

2.6.0-test4 parallel seek & read problem

Source: <http://linux.derkeiler.com/Mailing-Lists/Kernel/2003-08/7076.html>

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Date: 08/26/03

Date: Tue, 26 Aug 2003 19:32:41 +0200

To: linux-kernel@vger.kernel.org

Hello everyone!

I have run into some strange behavior with kernel 2.6.0-test4.

I'm doing a lot of parallel random seeks and reads in a 128 Gigabyte file. The file is located on a JFS partition on a 3ware Storage Controller containing four IDE disks with an average seek time of 8.5 ms. The 3ware controller is configured as RAID0 with stripe size 1MB.

The operating system is Debian GNU/Linux, version testing.

Running on this system is a program listening for connections. When a connection is accepted, a thread is created. This thread will get a free file descriptor from a pool of already opened file descriptors. The thread will do a random seek on the fd, and a small read, around 3 Kb. This data is then sent to the client and the connection is closed.

My program is linked against libpthread.a from the libc6-dev package, version 2.3.1-16, in Debian.

If I'm running kernel 2.4.21 or 2.4.22, I can connect to the program 500 times per second. Using iostat-4.1.5 to monitor the system I see 500 reads/second issued to the disk. So far so fine.

If I change to 2.6.0-test4 I can only connect to the program around 75 times per second. During this time iostat reports around 120 reads/second issued to the disk.

If I change the elevator to 'deadline' or 'noop' I can connect to the program around 300 times/second. Iostat reports around 520 reads/second issued to the disk.

I also have a modified version of my program using nonblocking network code, and aio. This time I'm using the same fd for all aio requests. The file is opened with the flag O_DIRECT, bypassing the buffer cache. This time I'm able to reach close to 500 requests/second.

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2.6.0-test1-ac3, and 2.6.0-test3-mm1 are behaving the same as 2.6.0-test4.

Someone have any idea what is going on? Seems like something is not what it should be. My hope is to be able to reach the same amounts of connections/second as with the 2.4 kernels.

I can't provide the source to the program, because it is owned by someone else, but I hope someone can point me in the right direction for further investigation of this problem.

Below are the output of dmesg and the kernel config file for 2.6.0-test4.

Best regards

/Magnus

-----START OF
DMESG-----

Linux version 2.6.0-test4 (magan@duck) (gcc version 3.3.1 20030626 (Debian prerelease)) #1 Mon Aug 25 15:54:42 CEST 2003

Video mode to be used for restore is 9

BIOS-provided physical RAM map:

BIOS-e820: 0000000000000000 - 000000000009f400 (usable)

BIOS-e820: 000000000009f400 - 00000000000a0000 (reserved)

BIOS-e820: 00000000000f0000 - 0000000000100000 (reserved)

BIOS-e820: 0000000000100000 - 000000001ffeb000 (usable)

BIOS-e820: 000000001ffeb000 - 000000001ffef000 (ACPI data)

BIOS-e820: 000000001ffef000 - 000000001ffff000 (reserved)

BIOS-e820: 000000001ffff000 - 0000000020000000 (ACPI NVS)

BIOS-e820: 00000000fff80000 - 00000000100000000 (reserved)

511MB LOWMEM available.

On node 0 totalpages: 131051

DMA zone: 4096 pages, LIFO batch:1

Normal zone: 126955 pages, LIFO batch:16

HighMem zone: 0 pages, LIFO batch:1

DMI 2.3 present.

ACPI: RSDP (v000 ASUS) @ 0x000f7850

ACPI: RSDT (v001 ASUS CUSL2-C 0x30303031 MSFT 0x31313031) @ 0x1ffeb000

ACPI: FADT (v001 ASUS CUSL2-C 0x30303031 MSFT 0x31313031) @ 0x1ffeb080

ACPI: BOOT (v001 ASUS CUSL2-C 0x30303031 MSFT 0x31313031) @ 0x1ffeb040

ACPI: DSDT (v001 ASUS CUSL2-C 0x00001000 MSFT 0x0100000b) @ 0x00000000

Building zonelist for node : 0

Kernel command line: auto BOOT_IMAGE=2.6.0-test4 ro root=302

Initializing CPU#0

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

Detected 1005.174 MHz processor.

Console: colour VGA+ 80x25

Calibrating delay loop... 1990.65 BogoMIPS

Memory: 514888k/524204k available (2309k kernel code, 8520k reserved, 726k data, 120k init, 0k highmem)

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

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Inode–cache hash table entries: 32768 (order: 5, 131072 bytes)
Mount–cache hash table entries: 512 (order: 0, 4096 bytes)
-> /dev
-> /dev/console
-> /root
CPU: After generic identify, caps: 0383f9ff 00000000 00000000 00000000
CPU: After vendor identify, caps: 0383f9ff 00000000 00000000 00000000
CPU: L1 I cache: 16K, L1 D cache: 16K
CPU: L2 cache: 256K
CPU: After all inits, caps: 0383f9ff 00000000 00000000 00000040
CPU: Intel Pentium III (Coppermine) stepping 06
Enabling fast FPU save and restore... done.
Enabling unmasked SIMD FPU exception support... done.
Checking 'hlt' instruction... OK.
POSIX conformance testing by UNIFIX
Initializing RT netlink socket
PCI: PCI BIOS revision 2.10 entry at 0xf0df0, last bus=2
PCI: Using configuration type 1
mtrr: v2.0 (20020519)
BIO: pool of 256 setup, 14Kb (56 bytes/bio)
biovec pool[0]: 1 bvecs: 256 entries (12 bytes)
biovec pool[1]: 4 bvecs: 256 entries (48 bytes)
biovec pool[2]: 16 bvecs: 256 entries (192 bytes)
biovec pool[3]: 64 bvecs: 256 entries (768 bytes)
biovec pool[4]: 128 bvecs: 256 entries (1536 bytes)
biovec pool[5]: 256 bvecs: 256 entries (3072 bytes)
Linux Plug and Play Support v0.97 (c) Adam Belay
PnPBIOS: Scanning system for PnP BIOS support...
PnPBIOS: Found PnP BIOS installation structure at 0xc00fbd80
PnPBIOS: PnP BIOS version 1.0, entry 0xf0000:0xbdb0, dseg 0xf0000
PnPBIOS: 12 nodes reported by PnP BIOS; 12 recorded by driver
SCSI subsystem initialized
PCI: Probing PCI hardware
PCI: Probing PCI hardware (bus 00)
Transparent bridge – 0000:00:1e.0
PCI: Using IRQ router PIIX [8086/2440] at 0000:00:1f.0
pty: 256 Unix98 ptys configured
SBF: Simple Boot Flag extension found and enabled.
SBF: Setting boot flags 0x1
Journalled Block Device driver loaded
SGI XFS for Linux with no debug enabled
isapnp: Scanning for PnP cards...
isapnp: No Plug & Play device found
Real Time Clock Driver v1.11a
Using anticipatory scheduling elevator
Floppy drive(s): fd0 is 1.44M
FDC 0 is a post–1991 82077
loop: loaded (max 8 devices)
PCI: Found IRQ 12 for device 0000:02:0d.0
PCI: Sharing IRQ 12 with 0000:02:09.0
3c59x: Donald Becker and others. www.scyld.com/network/vortex.html

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0000:02:0d.0: 3Com PCI 3c905C Tornado at 0xd000. Vers LK1.1.19
Uniform Multi-Platform E-IDE driver Revision: 7.00alpha2
ide: Assuming 33MHz system bus speed for PIO modes; override with idebus=xx
ICH2: IDE controller at PCI slot 0000:00:1f.1
ICH2: chipset revision 2
ICH2: not 100% native mode: will probe irqs later
 ide0: BM-DMA at 0xb800-0xb807, BIOS settings: hda:DMA, hdb:pio
 ide1: BM-DMA at 0xb808-0xb80f, BIOS settings: hdc:pio, hdd:pio
hda: IC35L020AVER07-0, ATA DISK drive
ide0 at 0x1f0-0x1f7,0x3f6 on irq 14
hda: max request size: 128KiB
hda: 40188960 sectors (20576 MB) w/1916KiB Cache, CHS=39870/16/63, UDMA(100)
hda: hda1 hda2
3ware Storage Controller device driver for Linux v1.02.00.032.
PCI: Found IRQ 4 for device 0000:02:0a.0
scsi0 : Found a 3ware Storage Controller at 0xd400, IRQ: 4, P-chip: 1.3
scsi0 : 3ware Storage Controller
 Vendor: 3ware Model: Logical Disk 0 Rev: 1.0
 Type: Direct-Access ANSI SCSI revision: 00
 Vendor: 3ware Model: Logical Disk 4 Rev: 1.0
 Type: Direct-Access ANSI SCSI revision: 00
 Vendor: 3ware Model: Logical Disk 5 Rev: 1.0
 Type: Direct-Access ANSI SCSI revision: 00
 Vendor: 3ware Model: Logical Disk 6 Rev: 1.0
 Type: Direct-Access ANSI SCSI revision: 00
SCSI device sda: 600530944 512-byte hdwr sectors (307472 MB)
SCSI device sda: drive cache: write back
sda: sda1
Attached scsi disk sda at scsi0, channel 0, id 0, lun 0
SCSI device sdb: 150136560 512-byte hdwr sectors (76870 MB)
SCSI device sdb: drive cache: write through
sdb: unknown partition table
Attached scsi disk sdb at scsi0, channel 0, id 4, lun 0
SCSI device sdc: 150136560 512-byte hdwr sectors (76870 MB)
SCSI device sdc: drive cache: write through
sdc: unknown partition table
Attached scsi disk sdc at scsi0, channel 0, id 5, lun 0
SCSI device sdd: 150136560 512-byte hdwr sectors (76870 MB)
SCSI device sdd: drive cache: write through
sdd: unknown partition table
Attached scsi disk sdd at scsi0, channel 0, id 6, lun 0
mice: PS/2 mouse device common for all mice
serio: i8042 AUX port at 0x60,0x64 irq 12
input: AT Set 2 keyboard on isa0060/serio0
serio: i8042 KBD port at 0x60,0x64 irq 1
md: linear personality registered as nr 1
md: raid0 personality registered as nr 2
md: md driver 0.90.0 MAX_MD_DEVS=256, MD_SB_DISKS=27
NET4: Linux TCP/IP 1.0 for NET4.0
IP: routing cache hash table of 4096 buckets, 32Kbytes
TCP: Hash tables configured (established 32768 bind 65536)

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```
NET4: Unix domain sockets 1.0/SMP for Linux NET4.0.
md: Autodetecting RAID arrays.
md: autorun ...
md: ... autorun DONE.
VFS: Mounted root (ext2 filesystem) readonly.
Freeing unused kernel memory: 120k freed
Adding 1951856k swap on /dev/hda1. Priority:-1 extents:1
md: could not lock unknown–block(22,0).
md: could not import unknown–block(22,0)!
md: autostart unknown–block(22,0) failed!
```

-----END OF DMESG-----

-----KERNEL CONFIG-----

```
#
# Automatically generated make config: don't edit
#
CONFIG_X86=y
CONFIG_MMU=y
CONFIG_UID16=y
CONFIG_GENERIC_ISA_DMA=y

#
# Code maturity level options
#
CONFIG_EXPERIMENTAL=y
# CONFIG_BROKEN is not set

#
# General setup
#
CONFIG_SWAP=y
CONFIG_SYSVIPC=y
# CONFIG_BSD_PROCESS_ACCT is not set
CONFIG_SYSCTL=y
CONFIG_LOG_BUF_SHIFT=14
# CONFIG_IKCONFIG is not set
# CONFIG_EMBEDDED is not set
CONFIG_KALLSYMS=y
CONFIG_FUTEX=y
CONFIG_EPOLL=y
CONFIG_IOSCHED_NOOP=y
CONFIG_IOSCHED_AS=y
CONFIG_IOSCHED_DEADLINE=y

#
# Loadable module support
#
CONFIG_MODULES=y
CONFIG_MODULE_UNLOAD=y
```

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```
# CONFIG_MODULE_FORCE_UNLOAD is not set
CONFIG_OBSOLETE_MODPARM=y
# CONFIG_MODVERSIONS is not set
CONFIG_KMOD=y

#
# Processor type and features
#
CONFIG_X86_PC=y
# CONFIG_X86_VOYAGER is not set
# CONFIG_X86_NUMAQ is not set
# CONFIG_X86_SUMMIT is not set
# CONFIG_X86_BIGSMP is not set
# CONFIG_X86_VISWS is not set
# CONFIG_X86_GENERICARCH is not set
# CONFIG_X86_ES7000 is not set
# CONFIG_M386 is not set
# CONFIG_M486 is not set
# CONFIG_M586 is not set
# CONFIG_M586TSC is not set
# CONFIG_M586MMX is not set
# CONFIG_M686 is not set
# CONFIG_MPENTIUMII is not set
CONFIG_MPENTIUMIII=y
# CONFIG_MPENTIUM4 is not set
# CONFIG_MK6 is not set
# CONFIG_MK7 is not set
# CONFIG_MK8 is not set
# CONFIG_MELAN is not set
# CONFIG_MCRUSOE is not set
# CONFIG_MWINCHIP6 is not set
# CONFIG_MWINCHIP2 is not set
# CONFIG_MWINCHIP3D is not set
# CONFIG_MCYRIXIII is not set
# CONFIG_MVIAC3_2 is not set
# CONFIG_X86_GENERIC is not set
CONFIG_X86_CMPXCHG=y
CONFIG_X86_XADD=y
CONFIG_X86_L1_CACHE_SHIFT=5
CONFIG_RWSEM_XCHGADD_ALGORITHM=y
CONFIG_X86_WP_WORKS_OK=y
CONFIG_X86_INVLPG=y
CONFIG_X86_BSWAP=y
CONFIG_X86_POPAD_OK=y
CONFIG_X86_GOOD_APIC=y
CONFIG_X86_INTEL_USERCOPY=y
CONFIG_X86_USE_PPRO_CHECKSUM=y
# CONFIG_HUGETLB_PAGE is not set
# CONFIG_SMP is not set
# CONFIG_PREEMPT is not set
# CONFIG_X86_UP_APIC is not set
```

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```
CONFIG_X86_TSC=y
# CONFIG_X86_MCE is not set
# CONFIG_TOSHIBA is not set
# CONFIG_I8K is not set
# CONFIG_MICROCODE is not set
# CONFIG_X86_MSR is not set
# CONFIG_X86_CPUID is not set
# CONFIG_EDD is not set
CONFIG_NOHIGHMEM=y
# CONFIG_HIGHMEM4G is not set
# CONFIG_HIGHMEM64G is not set
# CONFIG_MATH_EMULATION is not set
CONFIG_MTRR=y

#
# Power management options (ACPI, APM)
#
# CONFIG_PM is not set

#
# ACPI (Advanced Configuration and Power Interface) Support
#
CONFIG_ACPI_HT=y
# CONFIG_ACPI is not set
CONFIG_ACPI_BOOT=y

#
# CPU Frequency scaling
#
# CONFIG_CPU_FREQ is not set

#
# Bus options (PCI, PCMCIA, EISA, MCA, ISA)
#
CONFIG_PCI=y
# CONFIG_PCI_GOBIOS is not set
# CONFIG_PCI_GODIRECT is not set
CONFIG_PCI_GOANY=y
CONFIG_PCI_BIOS=y
CONFIG_PCI_DIRECT=y
# CONFIG_PCI_LEGACY_PROC is not set
CONFIG_PCI_NAMES=y
CONFIG_ISA=y
# CONFIG_EISA is not set
# CONFIG_MCA is not set
# CONFIG_SCx200 is not set
CONFIG_HOTPLUG=y

#
# PCMCIA/CardBus support
#
```

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```
# CONFIG_PCMCIA is not set
CONFIG_PCMCIA_PROBE=y

#
# PCI Hotplug Support
#
# CONFIG_HOTPLUG_PCI is not set

#
# Executable file formats
#
CONFIG_KCORE_ELF=y
# CONFIG_KCORE_AOUT is not set
CONFIG_BINFMT_ELF=y
# CONFIG_BINFMT_AOUT is not set
# CONFIG_BINFMT_MISC is not set

#
# Generic Driver Options
#
# CONFIG_FW_LOADER is not set

#
# Memory Technology Devices (MTD)
#
# CONFIG_MTD is not set

#
# Parallel port support
#
# CONFIG_PARPORT is not set

#
# Plug and Play support
#
CONFIG_PNP=y
# CONFIG_PNP_DEBUG is not set

#
# Protocols
#
CONFIG_ISAPNP=y
CONFIG_PNPBIOS=y

#
# Block devices
#
CONFIG_BLK_DEV_FD=y
# CONFIG_BLK_DEV_XD is not set
# CONFIG_BLK_CPQ_DA is not set
# CONFIG_BLK_CPQ_CISS_DA is not set
```

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```
# CONFIG_BLK_DEV_DAC960 is not set
# CONFIG_BLK_DEV_UMEM is not set
CONFIG_BLK_DEV_LOOP=y
# CONFIG_BLK_DEV_CRYPTLOOP is not set
# CONFIG_BLK_DEV_NBD is not set
# CONFIG_BLK_DEV_RAM is not set
# CONFIG_BLK_DEV_INITRD is not set
# CONFIG_LBD is not set

#
# ATA/ATAPI/MFM/RLL support
#
CONFIG_IDE=y
CONFIG_BLK_DEV_IDE=y

#
# Please see Documentation/ide.txt for help/info on IDE drives
#
# CONFIG_BLK_DEV_HD_IDE is not set
CONFIG_BLK_DEV_IDEDISK=y
# CONFIG_IDEDISK_MULTI_MODE is not set
# CONFIG_IDEDISK_STROKE is not set
# CONFIG_BLK_DEV_IDECD is not set
# CONFIG_BLK_DEV_IDETAPE is not set
# CONFIG_BLK_DEV_IDEFLOPPY is not set
# CONFIG_BLK_DEV_IDESCSI is not set
# CONFIG_IDE_TASK_IOCTL is not set
CONFIG_IDE_TASKFILE_IO=y

#
# IDE chipset support/bugfixes
#
# CONFIG_BLK_DEV_CMD640 is not set
# CONFIG_BLK_DEV_IDEPNP is not set
CONFIG_BLK_DEV_IDEPCI=y
CONFIG_IDEPCI_SHARE_IRQ=y
# CONFIG_BLK_DEV_OFFBOARD is not set
# CONFIG_BLK_DEV_GENERIC is not set
# CONFIG_BLK_DEV_OPTI621 is not set
CONFIG_BLK_DEV_RZ1000=y
CONFIG_BLK_DEV_IDEDMA_PCI=y
# CONFIG_BLK_DEV_IDE_TCQ is not set
# CONFIG_BLK_DEV_IDEDMA_FORCED is not set
CONFIG_IDEDMA_PCI_AUTO=y
# CONFIG_IDEDMA_ONLYDISK is not set
# CONFIG_IDEDMA_PCI_WIP is not set
CONFIG_BLK_DEV_ADMA=y
# CONFIG_BLK_DEV_AEC62XX is not set
# CONFIG_BLK_DEV_ALI15X3 is not set
# CONFIG_BLK_DEV_AMD74XX is not set
# CONFIG_BLK_DEV_CMD64X is not set
```

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```
# CONFIG_BLK_DEV_TRIFLEX is not set
# CONFIG_BLK_DEV_CY82C693 is not set
# CONFIG_BLK_DEV_CS5520 is not set
# CONFIG_BLK_DEV_CS5530 is not set
# CONFIG_BLK_DEV_HPT34X is not set
# CONFIG_BLK_DEV_HPT366 is not set
# CONFIG_BLK_DEV_SC1200 is not set
CONFIG_BLK_DEV_PIIX=y
# CONFIG_BLK_DEV_NS87415 is not set
# CONFIG_BLK_DEV_PDC202XX_OLD is not set
# CONFIG_BLK_DEV_PDC202XX_NEW is not set
# CONFIG_BLK_DEV_SVWKS is not set
# CONFIG_BLK_DEV_SIIMAGE is not set
# CONFIG_BLK_DEV_SIS5513 is not set
# CONFIG_BLK_DEV_SLC90E66 is not set
# CONFIG_BLK_DEV_TRM290 is not set
# CONFIG_BLK_DEV_VIA82CXXX is not set
# CONFIG_IDE_CHIPSETS is not set
CONFIG_BLK_DEV_IDEDMA=y
# CONFIG_IDEDMA_IVB is not set
CONFIG_IDEDMA_AUTO=y
# CONFIG_DMA_NONPCI is not set
# CONFIG_BLK_DEV_HD is not set

#
# SCSI device support
#
CONFIG_SCSI=y

#
# SCSI support type (disk, tape, CD–ROM)
#
CONFIG_BLK_DEV_SD=y
# CONFIG_CHR_DEV_ST is not set
# CONFIG_CHR_DEV_OSST is not set
# CONFIG_BLK_DEV_SR is not set
# CONFIG_CHR_DEV_SG is not set

#
# Some SCSI devices (e.g. CD jukebox) support multiple LUNs
#
# CONFIG_SCSI_MULTI_LUN is not set
CONFIG_SCSI_REPORT_LUNS=y
# CONFIG_SCSI_CONSTANTS is not set
# CONFIG_SCSI_LOGGING is not set

#
# SCSI low–level drivers
#
CONFIG_BLK_DEV_3W_XXXX_RAID=y
# CONFIG_SCSI_7000FASST is not set
```

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```
# CONFIG_SCSI_ACARD is not set
# CONFIG_SCSI_AHA152X is not set
# CONFIG_SCSI_AHA1542 is not set
# CONFIG_SCSI_AACRAID is not set
# CONFIG_SCSI_AIC7XXX is not set
# CONFIG_SCSI_AIC7XXX_OLD is not set
# CONFIG_SCSI_AIC79XX is not set
# CONFIG_SCSI_DPT_I2O is not set
# CONFIG_SCSI_ADVANSYS is not set
# CONFIG_SCSI_IN2000 is not set
# CONFIG_SCSI_AM53C974 is not set
# CONFIG_SCSI_MEGARAID is not set
# CONFIG_SCSI_BUSLOGIC is not set
# CONFIG_SCSI_CPQFCTS is not set
# CONFIG_SCSI_DMX3191D is not set
# CONFIG_SCSI_DTC3280 is not set
# CONFIG_SCSI_EATA is not set
# CONFIG_SCSI_EATA_PIO is not set
# CONFIG_SCSI_FUTURE_DOMAIN is not set
# CONFIG_SCSI_GDTH is not set
# CONFIG_SCSI_GENERIC_NCR5380 is not set
# CONFIG_SCSI_GENERIC_NCR5380_MMIO is not set
# CONFIG_SCSI_IPS is not set
# CONFIG_SCSI_INITIO is not set
# CONFIG_SCSI_INIA100 is not set
# CONFIG_SCSI_NCR53C406A is not set
# CONFIG_SCSI_SYM53C8XX_2 is not set
# CONFIG_SCSI_SYM53C8XX is not set
# CONFIG_SCSI_PAS16 is not set
# CONFIG_SCSI_PCI2000 is not set
# CONFIG_SCSI_PCI2220I is not set
# CONFIG_SCSI_PSI240I is not set
# CONFIG_SCSI_QLOGIC_FAS is not set
# CONFIG_SCSI_QLOGIC_ISP is not set
# CONFIG_SCSI_QLOGIC_FC is not set
# CONFIG_SCSI_QLOGIC_1280 is not set
# CONFIG_SCSI_SEAGATE is not set
# CONFIG_SCSI_SYM53C416 is not set
# CONFIG_SCSI_DC395x is not set
# CONFIG_SCSI_DC390T is not set
# CONFIG_SCSI_T128 is not set
# CONFIG_SCSI_U14_34F is not set
# CONFIG_SCSI_ULTRASTOR is not set
# CONFIG_SCSI_NSP32 is not set
# CONFIG_SCSI_DEBUG is not set

#
# Old CD–ROM drivers (not SCSI, not IDE)
#
# CONFIG_CD_NO_IDESCSI is not set
```

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```
#
# Multi–device support (RAID and LVM)
#
CONFIG_MD=y
CONFIG_BLK_DEV_MD=y
CONFIG_MD_LINEAR=y
CONFIG_MD_RAID0=y
# CONFIG_MD_RAID1 is not set
# CONFIG_MD_RAID5 is not set
# CONFIG_MD_MULTIPATH is not set
# CONFIG_BLK_DEV_DM is not set

#
# Fusion MPT device support
#
# CONFIG_FUSION is not set

#
# IEEE 1394 (FireWire) support (EXPERIMENTAL)
#
# CONFIG_IEEE1394 is not set

#
# I2O device support
#
# CONFIG_I2O is not set

#
# Networking support
#
CONFIG_NET=y

#
# Networking options
#
CONFIG_PACKET=y
# CONFIG_PACKET_MMAP is not set
# CONFIG_NETLINK_DEV is not set
CONFIG_UNIX=y
# CONFIG_NET_KEY is not set
CONFIG_INET=y
# CONFIG_IP_MULTICAST is not set
# CONFIG_IP_ADVANCED_ROUTER is not set
# CONFIG_IP_PNP is not set
# CONFIG_NET_IPIP is not set
# CONFIG_NET_IPGRE is not set
# CONFIG_ARPD is not set
# CONFIG_INET_ECN is not set
# CONFIG_SYN_COOKIES is not set
# CONFIG_INET_AH is not set
# CONFIG_INET_ESP is not set
```

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```
# CONFIG_INET_IPCOMP is not set
# CONFIG_IPV6 is not set
# CONFIG_DECNET is not set
# CONFIG_BRIDGE is not set
# CONFIG_NETFILTER is not set

#
# SCTP Configuration (EXPERIMENTAL)
#
CONFIG_IPV6_SCTP__=y
# CONFIG_IP_SCTP is not set
# CONFIG_ATM is not set
# CONFIG_VLAN_8021Q is not set
# CONFIG_LLC is not set
# CONFIG_X25 is not set
# CONFIG_LAPB is not set
# CONFIG_NET_DIVERT is not set
# CONFIG_ECONET is not set
# CONFIG_WAN_ROUTER is not set
# CONFIG_NET_FASTROUTE is not set
# CONFIG_NET_HW_FLOWCONTROL is not set

#
# QoS and/or fair queueing
#
# CONFIG_NET_SCHED is not set

#
# Network testing
#
# CONFIG_NET_PKTGEN is not set
CONFIG_NETDEVICES=y

#
# ARCnet devices
#
# CONFIG_ARCNET is not set
CONFIG_DUMMY=y
# CONFIG_BONDING is not set
# CONFIG_EQUALIZER is not set
# CONFIG_TUN is not set
# CONFIG_ETHERTAP is not set
# CONFIG_NET_SB1000 is not set

#
# Ethernet (10 or 100Mbit)
#
CONFIG_NET_ETHERNET=y
# CONFIG_MII is not set
# CONFIG_HAPPYMEAL is not set
# CONFIG_SUNGEM is not set
```

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```
CONFIG_NET_VENDOR_3COM=y
# CONFIG_EL1 is not set
# CONFIG_EL2 is not set
# CONFIG_ELPLUS is not set
# CONFIG_EL16 is not set
# CONFIG_EL3 is not set
# CONFIG_3C515 is not set
CONFIG_VORTEX=y
# CONFIG_TYPHOON is not set
# CONFIG_LANCE is not set
# CONFIG_NET_VENDOR_SMC is not set
# CONFIG_NET_VENDOR_RACAL is not set

#
# Tulip family network device support
#
# CONFIG_NET_TULIP is not set
# CONFIG_AT1700 is not set
# CONFIG_DEPCA is not set
# CONFIG_HP100 is not set
# CONFIG_NET_ISA is not set
# CONFIG_NET_PCI is not set
# CONFIG_NET_POCKET is not set

#
# Ethernet (1000 Mbit)
#
# CONFIG_ACENIC is not set
# CONFIG_DL2K is not set
# CONFIG_E1000 is not set
# CONFIG_NS83820 is not set
# CONFIG_HAMACHI is not set
# CONFIG_YELLOWFIN is not set
# CONFIG_R8169 is not set
# CONFIG_SIS190 is not set
# CONFIG_SK98LIN is not set
CONFIG_TIGON3=y

#
# Ethernet (10000 Mbit)
#
# CONFIG_IXGB is not set
# CONFIG_FDDI is not set
# CONFIG_HIPPI is not set
# CONFIG_PPP is not set
# CONFIG_SLIP is not set

#
# Wireless LAN (non-hamradio)
#
# CONFIG_NET_RADIO is not set
```

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```
#
# Token Ring devices (depends on LLC=y)
#
# CONFIG_NET_FC is not set
# CONFIG_RCPCI is not set
# CONFIG_SHAPER is not set

#
# Wan interfaces
#
# CONFIG_WAN is not set

#
# Amateur Radio support
#
# CONFIG_HAMRADIO is not set

#
# IrDA (infrared) support
#
# CONFIG_IRDA is not set

#
# ISDN subsystem
#
# CONFIG_ISDN_BOOL is not set

#
# Telephony Support
#
# CONFIG_PHONE is not set

#
# Input device support
#
CONFIG_INPUT=y

#
# Userland interfaces
#
CONFIG_INPUT_MOUSEDEV=y
CONFIG_INPUT_MOUSEDEV_PSAUX=y
CONFIG_INPUT_MOUSEDEV_SCREEN_X=1024
CONFIG_INPUT_MOUSEDEV_SCREEN_Y=768
# CONFIG_INPUT_JOYDEV is not set
# CONFIG_INPUT_TSDEV is not set
# CONFIG_INPUT_EVDEV is not set
# CONFIG_INPUT_EVBUG is not set

#
# Input I/O drivers
```

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```
#
# CONFIG_GAMEPORT is not set
CONFIG_SOUND_GAMEPORT=y
CONFIG_SERIO=y
CONFIG_SERIO_I8042=y
CONFIG_SERIO_SERPORT=y
# CONFIG_SERIO_CT82C710 is not set
# CONFIG_SERIO_PCIPS2 is not set

#
# Input Device Drivers
#
CONFIG_INPUT_KEYBOARD=y
CONFIG_KEYBOARD_ATKBD=y
# CONFIG_KEYBOARD_SUNKBD is not set
# CONFIG_KEYBOARD_XTKBD is not set
# CONFIG_KEYBOARD_NEWTON is not set
CONFIG_INPUT_MOUSE=y
CONFIG_MOUSE_PS2=y
# CONFIG_MOUSE_SERIAL is not set
# CONFIG_MOUSE_INPORT is not set
# CONFIG_MOUSE_LOGIBM is not set
# CONFIG_MOUSE_PC110PAD is not set
# CONFIG_INPUT_JOYSTICK is not set
# CONFIG_INPUT_TOUCHSCREEN is not set
# CONFIG_INPUT_MISC is not set

#
# Character devices
#
CONFIG_VT=y
CONFIG_VT_CONSOLE=y
CONFIG_HW_CONSOLE=y
# CONFIG_SERIAL_NONSTANDARD is not set

#
# Serial drivers
#
# CONFIG_SERIAL_8250 is not set

#
# Non-8250 serial port support
#
CONFIG_UNIX98_PTYS=y
CONFIG_UNIX98_PTY_COUNT=256

#
# I2C support
#
# CONFIG_I2C is not set
```

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```
#  
# I2C Hardware Sensors Mainboard support  
#  
  
#  
# I2C Hardware Sensors Chip support  
#  
# CONFIG_I2C_SENSOR is not set  
  
#  
# Mice  
#  
# CONFIG_BUSMOUSE is not set  
# CONFIG_QIC02_TAPE is not set  
  
#  
# IPMI  
#  
# CONFIG_IPMI_HANDLER is not set  
  
#  
# Watchdog Cards  
#  
# CONFIG_WATCHDOG is not set  
# CONFIG_HW_RANDOM is not set  
# CONFIG_NVRAM is not set  
CONFIG_RTC=y  
# CONFIG_DTLK is not set  
# CONFIG_R3964 is not set  
# CONFIG_APPLICOM is not set  
# CONFIG_SONYPI is not set  
  
#  
# Ftape, the floppy tape device driver  
#  
# CONFIG_FTAPE is not set  
# CONFIG_AGP is not set  
# CONFIG_DRM is not set  
# CONFIG_MWAVE is not set  
# CONFIG_RAW_DRIVER is not set  
# CONFIG_HANGCHECK_TIMER is not set  
  
#  
# Multimedia devices  
#  
# CONFIG_VIDEO_DEV is not set  
  
#  
# Digital Video Broadcasting Devices  
#  
# CONFIG_DVB is not set
```

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```
#
# File systems
#
CONFIG_EXT2_FS=y
# CONFIG_EXT2_FS_XATTR is not set
CONFIG_EXT3_FS=y
CONFIG_EXT3_FS_XATTR=y
# CONFIG_EXT3_FS_POSIX_ACL is not set
# CONFIG_EXT3_FS_SECURITY is not set
CONFIG_JBD=y
# CONFIG_JBD_DEBUG is not set
CONFIG_FS_MBCACHE=y
CONFIG_REISERFS_FS=y
# CONFIG_REISERFS_CHECK is not set
# CONFIG_REISERFS_PROC_INFO is not set
CONFIG_JFS_FS=y
# CONFIG_JFS_POSIX_ACL is not set
# CONFIG_JFS_DEBUG is not set
CONFIG_JFS_STATISTICS=y
CONFIG_XFS_FS=y
# CONFIG_XFS_RT is not set
# CONFIG_XFS_QUOTA is not set
# CONFIG_XFS_POSIX_ACL is not set
# CONFIG_MINIX_FS is not set
# CONFIG_ROMFS_FS is not set
# CONFIG_QUOTA is not set
# CONFIG_AUTOFS_FS is not set
# CONFIG_AUTOFS4_FS is not set

#
# CD–ROM/DVD Filesystems
#
# CONFIG_ISO9660_FS is not set
# CONFIG_UDF_FS is not set

#
# DOS/FAT/NT Filesystems
#
# CONFIG_FAT_FS is not set
# CONFIG_NTFS_FS is not set

#
# Pseudo filesystems
#
CONFIG_PROC_FS=y
# CONFIG_DEVFS_FS is not set
CONFIG_DEVPTS_FS=y
# CONFIG_DEVPTS_FS_XATTR is not set
# CONFIG_TMPFS is not set
CONFIG_RAMFS=y
```

```
#
# Miscellaneous filesystems
#
# CONFIG_ADFS_FS is not set
# CONFIG_AFFS_FS is not set
# CONFIG_HFS_FS is not set
# CONFIG_BEFS_FS is not set
# CONFIG_BFS_FS is not set
# CONFIG_EFS_FS is not set
# CONFIG_CRAMFS is not set
# CONFIG_VXFS_FS is not set
# CONFIG_HPFS_FS is not set
# CONFIG_QNX4FS_FS is not set
# CONFIG_SYSV_FS is not set
# CONFIG_UFS_FS is not set

#
# Network File Systems
#
CONFIG_NFS_FS=y
CONFIG_NFS_V3=y
# CONFIG_NFS_V4 is not set
# CONFIG_NFSD is not set
CONFIG_LOCKD=y
CONFIG_LOCKD_V4=y
# CONFIG_EXPORTFS is not set
CONFIG_SUNRPC=y
# CONFIG_SUNRPC_GSS is not set
# CONFIG_SMB_FS is not set
# CONFIG_CIFS is not set
# CONFIG_NCP_FS is not set
# CONFIG_CODA_FS is not set
# CONFIG_INTERMEZZO_FS is not set
# CONFIG_AFS_FS is not set

#
# Partition Types
#
# CONFIG_PARTITION_ADVANCED is not set
CONFIG_MSDOS_PARTITION=y
CONFIG_NLS=y

#
# Native Language Support
#
CONFIG_NLS_DEFAULT="iso8859-1"
# CONFIG_NLS_CODEPAGE_437 is not set
# CONFIG_NLS_CODEPAGE_737 is not set
# CONFIG_NLS_CODEPAGE_775 is not set
# CONFIG_NLS_CODEPAGE_850 is not set
# CONFIG_NLS_CODEPAGE_852 is not set
```

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```
# CONFIG_NLS_CODEPAGE_855 is not set
# CONFIG_NLS_CODEPAGE_857 is not set
# CONFIG_NLS_CODEPAGE_860 is not set
# CONFIG_NLS_CODEPAGE_861 is not set
# CONFIG_NLS_CODEPAGE_862 is not set
# CONFIG_NLS_CODEPAGE_863 is not set
# CONFIG_NLS_CODEPAGE_864 is not set
# CONFIG_NLS_CODEPAGE_865 is not set
# CONFIG_NLS_CODEPAGE_866 is not set
# CONFIG_NLS_CODEPAGE_869 is not set
# CONFIG_NLS_CODEPAGE_936 is not set
# CONFIG_NLS_CODEPAGE_950 is not set
# CONFIG_NLS_CODEPAGE_932 is not set
# CONFIG_NLS_CODEPAGE_949 is not set
# CONFIG_NLS_CODEPAGE_874 is not set
# CONFIG_NLS_ISO8859_8 is not set
# CONFIG_NLS_CODEPAGE_1250 is not set
# CONFIG_NLS_CODEPAGE_1251 is not set
# CONFIG_NLS_ISO8859_1 is not set
# CONFIG_NLS_ISO8859_2 is not set
# CONFIG_NLS_ISO8859_3 is not set
# CONFIG_NLS_ISO8859_4 is not set
# CONFIG_NLS_ISO8859_5 is not set
# CONFIG_NLS_ISO8859_6 is not set
# CONFIG_NLS_ISO8859_7 is not set
# CONFIG_NLS_ISO8859_9 is not set
# CONFIG_NLS_ISO8859_13 is not set
# CONFIG_NLS_ISO8859_14 is not set
# CONFIG_NLS_ISO8859_15 is not set
# CONFIG_NLS_KOI8_R is not set
# CONFIG_NLS_KOI8_U is not set
# CONFIG_NLS_UTF8 is not set

#
# Graphics support
#
# CONFIG_FB is not set
# CONFIG_VIDEO_SELECT is not set

#
# Console display driver support
#
CONFIG_VGA_CONSOLE=y
# CONFIG_MDA_CONSOLE is not set
CONFIG_DUMMY_CONSOLE=y

#
# Sound
#
# CONFIG_SOUND is not set
```

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```
#
# USB support
#
# CONFIG_USB is not set
# CONFIG_USB_GADGET is not set

#
# Bluetooth support
#
# CONFIG_BT is not set

#
# Profiling support
#
# CONFIG_PROFILING is not set

#
# Kernel hacking
#
# CONFIG_DEBUG_KERNEL is not set
# CONFIG_DEBUG_SPINLOCK_SLEEP is not set
# CONFIG_FRAME_POINTER is not set

#
# Security options
#
# CONFIG_SECURITY is not set

#
# Cryptographic options
#
# CONFIG_CRYPT0 is not set

#
# Library routines
#
# CONFIG_CRC32 is not set
CONFIG_X86_BIOS_REBOOT=y
```

-----END OF KERNEL CONFIG-----

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