

RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 Driver

README

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Overview





The IntervalZero™ RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 standalone driver adds support for the Intel 2.5 Gigabit Ethernet Controller I225/I226 devices listed below. The installation provides an RtNalIGC.rtdll driver that can be used with the RTX64 Network Abstraction Layer (NAL).







NOTE: This driver replaces the previous AS IS version released 8/29/2022. A newer version will be included in RTX64 4.4.


The source code included in this driver is based on FreeBSD code version 13.1 (2022-05-16). As such, you must adhere to the FreeBSD copyright included at the top of the driver source.

Supported Devices

The RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver supports these devices:




Vendor ID	Device ID	Friendly name	Revision	Test status
0x8086	0x15F2	Intel® Ethernet Controller I225-LM	1	
0x8086	0x15F3	Intel® Ethernet Controller I225-V	1	
0x8086	0x3100	Intel® Ethernet Controller I225-K	1	
0x8086	0x15F8	Intel® Ethernet Controller I225-I	1	

Vendor ID	Device ID	Friendly name	Revision	Test status
0x8086	0x15F7	Intel® Ethernet Controller I220-V	1	
0x8086	0x3101	Intel® Ethernet Controller I225-K2	1	
0x8086	0x5502	Intel® Ethernet Controller (2) I225-LMvP	2	
0x8086	0x5504	Intel® Ethernet Controller (2) I226-K	2	
0x8086	0x0D9F	Intel® Ethernet Controller (2) I225-IT	2	
0x8086	0x125B	Intel® Ethernet Controller I226-LM	1	
0x8086	0x125C	Intel® Ethernet Controller I226-V	1	
0x8086	0x125D	Intel® Ethernet Controller I226-IT	1	
0x8086	0x125E	Intel® Ethernet Controller I221-V	1	
0x8086	0x125F	Intel® Ethernet Controller I226 (blankNVM)	1	

Vendor ID	Device ID	Friendly name	Revision	Test status
0x8086	0x15FD	Intel® Ethernet Controller I225 (blankNVM)	1	

NOTE: These devices are included in the `RTX64PnpNet.inf` file provided in the driver zip file. They are not included in the general `RTX64PnpNet.inf` file installed with RTX64.

Test Status Legend

Icon	Meaning
	This Network Interface card (NIC) has been tested using RTX64. The card has been tested for both Internet Protocol version 4 (IPv4) and next generation Internet Protocol version 6 (IPv6).
	This NIC has not been tested, but based on its chipset it should work correctly with RTX64.
	This NIC has been tested and confirmed not to work correctly with RTX64.

Version Compatibility

This RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 standalone driver is compatible with these versions of RTX64:

- RTX64 4.x

Notes

- This driver always uses the MSI interrupt type, regardless of what is selected in the RTX64 Control Panel.
- This driver does not support multiple vectors.
- This driver disables Interrupt Moderation by default.
- This driver does not support receive and transmit timestamps.
- This driver supports only a single receive and transmit queue.
- Constant RtnMediaSpeed10000 is returned for 2.5 GB link speed in RTX64 4.2 Runtime.

File List

The zip file `RTX64_RtNalIGC_01062023.zip` contains these files:

- The INF and CAT files are in the `<location>\inf\` directory:
 - `RTX64PnpNet.inf`
 - `RTX64PnpNet.cat`
- The driver list file is in the `<location>\xml\` directory:
 - `DriverList.xml`
- Binary files are in the `<location>\bin\` directory, where `<location>` is the directory the zip files are extracted to:
 - `RtNalIGC.rtdll`
- Source files for rebuilding are in the `<location>\RtNalIGC\Source\` directory.
 - `if_bus.h`
 - `if_rtx.c`
 - `if_rtx.h`
 - `igc_api.c`
 - `igc_api.h`
 - `igc_base.c`
 - `igc_base.h`

- igc_defines.h
 - igc_hw.h
 - igc_i225.c
 - igc_i225.h
 - igc_mac.c
 - igc_mac.h
 - igc_nvm.c
 - igc_nvm.h
 - igc_osdep.c
 - igc_osdep.h
 - igc_phy.c
 - igc_phy.h
 - igc_regs.h
 - igc_txx.c
 - igc_type.h
 - pciereg.h
 - resource.h
 - RtIIGCFuncs.c
 - RtNallIGC.c
 - RtNallIGC.h
 - RtNallIGC.rc
- Visual Studio 2019 solution and project files are in the <location>\RtNallIGC\VS2019\ directory.
 - RtNallIGC.sln
 - RtNallIGC.vcxproj
 - RtNallIGC.vcxproj.filters

Installing, Using, and Removing the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 Driver

Installing the Driver

Follow the steps below to install the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver.

1. Place the zip file `RTX64_RtNalIGC_01062023.zip` in a location of your choice.
2. Extract all files to a directory of your choice.
3. Open Explorer and navigate to `%RTX64Dir%\bin\RTX64ControlPanelItems`. Backup the existing `DriverList.xml` file.
4. Navigate to the `xml` folder in directory where the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver zip was extracted and copy `DriverList.xml` to `%RTX64Dir%\bin\RTX64ControlPanelItems`.
5. Navigate to the `bin` folder in the directory where the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver zip was extracted and copy `RtNalIGC.rtdll` to `%RTX64Dir%\bin\`.
6. Navigate to `C:\Program Files\IntervalZero\RTX64\inf` and backup the `rtx64pnpnet.inf` and `rtx64pnpnet.cat` files. Navigate to the `inf` folder in the directory where the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver zip was extracted and copy the `rtx64pnpnet.inf` and `rtx64pnpnet.cat` files to `C:\Program Files\IntervalZero\RTX64\inf`.

Additional Steps for KINGSTAR

You'll need to perform these additional steps if you're installing the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver on KINGSTAR.

1. Open Explorer and navigate to `C:\Program Files\IntervalZero\KINGSTAR\bin\ControlPanelMain\NicInfo` and backup the `DriverList.xml` file.
2. Navigate to the `xml` folder in directory where the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver zip was extracted and copy `DriverList.xml` to `C:\Program Files\IntervalZero\KINGSTAR\bin\ControlPanelMain\NicInfo`.

Using the Driver

Follow these steps to use the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver.

1. Use the `RTX64PnpNet.inf` file installed to the `%RTX64Dir%\Inf` directory to convert the device to RTX64 control:
 - a. Use the Windows Device Manager to update the driver for the device and click the **Have Disk...** button. The **Install From Disk** dialog opens.
 - b. Click the **Browse...** button and navigate to the file `%RTX64Dir%\Inf\RTX64PnpNet.inf`, where `%RTX64Dir%` indicates the location of the RTX64 Runtime installation directory.
 - c. Click **OK**.
 - d. The RTX64 driver should now appear in the **Update Driver Software** dialog. Select the driver and click **Next**. The converted device should appear under **Network Adapters** in Windows Device Manager.
2. Stop the TCP/IP Stack and Network Abstraction Layer (NAL) through the RTX64 Control Panel if they are running.
3. In the RTX64 Control Panel, create a new interface or modify an existing interface to use the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver. You can do this on the **Manage Interfaces** screen.

To create a new interface:

- a. Click **Add Interface**. The **Add Interface** dialog appears.
- b. RTX64 devices are listed in the **Device Name** dropdown menu. Select a Real-Time Network Device (RTND) from the dropdown. When a device is selected, the **Name**, **Driver**, and **Location** fields are populated automatically.

- c. **Optional:** Modify the unique **Name** of the interface.
- d. **If you are using the TCP/IP Stack:** select the **Support TCP/IP** check box and specify the following:
 - The **IPv4 Address** of the interface in dotted-quad notation
 - The IPv4 **Netmask** of the interface in dotted-quad notation
- e. **If you are using KINGSTAR:** Clear selection of the **Support TCP/IP** check box.
- f. Click **Add**. The interface for the selected device appears under Interfaces. Interfaces are automatically enabled when added. To disable an interface, click the dropdown under **Status**, and then click **Disabled**. Properties for the selected interface appear in the **Properties** box.
- g. **If you are using KINGSTAR:** Expand the **Advanced NAL properties** section and change the **Interrupt thread priority** value to 126.

NOTE: If you are not a member of the RTX64Administrators or RTX64Users groups, you may encounter an error.

4. Start the Network Abstraction Layer (NAL) and TCP/IP Stack through the RTX64 Control Panel.

Additional Steps for KINGSTAR

You'll need to perform these additional steps if you're using the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver on KINGSTAR.

1. Launch the KINGSTAR Runtime Settings tool and navigate to **Network Interface Cards**. Verify that *Intel(R) Ethernet Controller i225-V (RTX64)* appears in the list.
2. Assign *Intel(R) Ethernet Controller i225-V (RTX64)* to KINGSTAR. See the KINGSTAR Help for more information.

Removing the Driver

To remove the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver, follow the steps listed below:

1. Stop the TCP/IP Stack and Network Abstraction Layer (NAL) through the RTX64 Control Panel if they are running.
2. In the RTX64 Control Panel, remove or modify any interface that uses the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver.
3. Convert the device to Windows control. See the RTX64 or KINGSTAR Help for more information.
4. Replace the Control Panel `DriverList.xml` file with the backup copy you created during installation.
5. Manually delete the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver files.

NOTE: To permanently remove the driver, replace the `rtx64pnpnet.inf` and `rtx64pnpnet.cat` files copied from the RTX64 Intel 2.5 Gigabit Ethernet Controller I225/I226 driver package with the originals you backed up in the `C:\Program Files\IntervalZero\RTX64\inf` directory as part of the installation process.

Rebuilding and Using the Provided Driver Source

To rebuild the driver source:

1. Launch Visual Studio.
2. Open the Visual Studio project file `RtNalIGC.vcxproj` from the `\DriverSource\RtNalIGC\VS2019` directory.
3. Specify the following:
 - Solution Configuration: **RTSSDebug** or **RTSSRelease**
 - Solution Platform: **x64**

4. Rebuild the solution (**Build > Rebuild**).
5. Associate your adapter with the rebuilt driver through the **Manage Interfaces** screen in the RTX64 Control Panel.

Getting Support

IntervalZero offers several support options for RTX64 users, including technical support and the IntervalZero Website.

Third-Party Support

If you are a customer who purchased an IntervalZero product through a third-party reseller, contact the reseller for support.

Contacting Technical Support by Phone

Location	Number	Hours
United States	1-781-996-4481 At the prompt, press 3 for Support.	Monday - Friday, 8:30 a.m. – 5:30 p.m. US Eastern Time (GMT-500), excluding holidays.
R.O.C. Taiwan	+ 886-2-2556- 8117	Monday - Friday, 9:00 a.m. – 5:00 p.m. Taipei Standard Time (GMT+8), excluding holidays.

Before Calling Technical Support

Please have the following information ready before calling IntervalZero Technical Support:

Your Support ID

Customers who purchase direct support receive an e-mail address and password for use when accessing the IntervalZero support web site.

The Version Number of Your RTX64 Software

Before calling technical support, determine the version of RTX64 installed on your system.

1. Navigate to Start > RTX64 4.x Runtime > Control Panel.
2. Record the RTX64 version that is shown in the RTX64 control panel.

Also, check to make sure you have a valid maintenance contract.

Online Support Resources

Visit our website at www.intervalzero.com to log in to the Customer Support Portal (with valid credentials), access online product Help, and view Support and Lifecycle policies and Product Release Notices.