem section says:
Range: 4294967296

I tried to boot with the stock bigsmp kernel that is distributed with 10.2, but it hangs during hardware detection. Specifically, this is the last line I see when it hangs:

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agpgart: Detected an Intel 965G Chipset.

A successful boot shows this line next:

agpgart: AGP aperture is 256M @ 0x0

I guess my questions at this time are:

1. How can you reliably tell if bigsmp is compiled into a running kernel?
2. Why is top/free giving me a different value for amount of RAM than hwinfo?
3. Why would the stock "bigsmp" kernel hang during AGP detection?
3. Is there something else I'm missing?

Thanks for any input.

digi

Output follows:

Output from 'top'

```
=====
top - 13:10:23 up 1:31, 17 users, load average: 0.37, 0.29, 0.20
Tasks: 176 total, 4 running, 172 sleeping, 0 stopped, 0 zombie
Cpu(s): 0.8%us, 0.3%sy, 0.7%ni, 98.2%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Mem: 2059460k total, 1737832k used, 321628k free, 53684k buffers
Swap: 2104472k total, 0k used, 2104472k free, 1033028k cached
```

Output from 'hwinfo --memory'

```
=====
01: None 00.0: 10102 Main Memory
[Created at memory.61]
Unique ID: rdCR.CxwsZFjVASF
Hardware Class: memory
Model: "Main Memory"
Memory Range: 0x00000000-0xffff26fff (rw)
Memory Size: 4 GB
Config Status: cfg=no, avail=yes, need=no, active=unknown
```

Output from 'free'

```
=====
total used free shared buffers cached
Mem: 2059460 1737364 322096 0 53812 1033080
-/+ buffers/cache: 650472 1408988
Swap: 2104472 0 2104472
.
```