Dante Technical Overview

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Dante AV NETWORKING WORLD

Dante Technical Overview

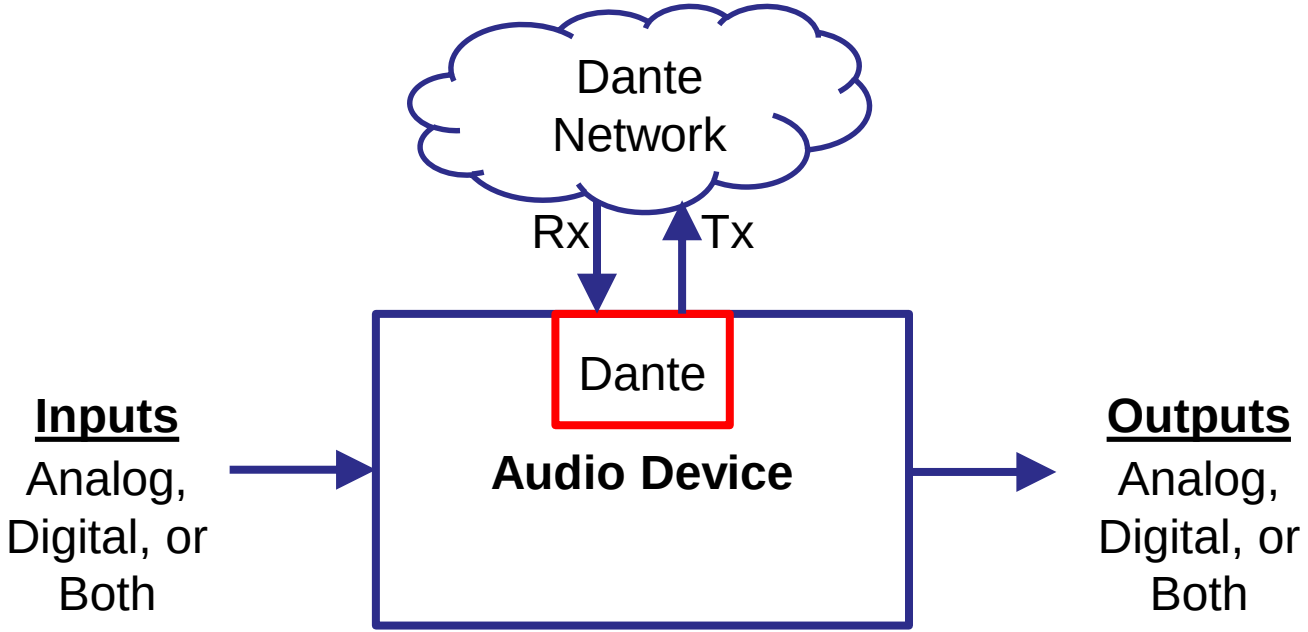
In this session we will be covering:

- How Dante is implemented into manufacture's products.
- The features and benefits of using Dante
- Introduction to Dante Controller

Implementation

How is Dante implemented into audio products?

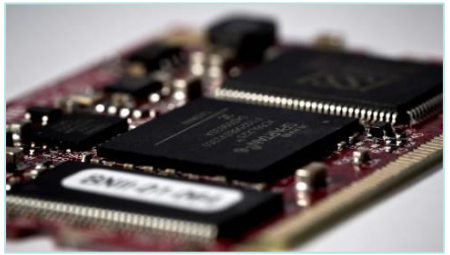
Implementation



Implementation

Several Ways to Incorporate Dante into devices

- Brooklyn II card
  - 8x8, 32x32, & 64x64
  - Gigabit, Primary & Secondary Connections



- Ultimo Chip
  - 2x2 & a new 4x4 version
  - 100Mb, & new Gigabit switch option

Implementation

Several Ways to Incorporate Dante into devices

- Dante HC
  - 512x512
  - Gigabit, Primary & Secondary Connections

- Dante PCIe Card
  - 128x128
  - Available from Focusrite/RedNet & Yamaha
  - Gigabit
    - Primary & Secondary Connections (Yamaha)

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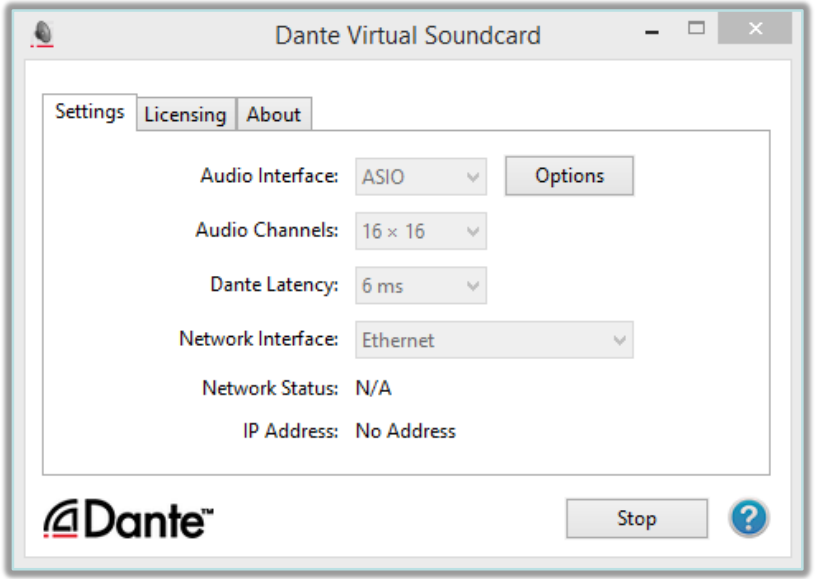
Implementation

Several Ways to Incorporate Dante into devices

- Dante Virtual Sound Card
  - Up to 64x64 channels
  - Uses built-in Ethernet
  - Appears as a soundcard
  - Core Audio (Mac)
  - ASIO + WDM (Win)



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Implementation

Dante is used end to end through the signal chain

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Features & Benefits

- Auto discovery of devices
  - Dante devices auto discover and are easy to set up
  - Simplified installation and configuration
- One click signal routing
  - Simplified connection management
- User friendly device and channel names
  - Names that can be edited
- Network configuration is stored in the device
  - Routes automatically re-established
  - No need to reprogram when moving equipment

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Features & Benefits

- Sample accurate timing
  - **±1µs** playout/capture time alignment
  - Maintained across multiple switch hops
- Multiple sample rates
  - 44.1kHz thru 192kHz, +4.1667%/-4.00%, ±0.1%, etc.
  - Network supports *different sample rates at the same time*
- High quality, low jitter audio clocks

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Features & Benefits

- Latency can be as low as **150µs**
  - Point to point links
  - Single gigabit switch
- **1ms** is a typical default
  - Good for most 1Gbps networks with several switch hops
- Supports *different latencies at the same time*
  - Not limited to the highest latency device
- Latency is 100% deterministic
  - Always known and consistent

Features & Benefits

- Glitch-free redundancy
  - Protect from network failures
- Built on Proven IT Standards
  - IEEE 1588 Precision Time Protocol
    - Networked clock synchronization
  - Dynamic Host Configuration Protocol (DHCP)
    - IP address management
  - Diffserv QoS
    - Prioritization of clocking and audio traffic
  - Zero-configuration Networking
    - Multicast DNS, DNS Service Discovery
      - Plug and play service discovery (e.g. Bonjour)
- Dante is Audio Over IP (AOIP)

IETF

ISO

IEEE

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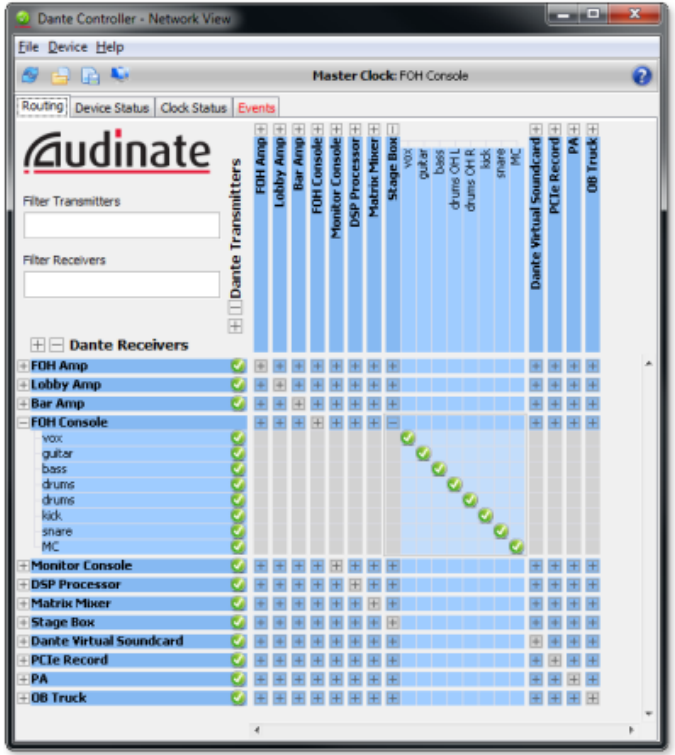
Dante Controller

- Simple plug and play signal routing application
- Configure
  - Sample rate
  - Word clock I/O
  - Network latency
  - Clock master preferences
- Diagnostics
  - Link up/down, throughput, errors, clock master changes, etc.
- Freely available to end users/manufacturers



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