

LX-DANTE

Professional Multichannel Sound Cards with Dante connectivity



User's guide
Version 1.00 - June 2018

**For technical support,
please contact your system supplier.**



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1 INFORMATION FOR THE USER

This device complies with part 15 of FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a CLASS B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions contained in this data sheet, may cause harmful interference to radio and television communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- * reorient or relocate the receiving antenna
- * increase the separation between the equipment and the receiver
- * connect the equipment into an outlet on a circuit different from that of the receiver
- * consult the dealer or an experienced audio television technician.

Note: Connecting this device to peripheral devices that do not comply with CLASS B requirements or using an unshielded peripheral data cable could also result in harmful interference to radio or television reception. The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

Warning:

Electrostatic discharge (ESD) can damage several components on the board. To avoid such damage in handling the board, take the following precautions: Bring the device and everything that contacts it to ground potential by providing a conductive surface and discharge paths. As a minimum, observe these precautions:

- *Disconnect all power and signal sources.*
- *Place the device on a grounded conductive work surface.*
- *Ground yourself via a grounding wrist strap or by holding a grounded object.*
- *Ground any tool that will contact the device.*

Due to the reduced length of the PCI EXPRESS™ bus connector and the resulting lack of mechanical stability, we strongly advise against transporting the PCIe® card(s) installed in a computer, unless its chassis or case provides a dedicated support to keep the card securely in place in order to avoid physical damage.

2 IMPORTANT NOTICE

This card has been tested and found to comply with the following standards:

- International: CISPR22 Class B
- Europe: EMC 89/336/CEE (1992) specifications
- United States: FCC Rules-Part 15-Class B (digital device)

In order to guarantee compliance with the above standards in an installation, the following must be done:

- the provided cable must not be modified
- additional cables used must have their respective shield connected to each extremity

3 FEATURES

LX-DANTE is a PCI EXPRESS™ (PCIe®) sound cards for use on Dante networks. It is PCI EXPRESS™ x4 format and can thus be plugged into a PCIe® x4, x8, or 16 slot.

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 176.4 and 192kHz (24-bit).

3.1 LX-DANTE hardware features

- PCIe® x4 interface (works in PCIe® x4, x8, or 16 slots)
- 2 Gbit RJ-45 redundant Ethernet ports allowing for receiving up to 128 channels from the Dante network, and for playing up to 128 mono channels to the Dante network.
- Sampling frequencies:
 - 44.1, 48, 88.2, 96 kHz (up to 128 I/O channels)
 - 176.4 and 192kHz (up to 64 I/O channels)

3.2 Main software features

- Real-time, simultaneous recording and playback of up to 128 mono I/O channels in PCM 24 bits from/to a Dante network
- Exposed software audio devices : ASIO devices under Windows, Alsa devices under Linux

4 REQUIREMENTS

4.1 Supported operating systems

LX-DANTE runs under the following operating systems:

- Windows OS from Windows 7 (32 bits and 64 bits)
- Windows Server as of Server 2008
- Linux: please contact Digigram

4.2 Minimum hardware requirements

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

Storage / Disk

High transfer rates are required for recording and playing back large numbers of audio tracks to and from disk. In case you use a traditional hard disk (not a SSD), a disk speeds of 7200rpm and above are recommended for more than 16 channels of record / playback.

5 HARDWARE INSTALLATION

Due to the reduced length of the PCI EXPRESS™ bus connector and the resulting lack of mechanical stability, we strongly advise against transporting the PCIe® card(s) installed in a computer, unless its chassis or case provides a dedicated support to keep the card securely in place in order to avoid physical damage.

The card has to be installed in the computer prior to installing its driver.

5.1 Installing the card

Gently plug the card in a free PCIe slot (at least 4x PCIe) and press it down to position it firmly. Tighten the screw.

5.2 Interrupt and memory address

Hardware interrupt and addresses are automatically set up at start-up by the PCI PnP BIOS.

6 DRIVER INSTALLATION

7 The installation of the driver package requires administrator rights on your computer.

Please visit the Digigram web site at www.digigram.com for the most recent driver.

Note


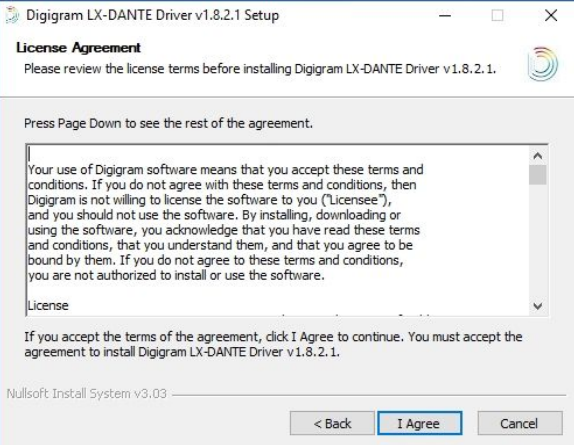
- You are only permitted to use this software pursuant to the terms and conditions of the "License Agreement" shown during the installation.
- If the same software components have already been installed in your computer, you can use the same procedure as described in the installation instructions here to update the software.

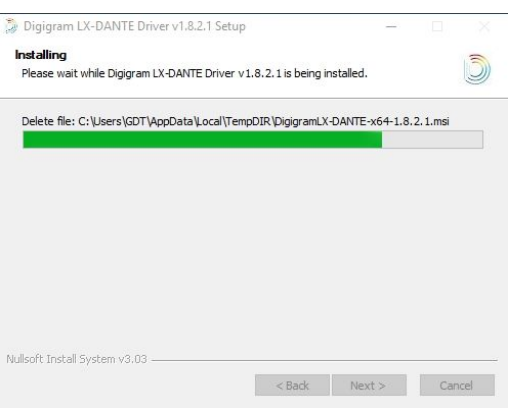

7.1 Installation under Windows

Restart your computer once the card is correctly inserted in it.

Click on Cancel if the "Found New Hardware Wizard" appears.

Double-click on the LX-DANTE driver package icon to launch the driver installation.

| | |
|---|--|
|  | <p>A Welcome message is displayed, click Next to continue.</p> |
|  | <p>The "License Agreement" window appears: read it, and click on "I Agree" to approve it and to continue.</p> |


| | |
|---|--|
|  | <p>In case the User Account Control window prompts you to authorize the driver installation, click on OK. Driver files are then installed on the computer. In case the “Digital Signature Not Found” message appears because a non-Microsoft software is about to be installed, click on Continue.</p> |
|  | <p>Click Finish to complete the driver installation.</p> |

7.2 Removing the driver

Open the **Windows Control Panel** and double-click on the **Add/Remove Software** icon or **Programs and Features** icon, depending on the Windows flavour.

- Select “Digigram LX-DANTE Runtime ...”, and Change/Remove.
- Select Remove in the LX-DANTE Runtime window.
- Follow the instructions to finish to remove the driver.

8 HOW TO CHECK THE INSTALLATION

- Open the Windows “Device Manager” window as follows.
 - Under Windows 10, right click on the Windows start icon  , and select “Device Manager”.
 - Click on the [+] or [>] mark next to "Sound, video and game controllers."
 - Confirm that the "Digigram LX-DANTE Card" appears in the list.
 - Start an ASIO capable software application
 - From this application, select “ASIO” for the type of supported driver
 - Select LX-DANTE card
 - You can then select the input channels (LX-DANTE Rx1 to LX-DANTE Rx128), and the output channels (LX-DANTE Tx1 to LX-DANTE Tx128).

9 SELECTING THE ASIO PARAMETERS

The size of the buffers used by the ASIO driver, and the size of the buffers used by the LX-DANTE card have an impact on the latency, but also on the audio quality. While the higher buffer size reduces load to the computer CPU but produces latency during recording/playback, the smaller buffer size may result in noise typically due to the sound cutting off.

Make sure to set the buffer size to an appropriate value depending on the performance of your computer, and the amount of processing of your software application.

The buffer sizes can be selected as follows:

- From your ASIO capable software application, go to the menu that allows selecting the ASIO devices.
- Click on the “ASIO configuration”

- The Digigram LX-DANTE control panel opens.
- **ASIO Buffer size** = buffer size for the ASIO driver. Setting value: 32 to 2048 samples
- **DMA Transaction Size** = buffer size for the card. Setting value: 16, 32 samples

Installation of the LX-DANTE driver is now complete.

10 CONFIGURATION OF THE DANTE PARAMETERS

10.1 Connecting to a Network

In order to use your LX-DANTE card, you will need to set up an Ethernet network connecting:

- The computer on which the LX-DANTE card is installed. Connection is made through the LX-DANTE card.
- The computer running Dante Controller (if it's not the same computer). Connection is made through the computer network adapter.
- Any other Dante-enabled audio device you may have

Gigabit Ethernet Support

Your LX-DANTE card is designed to perform with Gigabit Ethernet networks. Connecting your card to a 100 Mbit/s Ethernet devices is not supported. Make sure the port of the Ethernet switch the LX-DANTE card is connect to supports Gigabit Ethernet.

Choosing a Gigabit Ethernet Network Switch

You get the best performance out of your Dante network even if you use standard Gigabit Ethernet network switches. Dante uses standard Ethernet and IP Quality of Service (QoS) to ensure its high-quality synchronization is not affected, even on loaded networks. Make sure that you choose network switches which have the following features.

- DSCP-based QoS with four queues and strict priority queuing
- ACL filtering
- Fiber-optic cable support including SFP pluggable modules (if you need to run long cables)
- Managed network switches which allow you to manage the network switches and monitor your network If you have chosen a network switch that has been used before, you may need to check its settings again. For more information about choosing network 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 (STP), including Cat5e or higher and fiber-optic. Make sure your Ethernet cables and ports are in good condition. Remember that Ethernet cables which are Cat5e or higher have a maximum length of 100 meters* at speeds of 1Gbps (the cable length limit depend on the cable type). If you require longer distances, you can use fiber-optic cables.

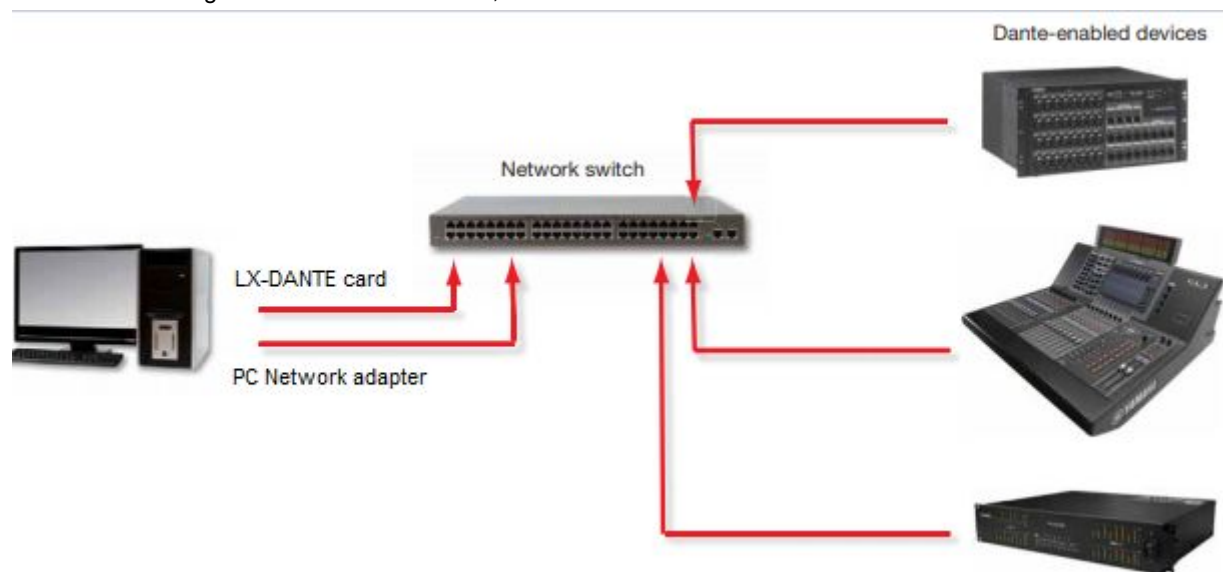
Network Configuration

Once you have installed the LX-DANTE card in your computer and connected it to a network, you are in a position to start using Dante networking to set up audio routing between other Dante-enabled devices you may have on the network.

The Dante Controller application from Audinate allows setting up the audio routing over a Dante network.

Please refer to the Audinate's WEB site for information about the Dante Controller, and for downloading it.

The LX-DANTE card is a dedicated Dante audio interface, and cannot be used by the Dante Controller as a port for network control (configuring Dante devices, and routing audio). Network control must be performed via the standard network adapter on the computer on which Dante Controller is installed. If this is the same computer in which the Dante Accelerator is installed, the computer must be connected to the Dante network via two Ethernet cables and a network switch: one cable connecting the LX-DANTE card to the switch, and one connecting the PC NIC to the switch., as shown below.



Basic network configuration

If your network switch has a mix of Gigabit and 100Mbps ports, make sure you connect the LX-DANTE card(s), and if possible all devices, to the Gigabit ports.

- Make sure all computers are set to automatically configure their IP address.
- Power on the network switch

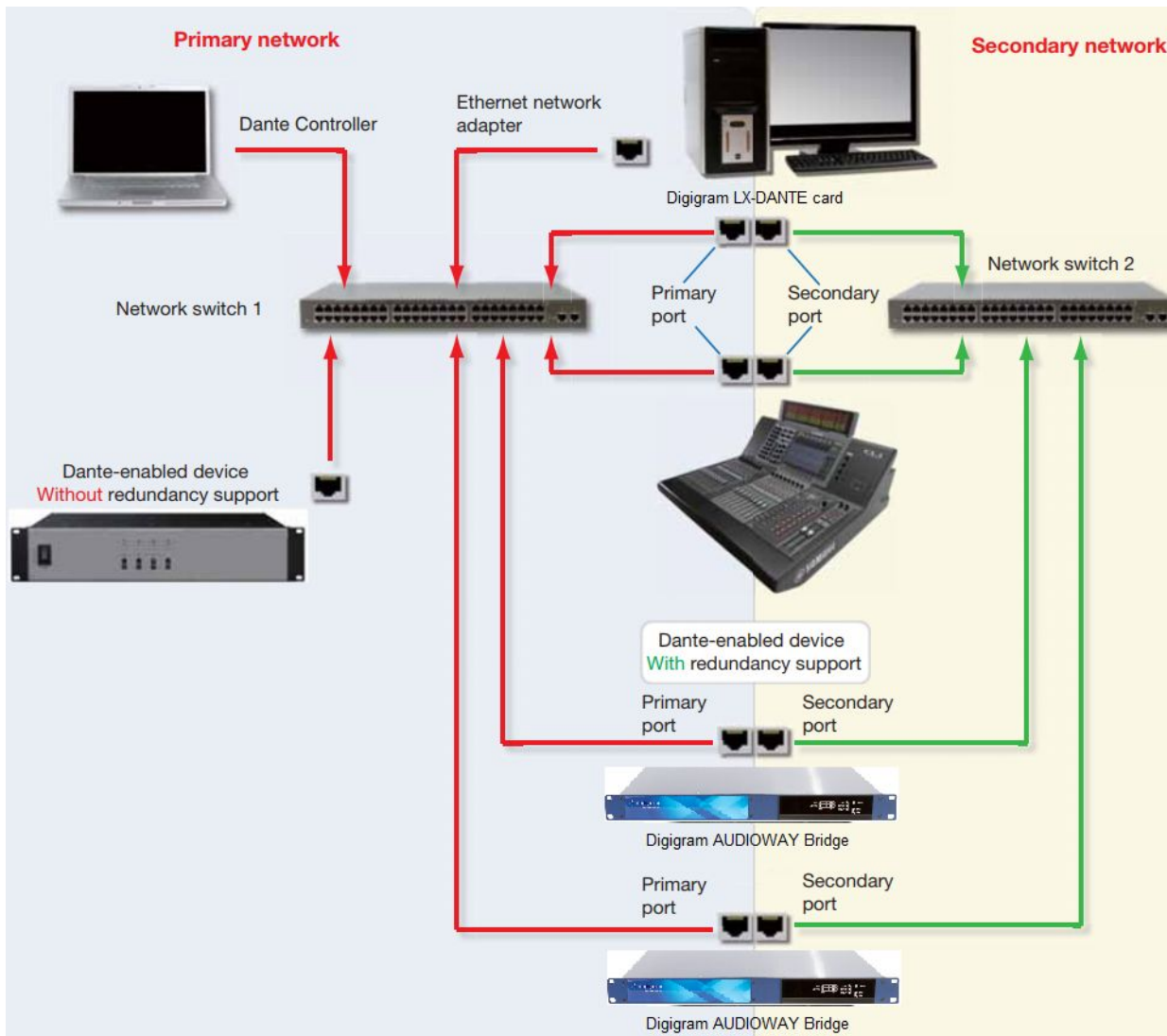
- Connect your Ethernet cables from each device to the Gigabit ports of the network switch. You may need to reboot the computers if they have active previous IP network configurations. All devices will automatically be assigned IP network configurations.
- Use the Primary Ethernet port of the LX-DANTE card to connect it to the Dante network.

Connection via a Redundant Network

The Dante redundancy works by using two completely independent and separate networks, the Primary Network and the Secondary Network. To set up and use Dante Redundancy, connect your redundant Dante-enabled device using duplicate network switches and Ethernet cables as shown below. Connect the following to the Primary Network only:

- Any computers running Dante Controller
- Any non-redundant Dante-enabled devices

All Dante-enabled devices that support redundancy should be connected to both the Primary and Secondary networks. The primary and secondary networks **MUST NOT** be interconnected at any point.



1. Make sure all computers are set to automatically configure their IP address.
2. Power on the network switch.
3. Connect your Primary Ethernet cables from each device to the Gigabit ports of the Primary network switch.
4. Connect your Secondary Ethernet cables from each device that supports redundancy to the Gigabit ports of the Secondary network switch.

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 LX-DANTE is a dedicated audio interface, Dante Controller must connect to the network via the standard network adapter on the computer. Because of this, do not make a 'straight-through' connection from the LX-DANTE to another Dante-enabled device.

Connecting Primary and Secondary redundant networks to the same network 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 network switch used for the primary network, or any primary network connections to a network switch used for the secondary network.

Dante Audio Data over Wireless Networks

Wireless Ethernet networks should not be used to carry Dante audio data, and Dante Controller 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.

Use of 100Mbps Network interface

The use of 100 Mbps Ethernet device with the LX-DANTE card is NOT SUPPORTED. You must connect the LX-DANTE to Gigabit interfaces: • Gigabit Ethernet network switch • Gigabit network interface on a PC or Mac

10.2 Using Dante Controller

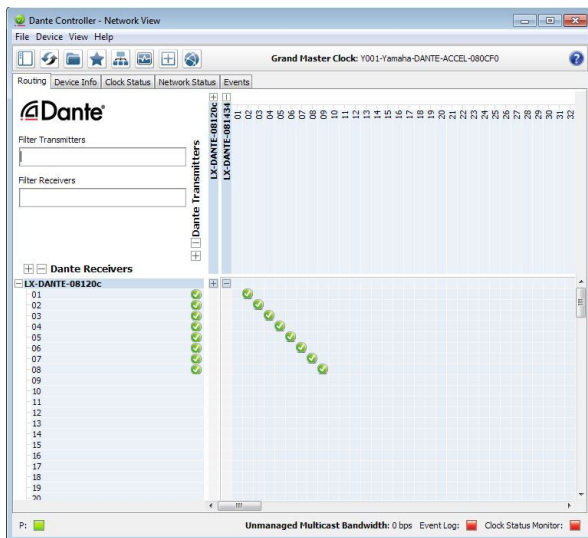
Please download the Dante Controller application from Audinate's WEB site, and refer

When you open the Dante Controller it displays the Network 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.

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

Dante Controller Network View



Setting Up Audio Routing

The Dante Controller can be used to configure audio routing between Dante devices.

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

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

NOTE
Ctrl+click on the cell at the intersection of the devices to configure the entire routing.

Configuring the Card

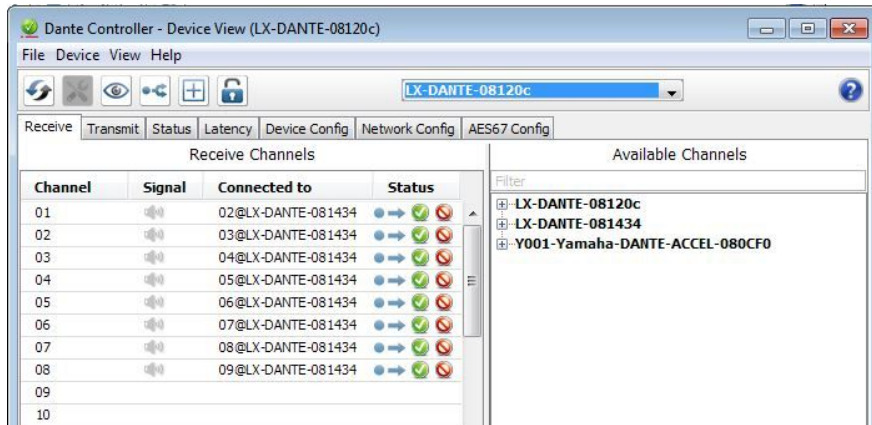
To configure features of your LX-DANTE, including its name, sample rate, and latency:

1. Start the Dante Controller.
2. Select the device – either:
 - Double-click on the device name in the Dante Controller Network View (either in the transmitter row, or the Receiver column), or:
 - From the Network View menu, select Device -> Device View (or press Ctrl+D). This opens a Device View window for the selected device. If there are multiple computers with LX-DANTE cards in your network, 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 (see below) to check which card it is.

Device View Window

The Device View has five tabs: Receive, Transmit, Status, Device Config and Network Config. The Receive tab for a configured LX-DANTE card is shown below.



Identifying Individual LX-DANTE cards

When there are multiple computers with LX-DANTE card in your network, you can use the Identify feature 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 LX-DANTE card to flash green for about ten seconds.

Changing the Device Name

By default the device name for the LX-DANTE card is ****- nnnnnn, where **** is the name of the card and 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. It is possible to replace the LX-DANTE card default device name with a custom, user-defined name. To do this open Device View in the Dante Controller, select the card you wish to modify in the Device View, and change the Device Name in the Device Config tab. If you rename a device, you must re-establish any existing audio routing 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:

- Open the Device View for the relevant device.
- Click the Receive or Transmit tab (depending on which channel labels you want to edit).
- Double-click the channel label.
- Enter a new value. Tx (transmit) labels must be specific to that device.

Changing the Sample Rate

Audio routing can only be set up between devices that are operating at the same sample rate. It is possible to set the sample rate to any one of the following values: 44.1, 48, 88.2, 96, 176.4, and 192 kHz. To do this, open Device View in the Dante Controller, select the card you wish to modify in the Device View, and change the sample rate in the Device Config tab. Pull-up/pull-down (+4.1667, +0.1, -0.1, and -4.0 %) is also supported. 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 network switch
- 0.25ms - a suitable setting for a network containing 3 network switches
- 0.5ms - a suitable setting for a network containing where the signal path may encompass up to five network switches
- 1.0ms - a suitable setting for a network containing where the signal path may encompass up to ten network switches
- 5.0ms – a safe value for a network of almost any conceivable size

NOTE

Even if you set values suited for your network, various factors may cause some noises. 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 routing 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.

10.3 AES67 compatibility mode

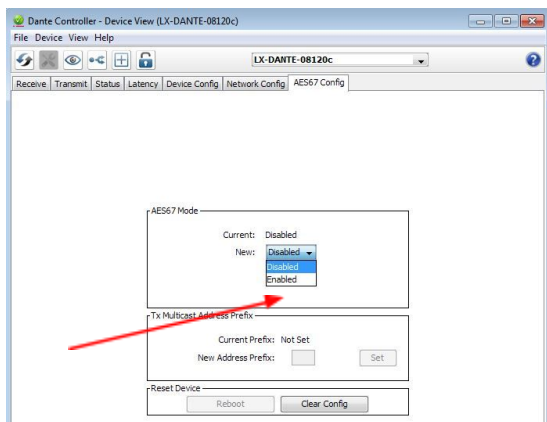
AES67 streams can be exchanged between the LX-DANTE and AES67 devices.

The parameters of the AES67 compatible mode are:

- SAP (Session Announcement Protocol) must be supported.
This is one of four device discovery methods referenced in the AES67 standard. Check if the transmitting non-Dante AES67 device supports SAP. Otherwise Dante Controller cannot discover the audio flows coming from the device. Dante devices support SAP if their AES67 mode is enabled. Even if the non-Dante AES67 device does not directly support SAP, the vendor may have a software conversion tool available, providing wider compatibility.
- Multicast flow only (unicast is not supported yet).
- Up to 8 channels per flow.
- Multicast IP addresses must be in the range of 239.69.0.0 - 239.69.255.255/16.
In addition, the same network address range must be specified for other AES67 devices transmitting to Dante devices.
- 48 kHz sampling rate only.
The Dante audio flows from/to the device will also be limited to 48 kHz if the device is engaged in AES67 mode.
- 24 bit (L24) only for transmission and reception.
- 2 milliseconds fixed latency for reception.
- Primary network only .
- 100 Mbps or slower connections are not supported.

It is necessary to enable the AES67 mode of the LX-DANTE card, through the Dante controller.

Select the LX-DANTE card, and go to the “AES67 Config” tab.



Apply “Clear Config” and reboot the Dante interface when enabling or disabling AES67 mode.

Common sense precautions should also avoid audio mishandling:

- If you modify the device labels, reboot the Dante interface after label modifications to update the AES67 signal name announcement
- Do not change the bit depth (default 24 bit) from Dante Controller or the console after enabling the AES67 mode.
- AES67 is Multicast only : create AES67 multicast transmission streams in Device View as usual, but tick “AES67 flow” first.
- In the Routing tab on Dante Controller, the non-Dante AES67 devices will appear in blue as the transmitters.

Clocking considerations

- AES67 mode on a Dante device enables both IEEE 1588 Precision Time Protocol (PTP) v1 and v2. A single clock domain must be created across both PTP v1 and v2 devices:
- Standard Dante devices support PTP v1 only
- AES67-enabled Dante devices support PTP v1 and PTP v2
- AES67 devices support PTP v2 only
- PTP v1 and v2 are not inter-compatible. One AES67-enabled Dante device will act as the boundary clock between PTP v1 and v2, bridging the two clock domains

Enabling LX-DANTE as Master for both Dante and AES67.

- Enable the Dante card "Preferred Master" status
- Disable "Preferred Master" for all Dante devices that have AES67 disabled.
- Disable "Sync to External" for all devices.
- Assign a PTPv2 priority level of between 128 and 255 for all non-Dante devices

If another AES67 device (Grandmaster Clock, or another AES67 device) is the Master ,

- Make sure the PTP v2 Master has a priority of between 1 and 100, and is using the "Media Profile" clock settings.
- Disable "Preferred Master" and "Sync To External" for all Dante devices.
- One AES67-enabled Dante device will automatically be selected as the Boundary clock, becoming the Dante Master.
- Make sure the Master Clock device is set to use the "Media profile" (not the "Default profile" because Dante devices do not support the Default profile).

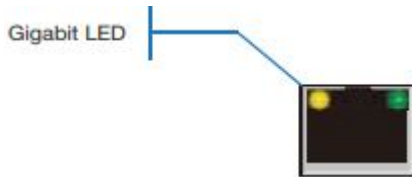
11 Troubleshooting

11.1 Gigabit Ethernet

All your Dante Accelerator require a Gigabit Ethernet interface. This means that they should be connected to a Gigabit Ethernet network switch.

How can I check whether I AM using Gigabit Ethernet?

- The orange Gigabit LED on the Card Ethernet port will be lit:



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

| Device Name | Type | Version | Primary Address | Primary Link Speed | Secondary Address | Secondary Link Speed |
|-------------|------|---------|-----------------|--------------------|-------------------|----------------------|
| PCIe-060158 | PCIe | 3.4.11 | 10.12.0.230 | 1Gbps | Not Supported | Not Supported |

Link speed when connected to 1Gbps port/network switch


11.2 Computer Configuration

Dante hardware devices are set to obtain their IP address automatically from the network. They will either:

- Automatically assign themselves an address in the range 169.254.*.* (172.31.*.* for the secondary network if present), or
- Obtain an IP address from a DHCP server if it is present on the network

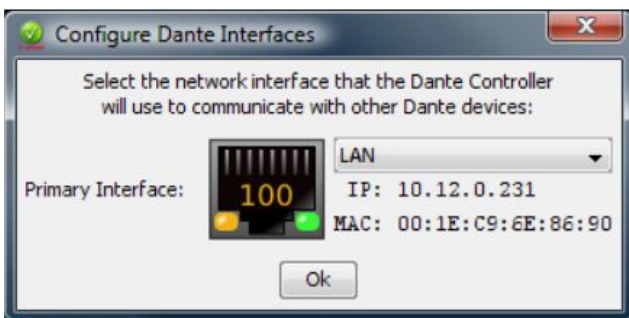
The PC or Mac must be connected to the Primary Dante network, and must have a correct IP address.

How do I check which interface Dante Controller is using?

The selected network interface can be viewed or changed via the Interface Selection button  in the Network View toolbar of the Dante Controller.

How do I check what IP address Dante Controller is using?

The IP address can be viewed in the Configure Dante Interfaces dialog box brought up by the Interface Selection button .



Configure Dante Interfaces dialog

- If the Dante network is standalone and does not have a DHCP server installed, this address should be 169.254.*.*
- If the Dante network is using a DHCP server, the IP address should conform to the addressing scheme it is using (as in the image above)

What are the symptoms of using the wrong interface on my PC or Mac?

Dante Controller cannot see any devices

Checking your PC or Mac IP configuration

- Is the PC configured to "Obtain an IP address automatically"?
This way it will automatically acquire a Link Local automatic IP address in the same network as other Dante devices.
- If a DHCP server is present, the PC and Dante devices will all acquire their IP addresses via DHCP.
- Does it have a third-party firewall installed?
Standard Windows and Mac firewalls will be configured on installation.
Third party firewalls will need to be manually configured.
Please read the Dante Controller User Guide for detailed information about firewall requirements and configuration.

Network 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
- Misconfigured network switches
- Dante devices removed, or turned off

Symptoms of network 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

Network Switch and Cabling Checklist

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

System Checklist Before installing, a PC or Mac needs to have:

- The user logged in with administrator privileges
- A PC or Mac for use on the Dante network should have:
 - Latest version of 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 selected
 - The correct IP addresses used
 - An audio application correctly configured to use the Dante Accelerator as its audio interface

Checking Driver Version Windows

In Windows, an installed Dante Accelerator will appear in the Device Manager. To open the Device Manager in Windows 7, go to Control Panel > Hardware and Sound > Device Manager. The card will appear under the "Sound, video and game controllers" group.

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

11.3 Dante Configuration

Sample Rate Sample rate configuration

Have the Dante Accelerator and/or other devices communicating audio data been configured with different sample rates?

Use the Dante Controller to check Dante device sample rates.

12 SPECIFICATIONS

Configuration

| | |
|--------------------|--|
| PCI Express card | PCI EXPRESS™ (PCIe®) x4, (x8, x16 compatible) |
| Network interfaces | Two Gigabit Ethernet RJ45 connectors |

IP audio

| | |
|-----------------------|---|
| IP audio transport | Dante Audio over IP, AES67 |
| Redundancy | Glitch-free Dante audio redundancy using dual Ethernet networks |
| Clock synchronization | Master or slave |

Audio

| | |
|------------------------|---|
| Audio Channels | 128 / 128 I/O channels @ up to 96kHz 64 / 64 I/O channels @ 192kHz |
| Supported Sample Rates | 44.1, 48, 88.2, 96, 176.4 and 192kHz |
| Sample bit-depth | 24 bit PCM Audio |
| Latency | Round trip latency as low as 2.99ms |

Software environment

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|--------------|---|
| OS Supported | From Windows 7, and from Windows Server 2008 R2 Linux (on request) |
| Drivers | Windows: ASIO Linux: Alsa |

Compatibility with expansion chassis

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|---------------------|---|
| Thunderbolt chassis | OWC (Other World Computing) Mercury Helios ` Sonnet Echo Express SE II Magma ExpressBox 1T 1 Slot |
|---------------------|---|