

Mandrake Linux 9.0/9.1, Red Hat Linux 8.0/9.0 and SuSE Linux 8.1/8.2 ATA/133 Kernel Patch: VT8237

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1. Summary

The Mandrake Linux 9.0/9.1, Red Hat Linux 8.0/9.0 and SuSE Linux 8.1/8.2 native IDE driver does not support the maximum possible data transfer mode of ATA/133 (Ultra DMA mode 6) for VIA south bridge chip VT8237. This document provides kernel patches that will take the maximum possible data transfer speed into effect. The information in this document is provided “AS IS,” without guarantee of any kind.

2. File description

The package contains 2 files as described below.

ATA133-Linux-PatchFile-V3.0.tgz	10,270	07-18-03 09:42
Readme.doc	this file	

Decompress the **ATA133-Linux-PatchFile-V3.0.tgz** file and you’ll find eleven files. Six new patches are for VT8237 and three old patches are for VT8235.

3. Native IDE driver problem

The following table summarizes whether to patch the native IDE driver and rebuild the OS kernel in order to support ATA/100 or ATA/133 mode for six different chips. Only systems using VT8237 require the kernel patch.

	Maximal UDMA mode supported natively	Patch IDE driver and rebuild kernel to support ATA/100 or ATA/133?
VT82C686B	ATA/100	Not needed
VT8231	ATA/100	Not needed
VT8233	ATA/100	Not needed
VT8233A	ATA/133	Not needed
VT8233C	ATA/100	Not needed
VT8235	ATA/133	Needed (Only in SuSE8.1)
VT8237	ATA/133	Needed

4. How to patch

Refer to the “**Patch the Linux IDE driver source file**” and “**Rebuild the Linux kernel**” sections in the “**readme**” file in the package.

For your information, the Linux kernel supports ATA/133 for VT8237 in the latest kernel version 2.4.21 or 2.5.75. Alternatively, you may download a suitable kernel from <http://www.kernel.org/> and upgrade your system to turn on the maximum possible data transfer speed.

5. Test result

(1) Success of kernel patching

Reboot the system and choose to boot “linux”. If using south bridge chip VT8237, after system reboot you should see the following boot message.

```
"VP_IDE: VIA vt8237 (rev 00) IDE UDMA133 Controller on pci00:0f.1"
```

Note the data transfer mode for VT8237 is increased to UDMA133 from UDMA33. Alternatively, you may verify this by reading the `/var/log/boot.msg` file or by simply running “`dmesg | grep 8237`”.

(2) Data transfer speed

The following table shows the sustained disk transfer rate of systems using VT8237 before and after kernel patching with ATA/133 support HDD on different Linux versions. The rate was measured by using the “`hdparm -t`” command.

	Original Kernel (MB/sec)	Patch IDE and rebuild Kernel (MB/sec)
Mandrake 9.0	6.43	40.00
Mandrake 9.1	6.03	40.00
Red Hat 8.0	6.28	39.81
Red Hat 9.0	6.39	40.00
SuSE 8.1	6.37	40.00
SuSE 8.2	3.40	40.00

7. Test configuration

The following were the hardware configurations used for test.

Main Board	VT8248C (PT800+VT8237)	VT8248C (PT800+VT8237)
CPU	Intel P4 1.8GHz	Intel P4 1.8GHz
OS	Mandrake 9.0	Mandrake 9.1
Memory	128 MB DDR266	128 MB DDR266
HDD	Maxtor 40G 7200rpm ATA/133	Maxtor 40G 7200rpm ATA/133

Main Board	VT8248C (PT800+VT8237)	VT8248C (PT800+VT8237)
CPU	Intel P4 1.8GHz	Intel P4 1.8GHz
OS	Red Hat 8.0	Red Hat 9.0
Memory	128 MB DDR266	128 MB DDR266
HDD	Maxtor 40G 7200rpm ATA/133	Maxtor 40G 7200rpm ATA/133

Main Board	VT8185C (KM400+VT8237)	VT8185C (KM400+VT8237)
CPU	AMD Duron 950MHz	AMD Duron 950MHz
OS	SuSE 8.1	SuSE 8.2
Memory	128 MB DDR266	128 MB DDR266
HDD	Maxtor 40G 7200rpm ATA/133	Maxtor 40G 7200rpm ATA/133