

## Re: Network card problem during install

**Source:** <http://linux.derkeiler.com/Newsgroups/alt.os.linux.suse/2004-04/0649.html>

---

**From:** Valentín Guillén ([usenet1\\_at\\_myrealbox.com](mailto:usenet1_at_myrealbox.com))

**Date:** 04/04/04

Date: Sun, 04 Apr 2004 00:31:24 -0700

On Sat, 03 Apr 2004 16:13:52 -0800, Magnar Skjerv?y wrote:

> *Does anyone what to write when I'm asked for a parameter? Or if it is*  
> *something else I can do?*

"8139too" Fast Ethernet driver for Linux  
RTL-8139, -8129, and -8130 10/100 Fast Ethernet adapters

Copyright 2000,2001 Jeff Garzik <[jgarzik@mandrakesoft.com](mailto:jgarzik@mandrakesoft.com)>

<http://sourceforge.net/projects/gkernel/>

Architectures supported (all PCI platforms):  
x86, Alpha AXP, PowerPC, Sparc64

Kernel versions supported: 2.4.x

Disclaimer

-----

DO NOT CONTACT DONALD BECKER FOR SUPPORT OF THIS DRIVER, his driver is completely different and maintained independently of the 8139too code base.

Requirements

-----

Kernel 2.4.3 or later.

A Fast Ethernet adapter containing an RTL8139-based chip.

Introduction

-----

The "8139too" Fast Ethernet driver for Linux 2.4.0 is a substantial modification of the experimental rtl8139 driver from Donald Becker, some versions of which appeared in 2.2.x and 2.3.x kernels. The RTL-8139 is a very low-cost Fast Ethernet chip, which makes it very popular.

The step from 2.2.x to 2.4.x kernels brings many new features to Linux device drivers. Features for MMIO resources, a standard hot-plug API, and other interfaces are now becoming requirements, as drivers move off the x86 platform. With that in mind, I have begun updating the RTL-8139 driver to current 2.3.x (2.4) kernel standards and APIs, and fixing the problems that users have been encountering.

#### Features of 8139too

---

[note – this list intended for people familiar with kernel drivers]

- \*\* 100% MMIO, for full speed operation. All users (so far) have reported performance increases over their existing RTL drivers.
- \*\* Multi-platform support: x86, Alpha, PPC, ...
- \*\* Use proper SMP spinlocking, fixing SMP interrupt bugs, making the driver portable to non-x86 SMP platforms in the process.
- \*\* Use new PCI driver API for seamless, low-maintenance hot-plug support
- \*\* Several bugs fixes from original rtl8139 1.08r (October 5, 1999), including the very common "transmit timeout" problem.
- \* Use new resource allocation API, required for hot-plug support
- \* Use new register read/write macros
- \* initcall support (module\_init/exit)
- \* vastly improved debug tracing support
- \* code formatting in many places for readability
- \* use new init\_etherdev() facilities

...and probably some other less important changes which I forgot.

#### Installation

---

OPTION 1: Build inside kernel tree (into kernel image, or as module)

(overwrite 8139too driver in kernel tree with different version)

1) cp 8139too.c \$my\_source\_tree/drivers/net/8139too.c

OPTION 2: Build outside kernel tree

Use the included Makefile.

#### Tested Adapters

---

AOpen ALN-325C

AT-2500TX 10/100 PCI Fast Ethernet Network Adapter Card

KTI KF-230TX

KTI KF-230TX/2

Lantech FastNet TX  
Ovislink Fast Ethernet  
Planet ENW-9504 (V.4) 10/100  
SDT Jeoun Fast PCI-TX  
SMC EZNET 10/100  
UNEX NexNIC ND012C

(please add your adapter model to this list)

#### Status of Platform Support

---

(see errata below for details)

x86: tested, stable  
Alpha AXP: tested, stable  
PowerPC: tested, unstable  
Sparc64: not tested

#### Special Thanks

---

The following people contributed invaluable testing time, feedback and/or patches during the development of this driver. Thanks to all of them.

Donald Becker, Alan Cox, Richard Stallman, Linus Torvalds – inspiration

Alan Cox, Gerard Roudier – insight on posted MMIO writes

Martin Mares – code review

Tigran Aivazian – testing, code review, and a bug fix

Chmouel Boudjnah, Alexander Dietrich, Oleg Drokin,  
James Fidell, Taso Hatzi, Peter K – intrepid test team

And thanks to every supporter free software.

(see top of 8139too.c for further credits and kudos)

#### Submitting Bug Reports

---

Obtain and compile the modified rtl8139-diag source code from the 8139too driver Web site, <http://sourceforge.net/projects/gkernel/>  
This diagnostics programs, originally from Donald Becker, has been modified to display all registers on your RTL8139 chip, not just the first 0x80.

If possible, send the output of a working and broken driver with  
rtl8139-diag -mmaavvveefN > my-output-file.txt

Send "lspci -vvv" or "cat /proc/pci" output for PCI information.

#### Known Bugs / Errata / To-Do

-----

The following issues are known, and are actively being pursued. Patches to resolve these issues is welcome. If a problem occurs which is not in the list, please report it. That's why we do beta releases, after all...

- 1) Work with Donald to merge fixes and updates into his driver.
- 2) ETHTOOL\_SSET support
- 3) PPC platform has stability problems. (XXX: verify this is still true)
- 4) Sparc64 platform not tested at all.
- 8) Much improved command line / module parameter setup. (patches and suggestions welcome) (WIP)
- 9) Better documentation. (patches welcome)
- 12) 10base-T support flaky or slow (todo: verify this is still true)

#### Change History

-----

Version 0.9.26 – August 9, 2002

- \* Fix MII ioctl phy id corruption.
- \* Fix big-endian multicast bug.
- \* Support register dumps via ethtool.
- \* Fix several uses of 'len' after potential skb free, in dev->hard\_start\_xmit
- \* Replace several "magic numbers" with their proper representation constants in linux/mii.h.
- \* Support ethtool media interface via generic kernel MII API
- \* Export NIC-specific statistics via ethtool.
- \* Proper support for RTL8139 rev K. (can be disabled via compile-time conditional)
- \* Add PCI ids for new 8139 boards.
- \* Use ethernet crc via generic linux/crc32.h kernel API.
- \* Better RX reset. Old rx-reset method still available via a compile-time conditional.
- \* Only account specific RX errors if rx\_status is !OK

Version 0.9.22 – November 8, 2001

- \* Additional retries before aborting Tx
- \* Do not write other TxConfig bits when writing clear-abort bit.
- \* Ack TxErr intr status after each Tx abort, too.
- \* Fix oops in interface restart

Version 0.9.21 – November 1, 2001

- \* Disable early Rx, it hurts performance and creates races.
- \* Remove DPRINTK macro function tracing.
- \* Better interrupt sharing behavior.
- \* Acknowledge PCI errors.
- \* Remove early-Rx acknowledgement, unnecessary
- \* Remove code for uncommon case where Tx packets are properly aligned, and do not need to be copied.  
Tx packets are now always copied into a static DMA buffer, which is allocated at interface open.
- \* Fix problems with kernel thread exit.

Version 0.9.20 – October 18, 2001

- \* Print out notice when 8139C+ chip is detected
- \* Add id for D-Link DFE690TXD pcmcia cardbus card (Gert Dewit)

Version 0.9.19 – October 9, 2001

- \* Eliminate buffer copy for unaligned Tx's (manfred)
- \* Better RX error recovery (manfred)
- \* Wake-On-LAN and ETHTOOL\_GSET support (Kalle Niemitalo)
- \* Fix assertion in PIO mode (various)

Version 0.9.18 – July 6, 2001

- \* Fix race leading to crashes on some machines.
- \* Minimize race leading to low performance.
- \* Correct interrupt acknowledgement to cover all three relevant Rx events.
- \* Add ethtool driver info support.
- \* Collect additional driver-internal statistics.
- \* Add descriptions for module parameters.
- \* Support new SIOCxMIIxxx ioctls added in kernel 2.4.6.
- \* Multicast filter big endian fix.
- \* Support new PCI PM API added in kernel 2.4.6.

Version 0.9.17 – May 7, 2001

- \* Fix chipset wakeup bug which prevent media connection for 8139B
- \* Print out "media is unconnected..." instead of "partner ability 0000"

Version 0.9.16 – April 14, 2001

- \* Complete MMIO audit, disable read-after-every-write
- \* Update Rx interrupt handling
- \* Enable Early Rx thresholds, highly recommended to reduce Rx FIFO overflow
- \* Make 8129 support conditional

## alt.os.linux.suse: Re: Network card problem during install

- \* Support for new 2.4.3 kernel APIs
- \* More correct PIO/MMIO PCI BAR region size checking
- \* Add check for totally dead/missing hardware
- \* Disable media timer code to "set full duplex"
- \* s/spin\_lock\_irq/spin\_lock\_irqsave/
- \* Only set AcceptMulticast if more than one mc address
- \* Only set rx\_mode if changed, in set\_rx\_mode
- \* Only suspend/resume if interface is up
- \* Always print out version upon module load, even if no devices found

Version 0.9.15 – February 20, 2001

- \* Call pci\_enable\_device to wake up/assign resource to device, before actually using it.
- \* Support wacky clone PCI ids (report from Norival Toniato Junior)
- \* Text spelling corrections
- \* Make sure tp->phys[] is signed
- \* Always wake queue after hw restart, in tx\_timeout
- \* Record time of last received packet

Version 0.9.14 – January 11, 2001

- \* Merge some changes from Becker version 1.13:
  - \* Add DFE 538TX PCI id
  - \* MII read/write functions updated
  - \* Cfg93[45]6 lock/unlock fix
  - \* RTL-8129 (MII) support
- \* Clean up spinlocking

Version 0.9.13 – December, 2000

- \* Clear blocked signals, avoid buffer overrun setting current->comm
- \* Remove bogus PCI BAR length assertions
- \* Remove unused 'debug' module parameter

Version 0.9.12 – November 23, 2000

- \* Kill major Tx stop/wake queue race
- \* Use SET\_MODULE\_OWNER and fix module unload race
- \* Fix cable length ("Twister") tuning
- \* Proper media[] array length checking
- \* Replace timer with kernel thread for twister tuning state machine and media checking. Fixes mdio\_xxx locking, now mdio\_xxx is always protected by rtnl\_lock semaphore.
- \* Correct some sledgehammer a.k.a. overzealous spin-locks
- \* Performance: Eliminate atomic\_t for Tx counters, we don't need it
- \* Performance: Don't copy Tx buffer if the rare case occurs where it is aligned perfectly for us.
- \* Eliminate needless casting of dev->priv
- \* PIO mode selection and Twister tuning are now CONFIG\_xxx options (though purposefully not in net/Config.in... yet)

Re: Network card problem during install

Version 0.9.11 – October 28, 2000

- \* Do not fail when PIO and MMIO region lengths do not match.  
(They don't on some CardBus models, at least)
- \* Sanity check Rx packet status and size (Tobias)
- \* When handling a Tx timeout, disable Tx ASAP if not already.
- \* Do not inline Tx interrupt handler (better register usage)
- \* Handle dirty\_tx signed integer wrap
- \* Do not abort Rx processing on lack of memory, keep going until the current Rx ring is completely handling. (Tobias)
- \* Clean up rtl8139\_close
- \* Whitespace correction for dev\_kfree\_skb\_irq call

Version 0.9.10 – September 12, 2000

- \* Never wrap an Rx packet (faster Rx interrupt handling)
- \* Clear all TxAborted conditions (bug fix)
- \* Correct copyright
- \* More credits
- \* Update NWay doc URL
- \* Clean up commonly used ifdef switches
- \* Reorg info displayed at bootup/modprobe time
- \* Remove some unneeded spinlocks
- \* Misc cosmetic code cleanup
- \* Always print interrupt status for abnormal interrupts
- \* Use RealTek–recommended FIFO and DMA burst settings (1024 bytes)

Version 0.9.9 – September 9, 2000

- \* Fix oops–able bug in Rx ring wrap calculation (David Ford)
- \* Use PIO instead of MMIO when USE\_IO\_OPS is defined
- \* Move Rx error handling out of Rx interrupt handler, resulting in tighter Rx interrupt processing

Version 0.9.8 – September 7, 2000

- \* Propagate request\_irq error value (andrew morton)
- \* Correct potential oops bug in PCI DMA unmap code
- \* Fix bugs related to counting/discounting of 32–bit CRC in each Rx packet
- \* Fix 16/32–bit bug in interrupt status check
- \* Timer cleanups (andrew morton)

Version 0.9.7 – June 11, 2000

- \* Fix support for older chips (RTL8139 early chips should now work again)

Version 0.9.6 – May 30, 2000

- \* Fix 4–extra–bytes bug  
(thanks to Markus Westergren, via Santiago Garcia Mantinan)
- \* Yet more improved chip recognition

Re: Network card problem during install

Version 0.9.5 – May 17, 2000

- \* Improved chip version recognition
- \* Continue banging away at receiver hang problem
- \* Use spin\_lock\_irq in another spot
- \* Don't print anything on pci\_enable\_device, it does so for us
- \* Disable buggy NWay code
- \* Define TxConfig bitmasks

Version 0.9.4.1 – April 27, 2000 – third public beta release

- \* Replace several "magic numbers" with symbolic constants
- \* Differentiate between board-specific info and chip-specific info (allows for easier support of specific boards or chips)
- \* Move some of the transmit side outside of the spinlock by using atomic variables. Use spin\_lock\_irq instead of spin\_lock\_irq{save,restore} in select places, for better performance.
- \* New module option "media" for forcing media selection. Functions the same as "options" in other drivers, and will soon be renamed 'options' to be homogeneous.
- \* New power management wake-up code
- \* Slightly more verbose chip id messages in kernel log
- \* Add/correct chip register constant list
- \* New chipset wake up (open) logic
- \* No longer locks CONFIGx updates
- \* Do not set Interframe Gap (IFG) bits in TxConfig
- \* Better Rx reset logic in case of Rx FIFO Overflow
- \* For chips which support it, enable bit to automatically clear Rx FIFO overflow
- \* No longer enable and disable interrupts in interrupt handler (technique borrowed from BSD driver, appears to have problems with some chips)
- \* H/W spinlock now protects ioctl
- \* Chipset-dependent RxConfig settings

Version 0.9.3.3.2 – Feb 22, 2000 – second public beta release

- \* Begin integration of Daniel Kobras' MMIO flush patch (disabled for now)
- \* Softnet logic updates to fix bugs and improve performance
- \* Dynamic sizing of I/O resources (0x80 for older chips, 0xFF for newer ones)
- \* Remove bogus SiS entries from PCI probe table
- \* Add support for cards
  - "Delta Electronics 8139 10/100BaseTX"
  - "Addtron Technolgy 8139 10/100BaseTX"
- \* Fix major bug with rx ring buffer size (also present in rtl8139.c 1.08r)
- \* PCI DMA mapping by Dave Miller
- \* Complete rewrite of SMP locking logic
- \* Hotplug support
- \* Call rtl8139\_hw\_start from rtl8139\_open, and remove duplicated code from rtl8139\_open
- \* Reset NWay registers to sane defaults on rtl8139\_open/hw\_start

alt.os.linux.suse: Re: Network card problem during install

\* Miscellaneous code cleanup

Version 0.7.0 – Feb 7, 2000 – first public beta release

\* Initial public version, derived from Donald Becker's rtl8139.c v1.08r

[EOF]