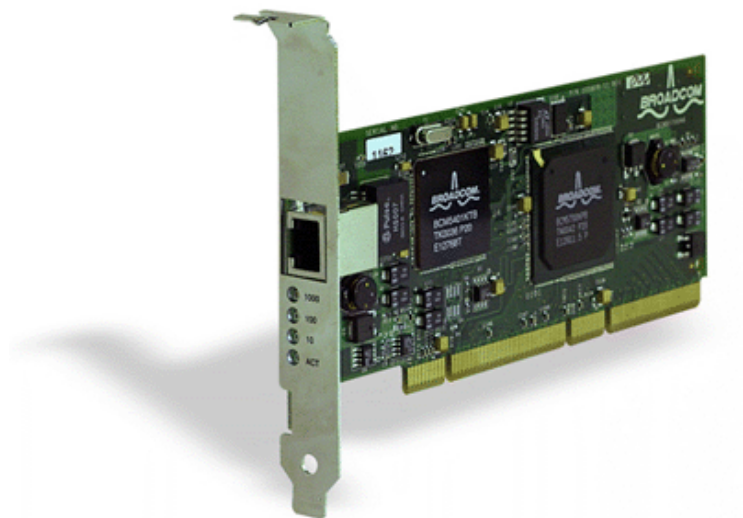


# The Minix3 Tigon III (TG3) Driver

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May 27, 2010



## Introduction

The Minix3 Tigon III (tg3) driver is based on the official Broadcom Linux tg3 driver for Broadcom NetXtreme 10/100/1000 Mbps PCI/PCI-X/PCI Express Ethernet Network Controllers.

## Certified Cards

The TG3 Minix3 driver is currently tested and certified for use on the following Ethernet MAC/PHY combinations:

- Broadcom BCM95700A6 revision 7102 with PHY version 5401
- Broadcom BCM5752KFBG revision 6002 with PHY version 5752

The BCM95700A6 is a PCI-X device. This driver has been tested at both 33MHz (Conventional PCI slot) and 66MHz (PCI-X slot) modes.

## Requirements

The Minix3 TigonIII driver requires an SVN version of Minix  $\geq r7021$ . The driver is tested with GCC versions 4.1.1, 4.3.3 and the Amsterdam Compiler Kit as supplied with Minix 3.1.7.

## Installation

The tg3 driver is supplied with a simple makefile compatible with both Minix3's *make* utility and *bsdmake*. The driver does *not* need to be placed in the main source tree in order to compile. Installation is performed as follows:

- Edit the makefile to choose the desired compiler
- Execute *make all install* in the source directory
- Merge the supplied system.conf file with /etc/system.conf
- Edit /etc/inet.conf as necessary. The driver name is *tg3*

Upon initialisation, the driver will auto-negotiate speeds and RX/TX flow-control.

## Debugging

The tg3 driver will hook the Shift-F10 key combination if available. Further debugging output may be enabled by modifying the *tg3\_dump* function to call one or more of the following functions:

- *tg3\_dump\_flags*
- *tg3\_dump\_short\_state*
- *tg3\_self\_test*

## License

This driver is derived from portions of the Linux kernel and Broadcom TG3 version 3.99k driver. This driver software is licensed under the GPLv2. Please see the included License.txt for further details.

## Future Work

Care has been taken to produce a driver that will work efficiently with current versions of Minix3. This driver however supports advanced features that may be enabled with future versions of the INET server. Minix3 currently operates on a one-packet-per-message scheme. In order to most efficiently support future multi-packet-per-message enhancements, the TG3 driver supports interrupt mitigation and packet coalescing. This is enabled by default in the driver. Support for jumbo sized packets (MTU > 1500) is also provided in the driver.

However, driver logic does not currently enable support for these packets as the MTU is hardwired to 1500. Support for 64 bit has been maintained, with comments indicating where the driver will need small modifications upon porting to a 64bit architecture. The tested and certified cards are both copper PHY based, however support for fibre-optic PHYs has been maintained in the driver. Although untested, the driver has been engineered to be endian-safe.

## Acknowledgements

With thanks to (in no particular order) Andrew S. Tanenbaum, Matt Carlson, Ben Gras, Niek Linnenbank, David van Moolenbroek and Tomas Hruby.