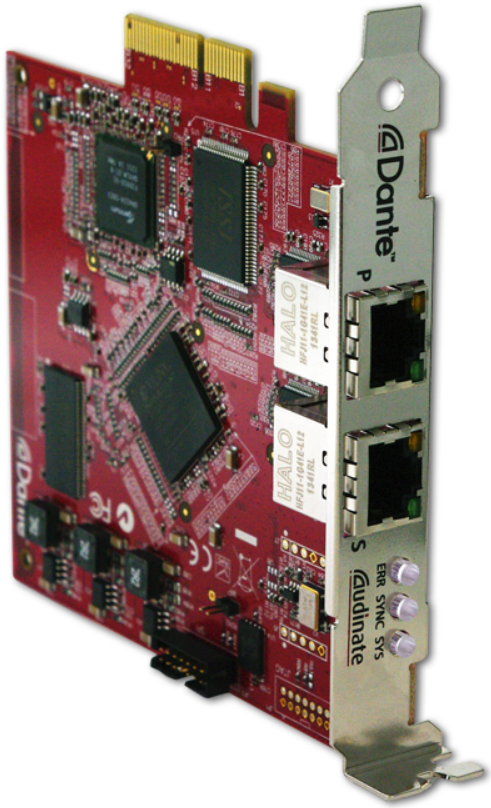
Dante PCIe-R Card

User Guide



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Feedback: if you would like to suggest improvements to this information, please feel free to email us at documentation@audinate.com.

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About Audinate

Audinate Pty Ltd is a leading developer of media networking technology whose products and solutions are transforming the way the world interconnects multimedia systems. Audinate's rapidly growing customer base spans the broader international AV industry and includes many key industry brands.

Audinate's hardware and software products and solutions are founded on patented technologies invented by its world-class networking experts. They enable manufacturers and AV system solution providers to produce sophisticated, easy to use, pro-audio quality AV solutions over standard IP networks.

Audinate is based in the United States and in Sydney, Australia.

Digital Media Networking Perfected

About Dante

Audinate's Dante technology provides high performance digital media networking that meets the quality and performance requirements of professional live sound, AV installations and broadcast and recording systems.

Designed to fully exploit the capabilities of today and tomorrow's networking equipment, Dante provides media transport mechanisms that eliminate many traditional audio network design restrictions. Dante makes it easy to set up robust, flexible digital audio networks with virtually unrestricted performance. A Dante network can be designed with mixed Gigabit and 100Mbps network speeds, simultaneously support audio with different sample rates and bit depths, and even allow the design of network zones with different latencies.

Dante is built on Internet Protocols – not just Ethernet. Because it uses standard IP over Ethernet, Dante is capable of running on inexpensive off-the-shelf computer networking hardware, and with the use of standard QoS can share installed networks with other data and computing traffic.

Dante provides sample-accurate synchronization and can deliver the very low latency required by professional audio. Dante's network-centric, audio-independent approach to synchronization allows perfectly synchronized playout across different audio channels, devices and networks, even over multiple switch hops.

Dante makes networking a true plug-and-play process, allowing automatic device discovery and system configuration. Dante-enabled devices will automatically setup their network configuration and advertise themselves and their channels on the network, reducing complicated, error-prone set-up procedures. Instead of "magic numbers", networked devices and their input and output signals can be named to make sense to the user.

Dante is not restricted to allowing configuration and transmission of audio channels. Dante also provides mechanisms to send or receive control and monitoring information across the Dante IP network, including equipment-specific messages and control specified and developed by a particular manufacturer.

With its strong foundations and links to current and evolving network standards, Dante is able to deliver a level of future proofing otherwise unavailable in other types of digital audio transportation. Dante was designed for Gigabit networks from its inception, and Dante as it exists today already incorporates aspects of the emerging AVB networking standards. Continued evolution of its networking technology is an integral part of the Dante roadmap.

Dante technology is available in ready-to-implement hardware and software products, reference designs and development APIs.

For more information, please visit the Audinate website at www.audinate.com.

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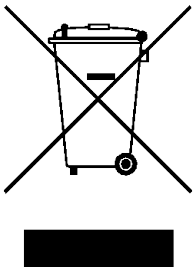
Warning

To avoid the possibility of personal physical injury or damage to the equipment, always take sensible precautions when using this equipment including but not limited to the following:

- Do not attempt to modify the equipment or disassemble it.
- Disconnect the power cables of audio devices before installing this equipment. Turn off any peripheral devices connected to the audio device and unplug all related cables.
- Handle the equipment carefully.
- Drain any static electricity from your body or clothing before handling the equipment .
- Do not drop the equipment or subject it to physical shock.
- Avoid loose screws or other extraneous metal objects coming into contact with the equipment when installed and powered up.
- Do not expose the equipment to sudden temperature changes from cold to hot.
- Do not expose the equipment to rain or moisture.
- Avoid installing this equipment where foreign objects may fall onto this unit and/or this equipment may be exposed to liquid dripping or splashing.

Audinate cannot be held responsible for any loss or destruction of data or damage caused by improper use of or modifications to the device.

Information for users on collection and disposal of old equipment



This symbol on the products, packaging, and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste. For proper treatment, recovery and recycling of old products, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC. By disposing of these products correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. For more information about collection and recycling of old products, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

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If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

[Information on Disposal in other Countries outside the European Union]

This symbol is only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

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Getting Started

This User Guide has been designed to provide you with the information you will need to install and operate your Dante PCIe-R.

To start using your Dante PCIe-R, follow the steps below.

1. Install your Dante PCIe-R and driver software

   Refer to the section About Your PCIe Card for details about your card specification and installation instructions.

2. Download and install your Audinate software

   From the Audinate website - www.audinate.com.

3. Set up your Dante network

   Refer to the section Connecting to a network for details.

4. Configure your audio software to use the Dante PCIe-R

   Refer to the sections Basic Operation and Configuring your card for details.

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About your Dante PCIe-R

The Dante PCIe-R is a PCI Express format Dante soundcard for use with compatible PCs and Macs. It allows the transmission and reception of up to 128 bidirectional channels of 24-bit uncompressed digital audio data (complying with Audinate's Dante™ audio networking standard) at sample rates up to 96kHz, or 64 bidirectional channels at 192kHz (24-bit).

The Dante PCIe-R has a fully compatible PCIe (PCI Express) standard interface connector allowing it to be installed in any compatible PC or Mac.

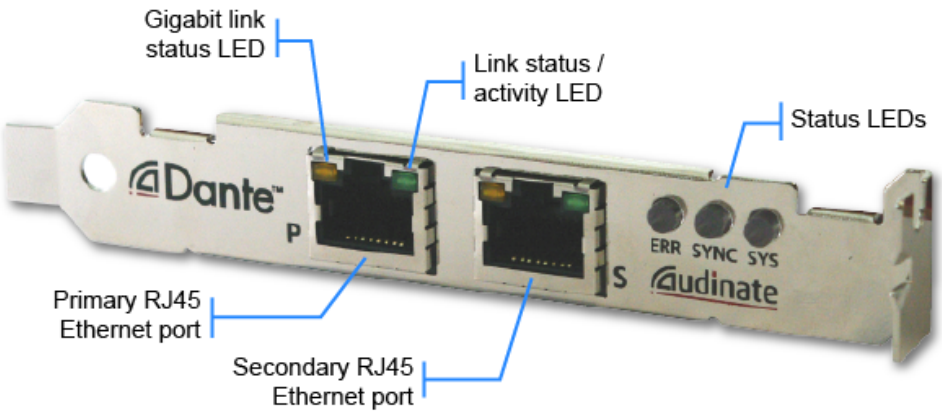
Gigabit Ethernet connectors ensure low latency, high-quality synchronized audio with support for glitch-free redundancy.

Dante PCIe-R Specifications

Specifications	
PCI Express card	Compatible with PCIe x4 slots v1.0 and above
Audio Interface	Presents as standard ASIO audio interface (Windows) or Core Audio (Mac OSX) soundcard
Audio channels	256 @ up to 96kHz (128x128) 128 @ 192kHz (64x64)
Supported Sample Rates	44.1, 48, 88.2, 96, 176.4 and 192kHz
Pull-up/down	+4.1667, +0.1, -0.1, -4.0%
Sample bit-depth	24 bit PCM
Round Trip Latency	Less than 2.99ms digital round trip to/from connected Dante audio equipment
Onboard hardware and software processing	High-performance hardware and on-board microprocessor performs all packet and transport processing
Clock	High quality on-board VCXO clock can provide master clock, or slave off audio equipment; automatic synchronization with Dante network
Dante Network interface	Gigabit (1000Mbps; 1Gbps) Ethernet RJ45 connectors
Glitch-free redundancy	Secondary network interface for connection to a redundant network
Full Dante implementation	Compatible with all Dante-enabled audio equipment over standard IP/Ethernet network
AVB-capable	Designed to accommodate AVB upgrades

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Dante PCIe-RConnectors and Indicators



Primary RJ45 Ethernet port

Used to connect to the primary Dante network for transmission and reception of audio traffic.

Secondary RJ45 Ethernet port

Used to connect to a secondary network for glitch-free redundancy.

Link status / activity LED

Green indicates an established link; flashing indicates link activity.

Gigabit link status LED

Orange indicates an established Gigabit Ethernet link.

Status LEDS

Indicate system and clock sync status.

Status LEDs

The status LEDs indicate the following conditions:

SYS - Indicates the status of the Dante system on this card.

- A green light indicates the system has booted successfully and is operating properly.
- The SYS LED will be amber while the system is booting. If it persists, the system has failed to boot correctly.

SYNC - Indicates the clock synchronization status of the Dante device.

- A solid green light indicates that the device is a Dante PTP clock slave and is synchronized to the PTP master.
- A flashing green light indicates that the device is the Dante PTP clock master.
- An orange light indicates a network synchronization error. Obtaining network sync may take up to 45 seconds.

All LEDs flashing green

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- All LEDs will flash green when the card's **Identify** function has been activated using Dante Controller.

All LEDs solid red

- If all LEDs are solid red it indicates that the Dante PCIe-R has encountered errors on boot and entered failsafe mode.
- To restore the device from failsafe mode, use the Dante Firmware Update Manager (available from your device manufacturer's website).

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Installing the Card

Before You Install

Before you install the Dante PCIe-R, you should note down the last 6 characters of the MAC address of the card.

This is printed on a label on the card itself. The last six characters of the MAC address of the card are used in the default device name.

For example, a Dante PCIe-R with MAC address 00:1D:C1:03:01:C4 will show as `PCIe-0301C4` in Dante Controller until it is given a more suitable name.

Installing and Removing the Dante PCIe-R

For instructions on installing and removing the Dante PCIe-R, please refer to the technical manual for the computer in which you are installing the card.

If you remove the card, store the card in its anti-static bag and packaging while not in use.

Installing the Dante PCIe-R Driver

You will need to install the relevant driver files on your computer before your Dante PCIe-R can be used.

Please refer to the README file included with the driver software for instructions on how to install the driver file.

System Requirements

Operating System

Note: For optimum performance, please ensure you have the latest operating system updates installed for your platform.

Windows

The Dante PCIe-R supports the following Windows operating systems:

- Windows 7 (32-bit and 64-bit)
- Windows 8 (32-bit and 64-bit)

Mac OS X

The Dante PCIe-R supports the following OS X operating systems:

- OS X 10.7.5 (Intel only)
- OS X 10.8.5 (Intel only)

  OS X 10.9 (Intel only)

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Hardware

Processor and RAM	To run in standard mode: ▪ 2.66 GHz dual-core CPU with 2GB RAM To run in minimum latency mode: ▪ 2.66 GHz quad-core CPU with 4GB RAM
PCIe expansion slot	▪ PCI Express Version 1.0 or above ▪ Must have an available PCI Express x4 expansion slot ▪ On OS X, the slot closest to the motherboard will often provide the best (lowest) latency. This is normally slot 2 (directly above the graphics card).
Storage / Disk	▪ High transfer rates are required for recording and playing back large numbers of audio tracks to and from disk. Disk speeds of 7200rpm and above are recommended for more than 16 channels of record / playback.

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Configuration Options

Mac OS X

For Mac OS X, an early 2009 PowerMac or later is required.

Windows Standard PC Configuration

The following configuration supports:

- Up to 128 channels in/out
- 128 sample ASIO buffers
- 32 sample DMA transactions
- Approximately 2.99ms round trip latency

Processor

Intel i5 or i7

Motherboard Chipset

N/A

PCIe Slot

Any PCIe x4 slot

Windows High-performance PC Configuration

The following configuration supports:

- Up to 128 channels in/out
- 32 sample ASIO buffers
- 16 sample DMA transactions
- Approximately 2.4ms round trip latency (when enabled)

Processor

Second-generation Intel i7

Motherboard Chipset

Intel Sandy Bridge chipset with a PCIe x4 slot connected directly to the CPU

PCIe Slot

Must use the directly connected PCIe slot

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Connecting to a Network

In order to use your Dante PCIe-R, you will need to set up an Ethernet network connecting:

- The computer on which the Dante PCIe-R is installed
- The computer running Dante Controller (if it's not the same computer), and
- Any other Dante-enabled audio equipment you may have.

Before You Set Up Your Network - Important Notes

Gigabit Ethernet Support

Your Dante PCIe-R has been designed to perform with Gigabit Ethernet networks.

Note: Connecting your Dante PCIe-R to older 100Mbit/s Ethernet switches or equipment is not supported.

When connecting your Dante PCIe-R to a switch, make sure it supports Gigabit Ethernet and you are connected to Gigabit Ethernet ports.

Choosing a Gigabit Ethernet Switch

There are a number of affordable standard Gigabit Ethernet switches available that will allow you to get the best performance out of your Dante network.

Dante uses standard Ethernet and IP Quality of Service (QoS) to ensure its high-quality synchronization is not affected, even on loaded networks. Switch features to look for on a product datasheet include:

- DSCP-based QoS support with four queues and strict priority queuing
- Filtering and ACL support
- If you need to run long cables, consider fiber support including SFP pluggable modules
- Managed switches allow you to manage the switch and monitor network performance, and are recommended for installs
- If you use managed switches, ensure that they allow EEE to be disabled. Make sure that EEE is disabled on all ports used for real-time Dante traffic. See this FAQ for more information.
- If you use unmanaged switches, do not use Ethernet switches that support the EEE function, because you cannot disable EEE operation in these switches.

Note: If you have chosen a switch that has been used before, you may need to check its settings to ensure it doesn't have an incompatible configuration loaded.

For more information about choosing switches, please visit the Support section of the Audinate website (www.audinate.com).

Choosing Ethernet Cabling

Dante uses completely standard Ethernet and IP, so it also uses standard Ethernet cabling, including Cat5e, Cat6 and fiber.

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Note: Make sure your Ethernet cables are in good condition and have intact locking tabs.

Remember that Cat5e and Cat6 cabling has a limit of 100 meters at speeds of 1Gbps. If you require longer distances, you can use fiber.

Network Configuration

General Information

The Dante PCIe-R is a dedicated Dante audio interface, and cannot be used by the Dante Controller software as a channel for network control (configuring Dante devices, and routing audio).

Network control must be performed via the standard Ethernet network adaptor on the computer on which Dante Controller is installed.

If this is the same computer in which the Dante PCIe-R is installed, the computer must be connected to the Dante network via two Ethernet cables (or three, for redundant networks) and a Gigabit switch.

Note: If your switch has a mix of Gigabit and 100Mbps ports, make you connect all Dante PCIe-R cards, and if possible all Dante devices, to the Gigabit ports.

About Dante Redundancy

Some Dante devices support redundancy (including the Dante PCIe-R card). This means that they have two Dante network ports (RJ45 connectors). The primary port is connected to the primary Dante network. The secondary port is connected to a separate network, with separate switches, to which other redundant Dante devices are also connected (via their secondary ports).

Dante audio runs on the primary and secondary networks simultaneously. There is no need to set up extra routing in Dante Controller for the secondary network.

If there is a connectivity problem on the primary network, audio traffic is maintained to all redundant devices via the secondary network, so there is no loss of audio on those devices.

Generally, if you have the switch hardware available, it is advisable to use redundancy whenever possible.

See the Dante Controller User Guide for more information about Dante redundancy.

Network Configuration: Non-redundant

To set up a basic non-redundant network:

1. Make sure all computers are set to automatically configure their IP address.
2. Power on the switches.
3. Connect the primary Dante port on the PCIe card to a Gigabit switch.
4. Connect the computer running Dante Controller to the same switch, via its standard network interface (this can be the same computer in which the Dante PCIe-Rcard is installed).
5. Connect any other Dante devices to the switch via their primary Ethernet ports.

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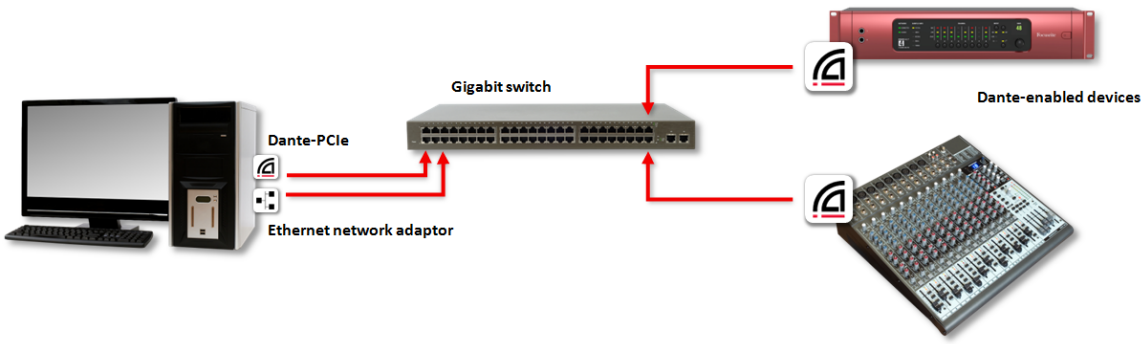


Figure 1 - Basic non-redundant network configuration

You may need to reboot the computers if they have active previous IP network configurations. All devices will automatically be assigned IP network configurations.

Network Configuration: Redundant

To set up and use Dante Redundancy, connect your redundant Dante-enabled audio equipment using duplicate Gigabit switches and Ethernet cables as shown below.

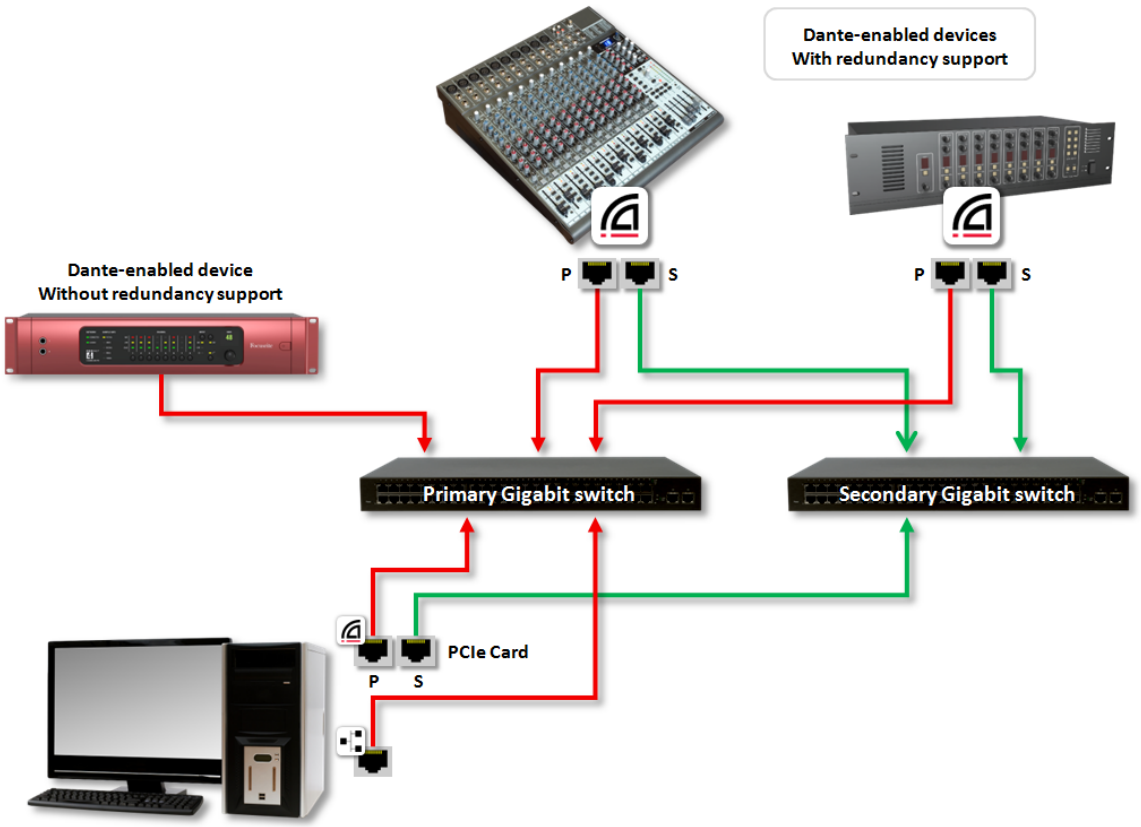
Connect the following to the primary network only:

- Any computers running Dante Virtual Soundcard
- Any non-redundant Dante-enabled equipment

All Dante-enabled devices that support redundancy should be connected to both the primary and secondary networks.

Important: The primary and secondary networks must NOT be interconnected at any point.

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1. Make sure all computers are set to automatically configure their IP address.
2. Power on the switches.
3. Connect the primary Dante ports on each Dante device to the primary Gigabit switch.
4. Connect the secondary Dante ports on all redundant Dante devices to the secondary Gigabit switch.
5. Connect the computer running Dante Controller to the primary switch, via its standard network interface.

You may need to reboot the computers if they have active previous IP network configurations. All devices will automatically be assigned IP network configurations.

Unsupported Dante Network Configurations

Straight-through connection to another Dante-enabled device

Because the Dante PCIe-R is a dedicated Dante audio interface, the Dante Controller software must connect to the network via the standard network adaptor on the computer on which Dante Controller is installed.

Because of this, a 'straight-through' connection from the Dante PCIe-R to another Dante-enabled device is impossible - a Gigabit switch must always be used.

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Connecting Primary and Secondary redundant networks to the same switch

When using Dante redundancy with any Dante-enabled device, two separate networks must be used.

You CANNOT connect any secondary network connections to a switch used for the primary network, or any primary network connections to a switch used for the secondary network.

Please refer to Network Configuration for information about the correct configuration to use.

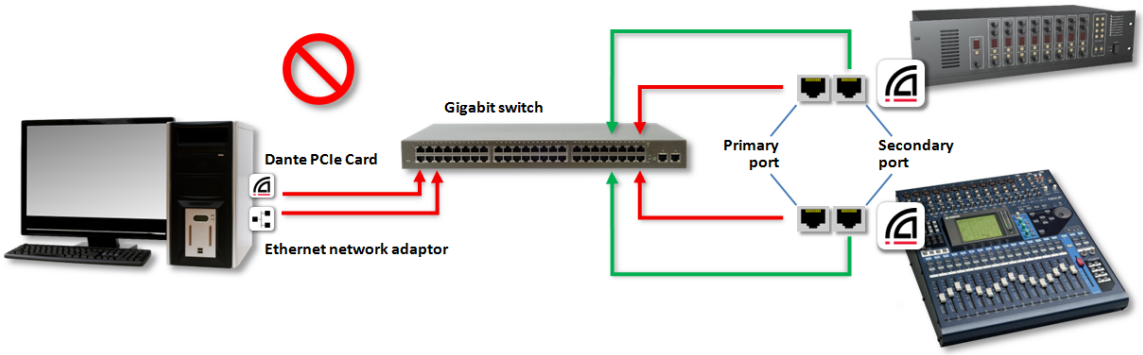


Figure 2 - Unsupported redundant network configuration

Dante Audio Traffic over Wireless Networks

Wireless Ethernet networks should not be used to carry Dante audio traffic, and Audinate applications installed on a PC or Mac will not allow selection of Wireless Ethernet interface, or any other non-standard wired Ethernet interface.

You should not install any wireless components in your Dante network.



Figure 3 - Example wireless configuration (unsupported)

Use of 100Mbps Network interface

The use of 100 Mbps network with a Dante PCIe-R is not supported.

You must only connect a Dante PCIe-R to Gigabit interfaces:

- Gigabit switches, or a Gigabit port on an Ethernet switch
- Gigabit network interface on a PC or Mac

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Dante PCIe-R Basic Operation

Once you have installed a Dante PCIe-R in your computer and connected it to a network, you are in a position to start using Dante networking in earnest to set up audio routes between devices, including other Dante-enabled devices you may have on the network, and any other computers running Dante Virtual Soundcard.

Pre-operation Checklist

To start configuring and using your Dante PCIe-R and Audinate software you should have completed the following:

- Installed your Dante PCIe-R in your computer
- Installed the Dante PCIe-R drivers
- Downloaded and installed your Audinate software (Dante Controller, and optionally Dante Virtual Soundcard)
- Set up a network between your computer and your Dante-enabled devices
- Referred to the Dante Controller (and optionally, Dante Virtual Soundcard) User Guides

Using Dante Controller

When you open the Dante Controller it displays a grid view, which shows all the Dante-enabled devices on the network. Initially it will display devices, but not channels within devices. Devices with transmitter (Tx) channels will be displayed along the top row and devices with receiver (Rx) channels will be displayed in the left hand column Channels can be viewed by clicking on the + symbol next to Dante Transmitters or Dante Receivers, or the + symbol next to a particular Dante device.

Note: The Dante Controller user guide contains detailed information about all aspects of using the Dante Controller. This section is only a brief overview - you will need to refer to the Dante Controller User Guide to be able to use all features of the Dante Controller.

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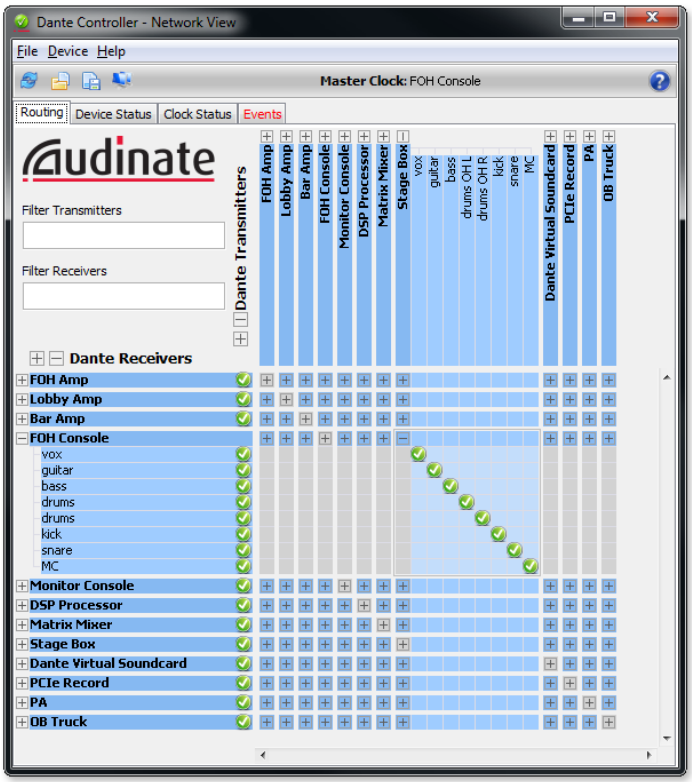


Figure 4 - Dante Controller Network View

Setting Up Audio Routes

Dante Controller can be used to configure channel routing between Dante devices.

In the expanded view, wherever there is a blue cell at the intersection of a Tx channel column and an Rx channel row, it is possible to establish an audio route between them.

Using the network view, click on the cell at the intersection of a transmit and receive channel to configure an audio route from the transmitting channel to the receiving channel. A green icon will appear when the route is established. Click again to remove the route.

Configuring the Card

To configure features of your Dante PCIe-R, including its name, sample rate, and latency:

1. Start Dante Controller.
2. Either:
    - Click the device name in the Dante Controller network view (either in the Transmitters row, or the Receivers column) and select **Device** menu > **Device View**; or:
    - Click the device name and type Ctrl+D; or:
    - Double-click the device in the network view.

This opens a Device View window for the selected device.

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If you only have one Dante PCIe-R in your Dante network, it will be the only device with a device name beginning 'PCIe'.

If you have more than one Dante PCIe-R, to identify a particular card:

- Look for the device name ending in the last six characters of its MAC address; or:
- After selecting a device at random, use the **Identify** feature in the Dante Controller to check which card it is.

The Device View Window

The Device View has five tabs: Receive, Transmit, Status, Device Config and Network Config. The Receive tab for a configured Dante PCIe-R is shown below.

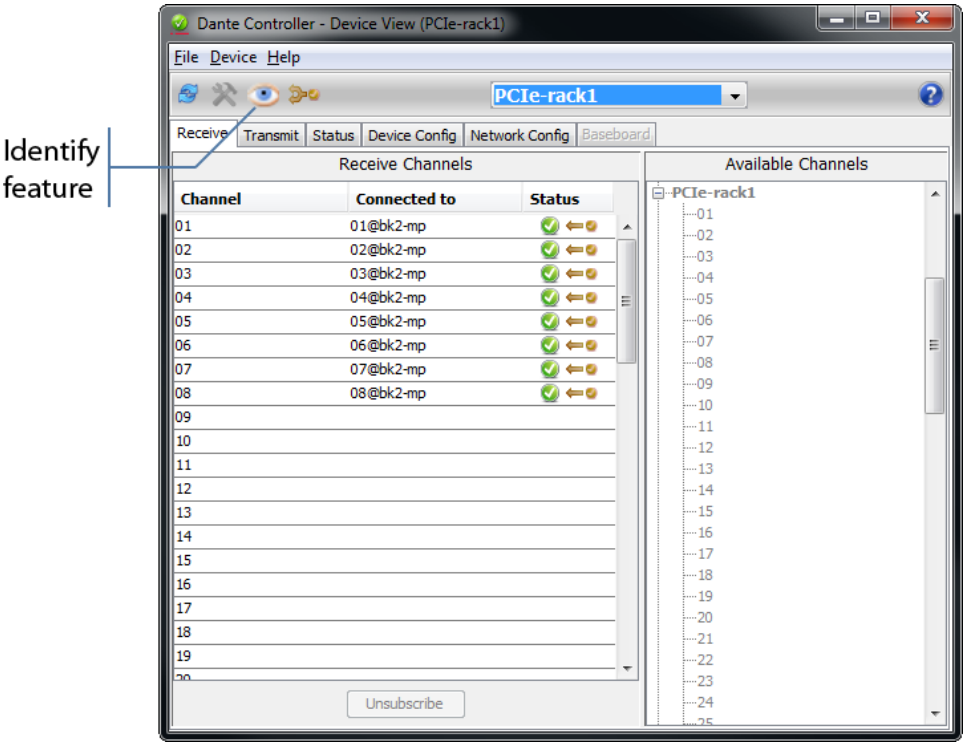


Figure 5 - Device view window

Identifying Individual Dante PCIe-R Cards

When you have several Dante PCIe-R cards installed, it can be very useful to know which card is which.

Once you have selected a particular card within Device View in the Dante Controller, you can click on the **Identify** icon  in the Device View toolbar. This will cause all of the LEDs on the Dante PCIe-R to flash green for about ten seconds.

Changing the Device Name

By default the device name for Dante PCIe-R cards is PCIe-nnnnnn, where nnnnnn is a unique alphanumeric identifier consisting of the last six digits of the MAC address. This is the name the card will have when you first use it.

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It is possible to replace the Dante PCIe-R default device name with a custom, user-defined name. To do this, open Device View in Dante Controller, select the card you wish to modify, and change the Device Name in the Device Config tab.

Note: If you rename a device, you must re-establish any existing audio routes to and from the re-named device using its new name.

Please refer to the Dante Controller user guide for more information on renaming devices.

Changing Channel Labels

To change channel labels in Dante Controller:

1. Open the Device View for the relevant device.
2. Click the **Receive** or **Transmit** tab (depending on which channel labels you want to edit).
3. Left-click the channel label.
4. Enter a new value.

Note: Tx (transmit) labels must be unique for that device.

Changing the Sample Rate

By default, the Dante PCIe-R is configured to operate using a 192kHz sample rate. Audio routes can only be set up between devices that are operating at the same sample rate.

It is possible to change the sample rate. To do this, open Device View in Dante Controller, select the card you wish to modify in the Device View, and change the sample rate in the Device Config tab.

Please refer to the Dante Controller user guide for more information on changing sample rates.

Setting the Latency

To adjust the latency setting, open a Device View for the selected device in Dante Controller, and select the Device Config tab. This allows several device settings to be viewed and modified. It shows the current receive latency setting and allows the user to change the operating receive latency for the selected device.

The allowed values are:

- 0.15ms (150 microseconds) - a suitable setting for a network containing a single gigabit switch
- 0.25ms - a suitable setting for a network containing 3 gigabit switches
- 0.5ms - a suitable setting for a network containing where the signal path may encompass up to five gigabit switch hops
- 1.0ms - a suitable setting for a network containing where the signal path may encompass up to ten gigabit switch hops
- 5.0ms - a safe value for a network of almost any conceivable size

If a value other than the current setting is selected a message will be displayed warning the user that the effect of changing the latency is that any existing audio routes to the device will be temporarily suspended, resulting in some loss of audio data.

If you wish to make the change select **Yes** button; otherwise select **No**.

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Using the Dante PCIe Card with an Audio Application

Choosing an Audio Application

The Dante PCIe-R acts like a standard Core Audio device in an Apple Mac machine, and like an ASIO sound device in a PC running Windows.

ASIO for Windows

There are a number of different audio interfaces commonly used by Windows. The Dante PCIe-R provides an ASIO audio interface, and is compatible with audio applications that support this standard. This is the interface preferred by most pro audio applications such as Cubase® and Nuendo®.

Note: The Dante PCIe-R does not support Windows audio interfaces (such as WDM/MME and DirectX) and cannot be used with common media players available for Windows, including Windows® Media Player and iTunes®.

Core Audio for Mac OS X

The Core Audio interface is used by almost all audio applications available for Mac OS X. This allows you to use the Dante PCIe-R with applications ranging from professional audio applications such as Logic to media players such as iTunes.

Choosing Dante as your Audio Interface

Audio applications generally provide a mechanism for selecting the sound card that they will use. Before configuring the application to use the Dante PCIe-R as its audio interface, make sure you have configured the card with your required settings (sample rate and latency) and rebooted your computer if necessary.

Windows

Select and configure the Dante PCIe-R as your audio interface from within the audio application. It should appear as “Dante PCIe ASIO Driver” in the list of available soundcards. Note that if “Dante PCIe ASIO Driver” does not appear in the list of available sound cards, the Dante PCIe-R is either not installed properly or not operating correctly.

Mac OS X

You will need to set the Dante PCIe-R as the system’s default sound card in order to use applications like iTunes. More sophisticated audio applications such as Logic allow you to select the card from within the application itself.

For applications which allow a sound card to be selected, choose “Dante PCIe” from the list of available sound cards for both input and output. Note that if “Dante PCIe” does not appear in the list of available sound cards, the Dante PCIe-R is either not installed properly or not operating correctly.

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For applications which do not have a mechanism to select a sound card from within the application, the System Preferences panel must be used to configure the default sound output and input settings as shown in the following screens:

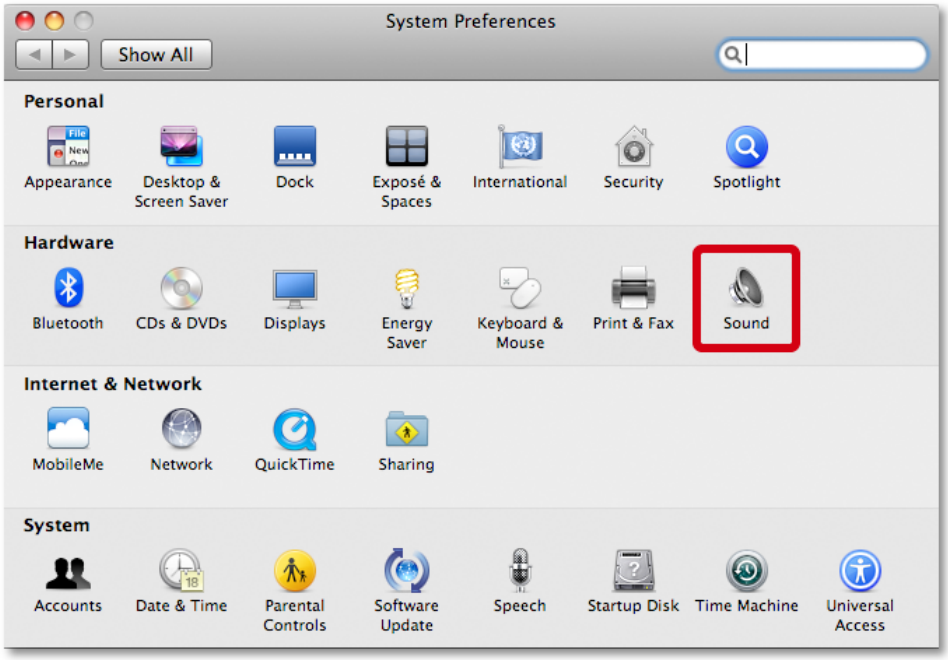
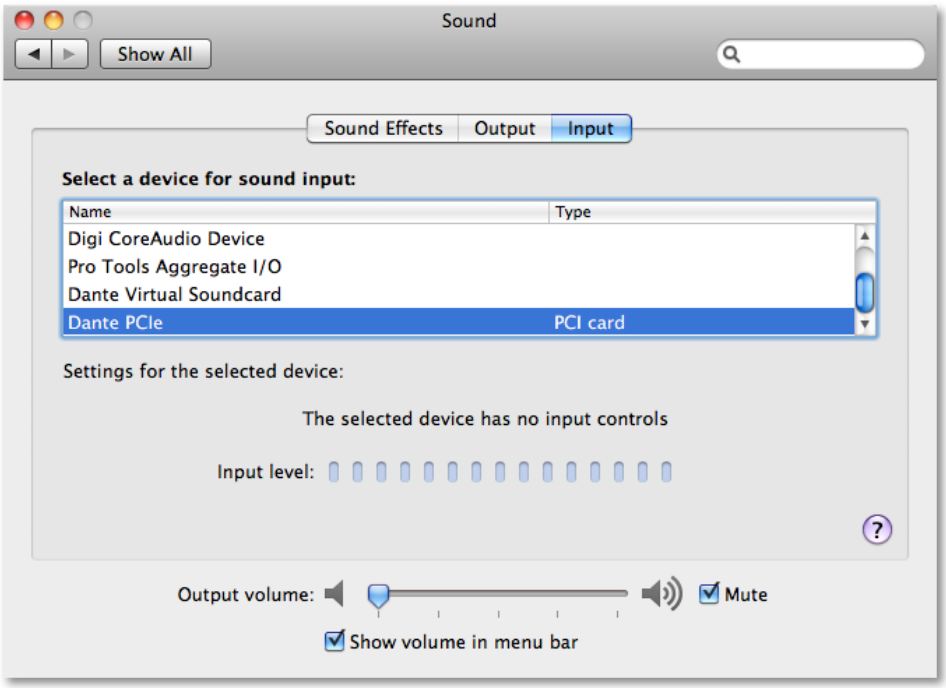


Figure 6 - Configuring Sound on Mac OS X - System Preferences



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Figure 7 - Figure 8: Configuring Sound on Mac OS X - Input

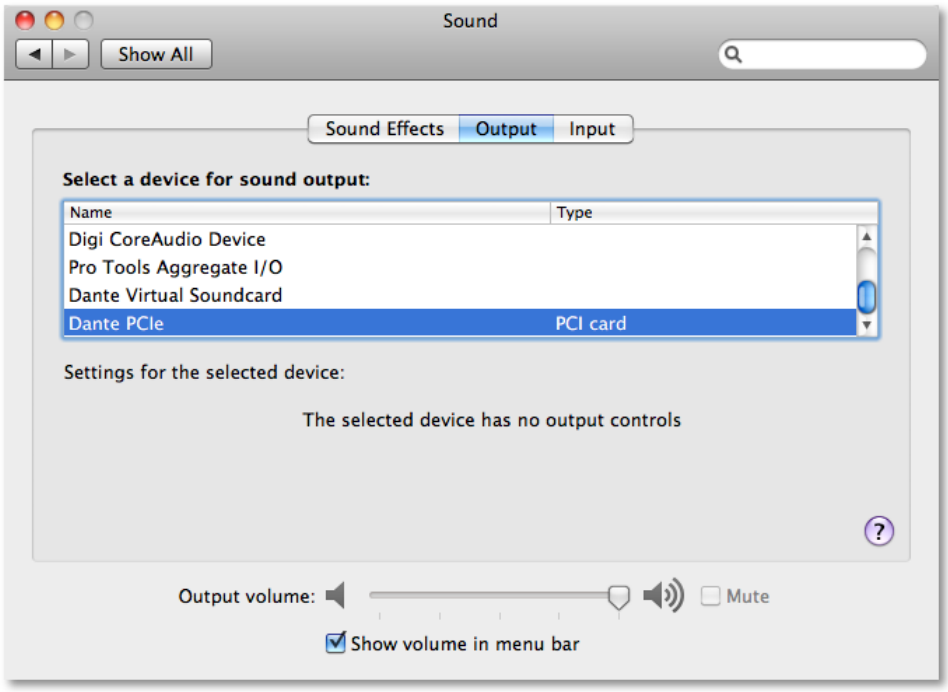
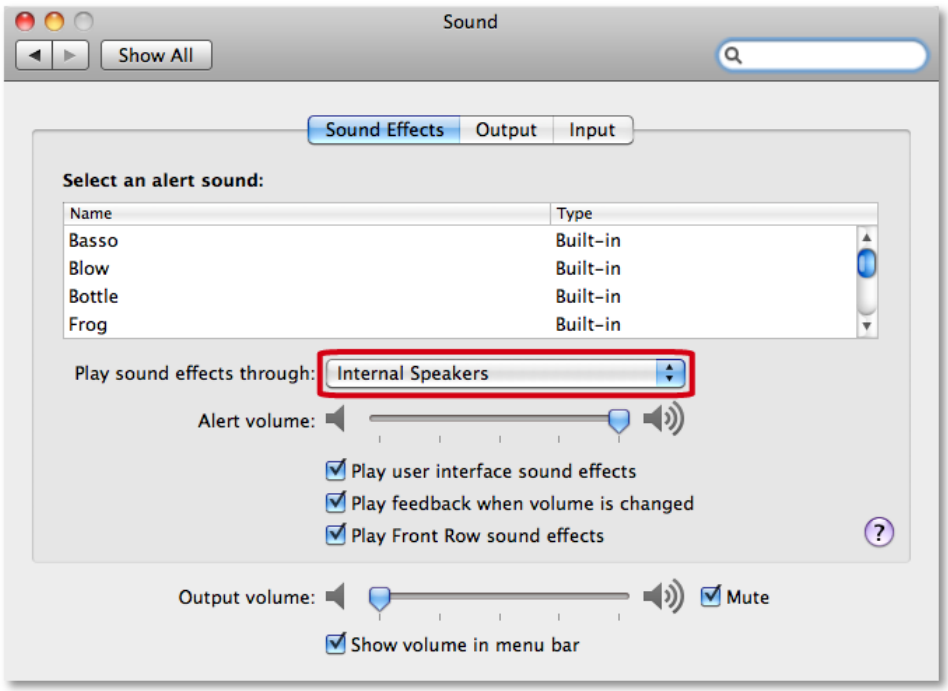


Figure 8 - Configuring Sound on Mac OS X - Output

The system sound effects should be sent to the built-in speakers, rather than Dante, so that they don't interfere with the audio traveling over the network:



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Figure 9 - Configuring Sound on Mac OS X - Internal Speakers

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Troubleshooting

Introduction

Problems or issues related to Dante and setting up your Dante PCIe-R tend to fall in one of three main areas:

- Network Configuration
- Computer configuration
- Dante configuration

Network Configuration

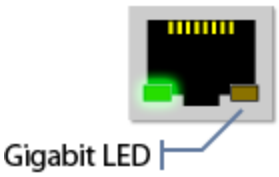
Gigabit Ethernet

All your Dante PCIe-R cards require a Gigabit Ethernet interface.

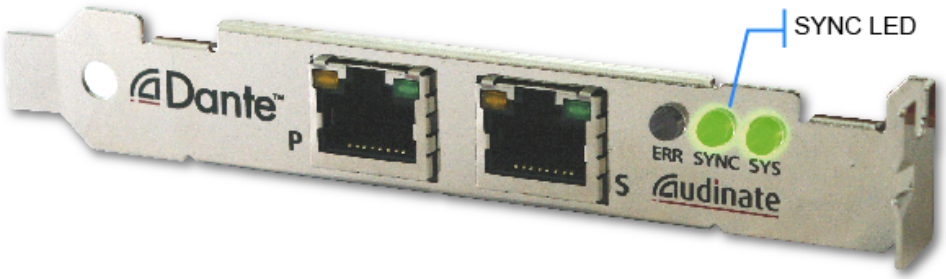
This means that they should be connected to a Gigabit Ethernet Switch.

What are the symptoms of NOT using Gigabit Ethernet?

1. The Orange, right hand side Gigabit LED on the PCIe Card Ethernet port will NOT be lit:



2. It will take much longer than usual for the SYNC light to turn green:



3. In Dante Controller, the Primary Link Speed of the card (shown in the **Device Status** tab) is shown as 100Mbps in red:

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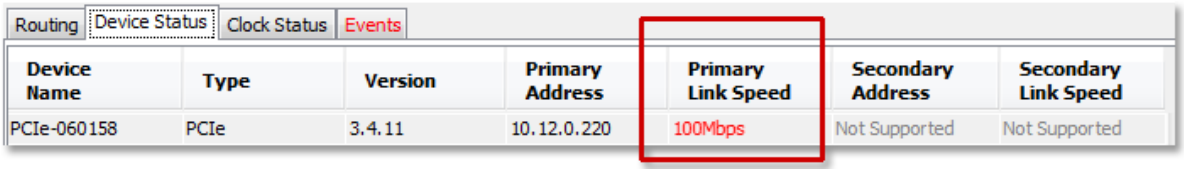
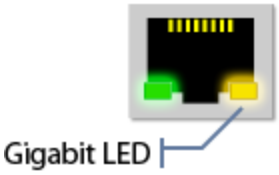


Figure 10 - Link speed when connected to 100Mbps port/switch

How can I check whether I AM using Gigabit Ethernet?

1. The orange, right hand side Gigabit LED on the PCIe Card Ethernet port will be lit:



2. In Dante Controller, the Primary Link Speed of the card (shown in the **Device Status** tab) is shown as 1Gbps:

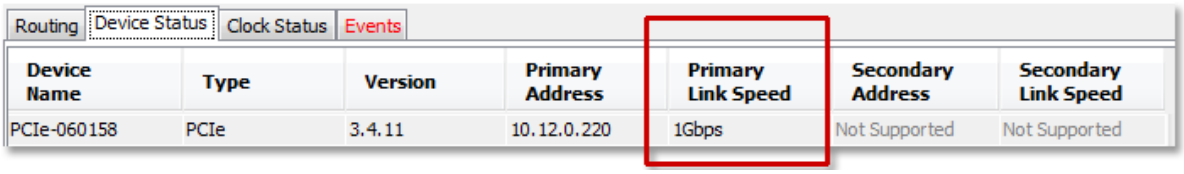


Figure 11 - Link speed when connected to 1Gbps port/switch

Computer Configuration

Refer to the 'Configuring Dante Controller' section of the Dante Controller user guide for more information about configuring your computer for use with Dante networks.

Switch Configuration and Cabling

Cables are the most vulnerable part of a network system, and 'home made' manually-terminated cables can be error prone.

If you suspect cabling issues, check for:

- Unplugged / badly connected Ethernet cables
- Incorrectly configured switches
- Dante devices removed, or turned off

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Symptoms of switch or cabling issues

- You cannot see one or more devices in the Dante Controller network view
- The Dante Controller shows orange 'unsuccessful subscription' icons, which usually means a device that was present earlier, is now missing
- Faulty cables can lead to intermittent faults, which may be heard as dropped samples or 'cracks' in the audio
- Dante devices may appear and disappear in Dante Controller

Switch and Cabling Checklist

- Are all the connected link / status lights on the switch lit, or flashing, as expected?
- Is the switch powered on?
- Is the cable correctly plugged in at the switch, and at the computer / equipment?
- Is the switch correctly configured?
- Have QoS and VLANs been set up correctly?
- Are you using a switch from another application with an unchecked or untested configuration?
- Consult the switch manual and check the switch configuration.

System Checklist

A PC or Mac for use on the Dante network should have:

- Dante Controller installed
- An audio application supporting the ASIO or Core Audio interface installed

A correct PC or Mac Dante network configuration should have:

- The correct network interface/s selected
- The correct IP addresses used
- DVS running (if applicable) before starting the audio application
- An audio application correctly configured to use the Dante PCIe-R or Dante Virtual Soundcard as its audio interface

Checking Driver Version

Windows

In Windows, an installed Dante PCIe-R will appear in the Device Manager.

To open the Device Manager in Windows 7, go to **Control Panel** > **Hardware and Sound** > **Device Manager**.

In Windows XP, go to **Control Panel** > **System** > **Hardware** > **Device Manager**.

The PCIe card will appear under the **Sound, video and game controllers** group.

Note: The actual name of the device will vary between manufacturers.

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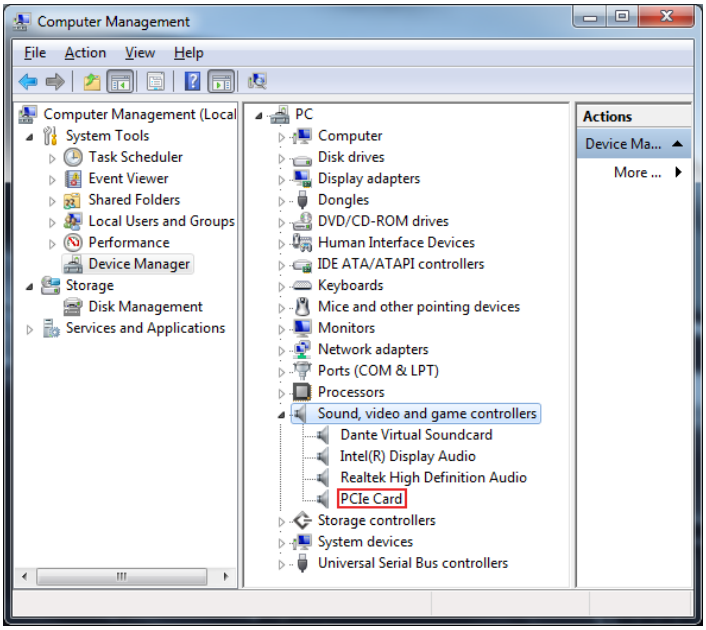


Figure 12 - Windows Device Manager

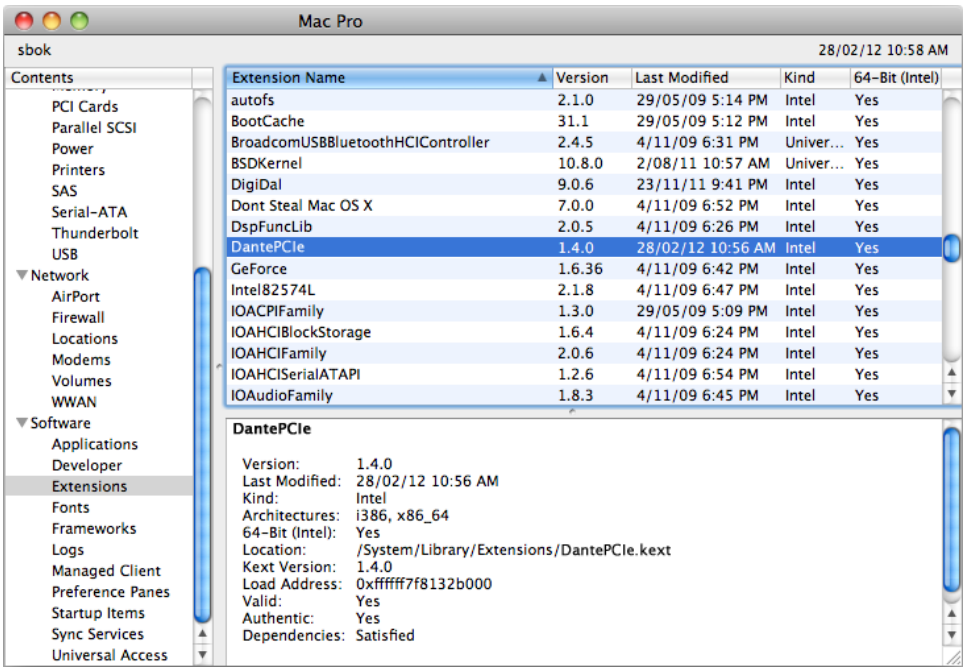
To check the driver version, right-click the device, select **Properties**, and select the **Driver** tab.

Mac OS X

In Mac OS X, an installed Dante PCIe-R will appear in the System Profiler.

The System Profiler is in the **Utilities** folder within your **Applications** folder.

The PCIe card will appear in the **Hardware** section under **PCI Cards**, but to see the driver version, navigate to **Software** > **Extensions**.



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Figure 13 - Mac OS X System Profiler

To check the driver version, select the device. The driver version is shown in the top line of the device details.

Dante Configuration

Sample Rate

Sample rate configuration

- Have Dante PCIe-R cards and/or other Dante-enabled devices been configured with different sample rates?

  Use the Dante Controller to check Dante device sample rates.

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