



RHEL 4 Linux APIC ID Patch



1. INSTALL NECESSARY PACKAGES FOR REBUILD KERNEL :

1.1 Make sure that the following packages are installed :

- a. Make sure the following packages are installed :

C/C++ Compiler and Tools

glib-devel

glibc-devel

termcap

readline

readline-devel

1.2 Install the kernel source file : (please refer RHEL 4 Release note for detail)

- a. Obtain the kernel-*<version>*.src.rpm file from one of the following sources: (Original OS kernel is "kernel-2.6.9-5.0.3.EL.src.rpm")

- The SRPMS directory on the appropriate "SRPMS" CD iso image
- The FTP site where you got the kernel package
- By running the following command:

up2date --get-source kernel

- b. Install kernel-*<version>*.src.rpm by following command:

rpm -Fvh kernel-2.6.9-5.0.3.EL.src.rpm

- c. Change directory to /usr/src/redhat/SPECS/, and issue the following command:

rpmbuild -bp --target=x86_64 kernel-2.6.spec

On a default RPM configuration, the kernel tree will be located in /usr/src/redhat/BUILD/

2. MODIFY THE APIC RELATED FILES :

2.1 /usr/src/redhat/BUILD/kernel-2.6.9/linux-2.6.9/include/asm-x86_64/apicdef.h

- a. use text edit to modify the values of following parameters :

```
#define APIC_ID_MASK    (0xFF<<24)
```



```
#define GET_APIC_ID(x)    (((x)>>24)&0xFF)
#define MAX_IO_APICS     32
```

b. save and close it

2.2 /usr/src/redhat/BUILD/kernel-2.6.9/linux-2.6.9/include/asm-x86_64/mpspec.h

a. use text edit to modify the values of following parameters :

```
#define MAX_MP_BUSSES    270
#define MAX_APICS        64
```

b. save and close it

2.3 /usr/src/redhat/BUILD/kernel-2.6.9/linux-2.6.9/arch/x86_64/kernel/io_apic.c

a. use text edit to modify the values of following parameters :

```
#define IO_APIC_MAX_ID    32
```

b. save and close it

3. RE-COMPLIE OS KERNEL :



-
- a. `cd /usr/src/redhat/BUILD/kernel-2.6.9/linux-2.6.9`
 - b. `make mrproper`
 - c. `make menuconfig` (select items you wanted : for example your CPU type then save and close)
 - d. `make bzImage`
 - e. `make modules`
 - f. `make modules_install`
 - g. `cp arch/x86_64/boot/bzImage /boot/vmlinuz-xxxx.xxxx`
 - h. `cp System.map /boot/`
 - i. `mkinitrd /boot/initrd-xxxx.xxxx 2.6.9-prep`
 - j. `cd /boot/grub`
 - k. use text edit to modify menu.lst file
 - l. create one new select item and indicate your new kernel file (vmlinuz-xxxx.xxxx) and boot file (initrd-xxxx.xxxx), for example

title Linux-APIC-ID

```
kernel (hd0,0)/vmlinuz-xxxx.xxxx root=/dev/hda3 vga=0x31a splash=silent console=tty0 desktop  
resume=/dev/hda2 showopts  
initrd (hd0,0)/initrd-xxxx.xxxx
```

You could refer original one RHEL created then modify it.