DHD IP Audio Solutions

DHD offers 2 different IP audio solutions.

1. DHD XC IP Audio Interface and XC IP Driver 52-7140A for PLAYOUT & RECORDING

The DHD Playout & Recording solution is based on a DHD hardware and a DHD Windows 7 WDM (WASAPI) driver for playout and recording of up to 16 mono channels in each direction.

The target solution of the DHD Playout & Recording is to replace WDM based soundcards of On Air playout and automation systems.

This solution is intended for use as point to point system only, which means it allows to connect one DHD Windows 7 WDM driver running on a PC to its related 52-7140A hardware via network.

The network may be a:

a) simple connection using a patch cable between the PCs Ethernet interface and the Ethernet interface of the 52-7140A.
b) connection over a standard Ethernet network switch. It may be necessary to define a VLAN or QoS parameters or to use a second network card inside the PC depending on the specific network.

It is not possible to connect 2 or more DHD Windows 7 WDM drivers in parallel to one 52-7140A.

The DHD Playout & Recording solution is optimized for the 24/7 requirements of the broadcast industry and offers low delay times.

The DHD XC IP driver is compatible with Windows 7 (32 and 64 bit) and offers 8 stereo audio devices each with 1 stereo input and 1 stereo output in 24 bit and 48 kHz. The buffer size is adjustable between 5 ms and 130 ms.

It is technically possible to run the DHD XC IP driver under, for example, VMWare. However, for stability reasons this operating mode is not recommended.

It is not possible to interconnect two or more DHD XC IP Audio Interfaces to create a true IP based audio network.

2. DANTE Digital Audio Networking

A full IP Audio Networking solution for DHD systems is possible using a Dante hardware device inside a DHD I/O box, the 52-7180A for up to 48 mono channels in and 48 mono channels out.

You may interconnect 52-7180A, Dante enabled devices of other Pro Audio manufacturers and Dante PC and MAC audio drivers "Dante Virtual Soundcard" using standard Ethernet network switches.

The following information are taken from www.audinate.com:

Dante Benefits

Dante delivers something every audio professional needs: a no hassle, self configuring, true plug-and-play digital audio network that uses standard Internet Protocols over both 100Mbps and 1 Gigabit Ethernet. Patent pending Dante technology distributes digital audio plus integrated control data with imperceptible latency, sample accurate playback synchronization, extreme reliability and high channel counts.

Easy to Setup and Use

Our innovative configuration protocol makes networking a true plug and play process with automatic device discovery and system configuration. Dante enabled devices will automatically configure their network interfaces and find one another.

Sample Accurate Timing with Inaudibly Low Latency

Dante uses audio independent, high accuracy network synchronization standards to ensure all Dante devices are synchronized at all times. Sample-accurate playback with extremely low latency and jitter is achieved without limiting your audio sample rates and network layout options.

True Ethernet and IP Network Compatibility

Dante runs on inexpensive off the shelf computer networking hardware, and does not require dedicated network infrastructure. Ethernet switches transmit Dante digital media streams along-side ordinary data traffic, so you can integrate professional media operations into properly designed pre-existing networks.

Dante is a high performance digital audio networking solution that offers many benefits to users and manufactures of equipment for Live Sound, Install, Recording or other Pro Audio markets.

Benefits of Using Dante

Plug-and-play technology – automatic discovery and simple signal routing

Reduced Cost & Complexity- No special skills required to set up audio networking

Sample accurate playback synchronization

Lowest latency available from any networking technology

Add/remove/rearrange components at will

Deterministic latency throughout the network

Support mixed bit depths and mixed sample rates over one network

Scalable, flexible network topology supporting a large number of senders and receivers

Supports mix of 100 Mbps, 1Gbps, through 10Gbps networks

Supports a single integrated network for audio, video, control, monitoring

Uses inexpensive, off-the-shelf computer networking equipment

Direct connection to PCs for multi-channel recording, processing and playback using a Dante Virtual Soundcard for both PCs and Macs

AVB Ready

The Dante Virtual Soundcard is software that turns your PC or Mac into a Dante enabled device, allowing Dante audio traffic to be transmitted and received between other Dante-enabled devices using the standard Ethernet port. No additional hardware is required, and that means significant cost savings.

Easy to set up and use

Dante Virtual Soundcard is simple to set up and use on a computer and can be ready only minutes after downloading. It is the software implementation of Audinate's patentpending

Dante™ audio transport, a flexible Internet Protocol (IP) and Ethernet-based digital AV network technology that provides unprecedented flexibility, and eliminates the need for bulky cables that provide point-to-point wiring in analog AV installations.
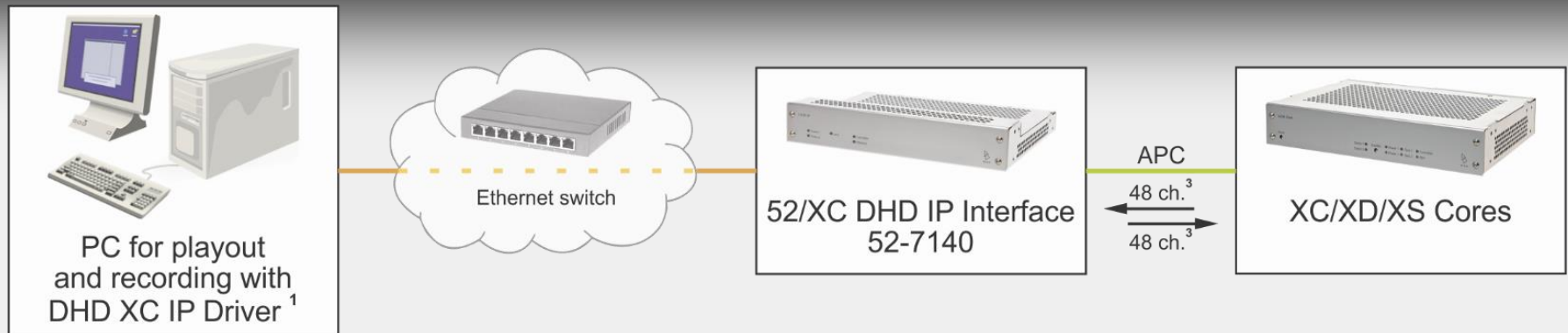
Using Dante Virtual Soundcard in Applications Whether in an installed location or a live sound event, a Dante network coupled with Dante Virtual Soundcard creates a powerful audio distribution and recording solution with incredible ease-of-use, giving users the ability to record and playback up to 64x64 channels of audio using a standard computer. Dante Virtual Soundcard can be used for recording live events such as concerts, worship services, conference room meetings, corporate events, courtroom minutes, government proceedings and more.

Dante Virtual Soundcard is designed to work with popular Digital Audio Workstations (DAWs) such as Nuendo®, Cubase®, Reaper®, and Logic®, as well as consumer applications like iTunes®. Dante Virtual Soundcard appears on computers as an ordinary Core Audio or ASIO device, no special settings are required.

In WDM mode, Dante Virtual Soundcard supports common audio applications available for Windows, such as Windows Media Player, iTunes and Skype. Dante Virtual Soundcard supports 8 channels (4 stereo pairs) in WDM mode. Each stereo pair appears as an independent selectable audio device in any relevant Windows and supporting application dialogs.
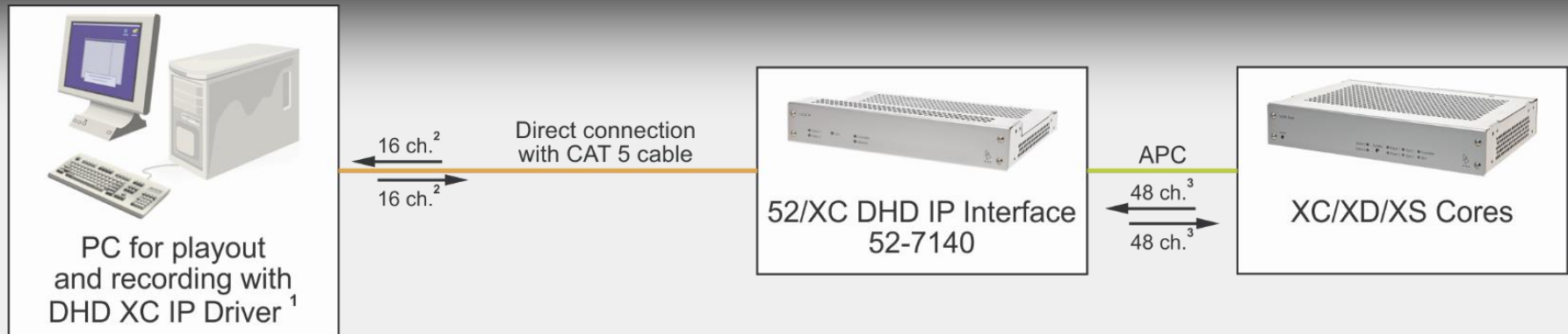
- WDM driver for Windows 7 on 100 Mbit Ethernet, allows:
  - 16 input channels and 16 output channels via ethernet network adapter
- XC IP Audio Box 52-7140 connects the AoIP signals to the new XC/XD/XS Cores
- direct connection between 52-7140 and PC network adapter sufficient

PC for playout
and recording with
DHD XC IP Driver [1]

Ethernet switch

52/XC DHD IP Interface
52-7140

APC

48 ch.[3]
48 ch.[3]

XC/XD/XS Cores

- WDM driver for Windows 7 on 100 Mbit Ethernet, allows:
  - 16 input channels and 16 output channels via ethernet network adapter
- XC IP Audio Box 52-7140 connects the AoIP signals to the new XC/XD/XS Cores
- connection between PC and 52-7140 via standard Ethernet switch possible
- one 52-7140 will be bound to one PC
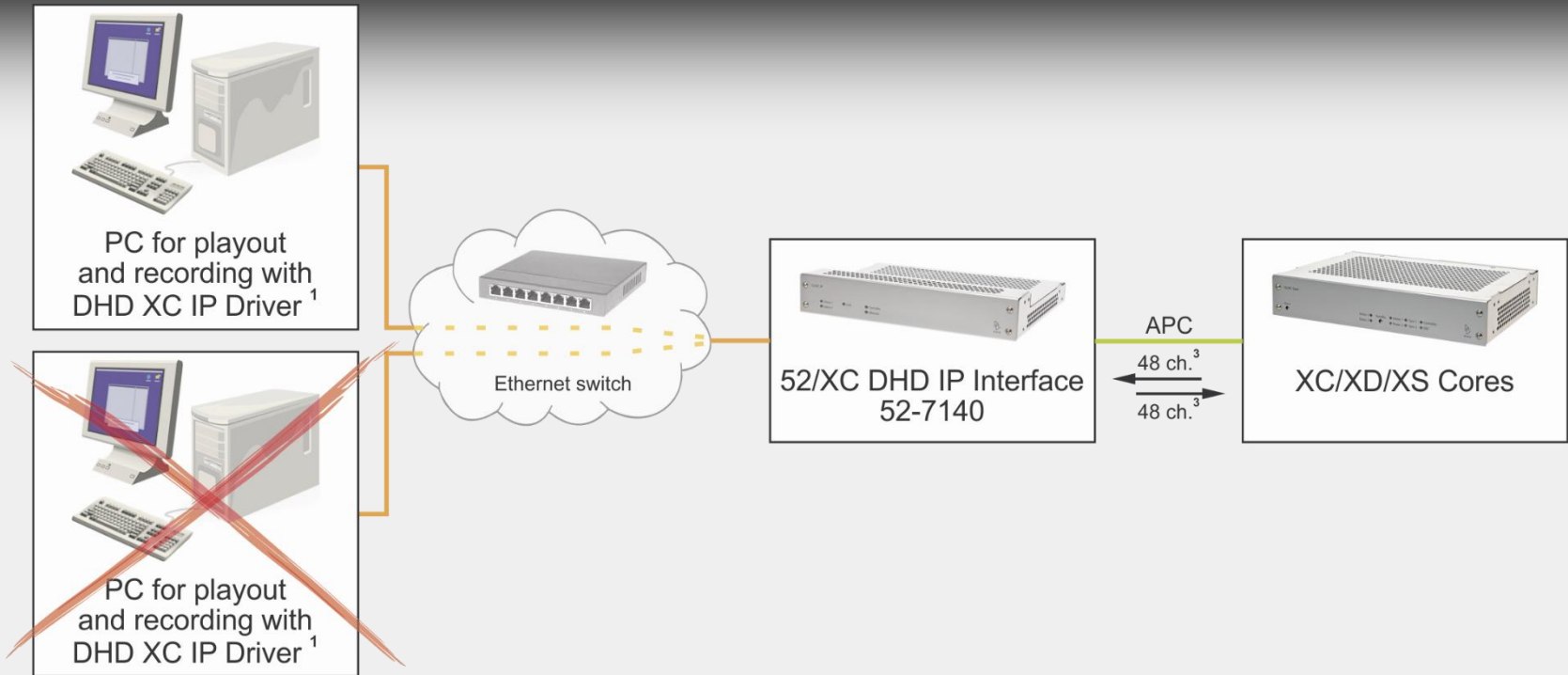
- each 52-7140 is dedicated to a single PC

- a second PC can not playout to or record from an already assigned 52-7140
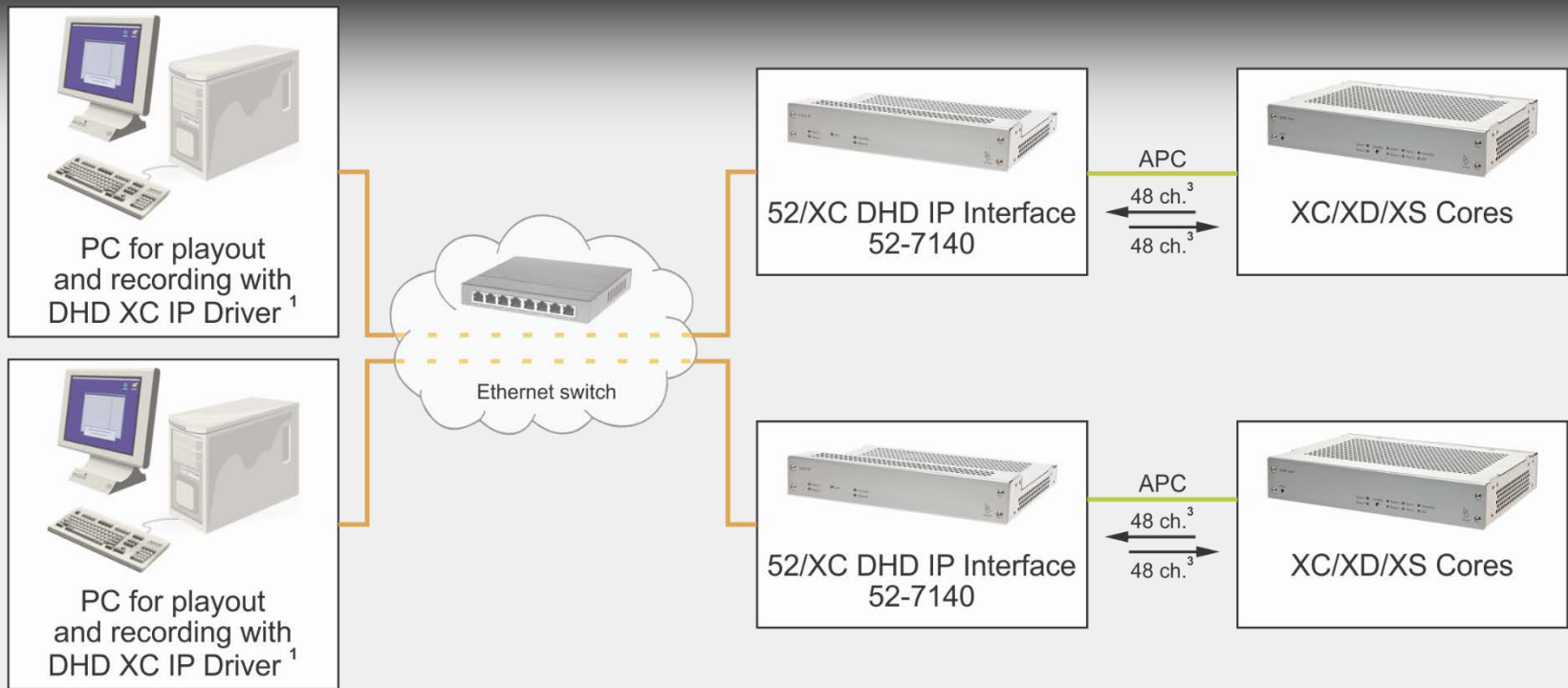
- connection between PC and 52-7140 via standard Ethernet switch possible, multiple AoIP streams within one network possible
- each 52-7140 is bound to a single PC, no mixed audio streams

Dante™

PC for playout
and recording with
Dante Virtual Soundcard
ASIO or WDM Driver [4]

Ethernet switch

52/XC Dante IP
Audio Interface 52-7180
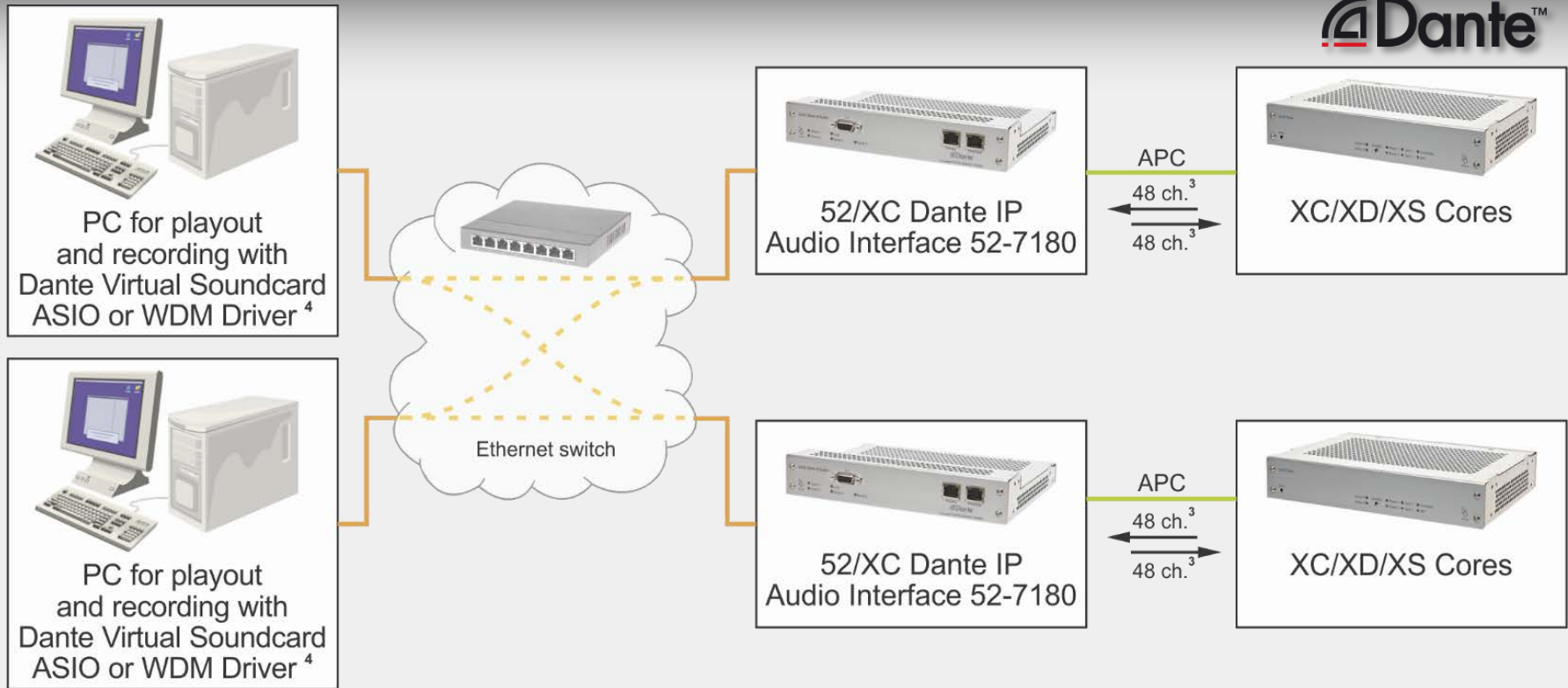
APC
48 ch. [3]
48 ch. [3]

XC/XD/XS Cores

- Dante Virtual Soundcard supports with Gigabit Ethernet:
  - ASIO: up to 64 input channels and up to 64 output channels
  - WDM: 4 stereo input channels and 4 stereo output channels

- 52-7180 can send and receive up to 48 channels (APC specs)

[4] License for Dante Virtual Soundcard not included in 52-7180, needs to be purchased from www.audinate.com

- mixed playout and recording from multiple PCs to multiple 52-7180
- flexible audio routing via Dante Controller Software

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- **mixed playout and recording from multiple PCs to a single 52-7180 Dante IP Audio interface**
- **flexible audio routing via Dante Controller Software**

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