



Si Dante Card

User Guide



IMPORTANT

**Please read this manual carefully before using
your card for the first time.**



This equipment complies with the EMC directive 2004/108/EC

This product is approved to
EMC standards
EN55103-1: 2009 (E2)
EN55103-2: 2009 (E2)

Warning: Any modification or changes made to this device, unless explicitly approved by Harman, will invalidate the authorisation of this device. Operation of an unauthorised device is prohibited under Section 302 of the Communications act of 1934, as amended, and Subpart 1 of Part 2 of Chapter 47 of the Code of Federal Regulations.

NOTE: 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, may cause harmful interference to radio 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 to which the receiver is connected.
- * Consult the dealer or an experienced radio/TV technician for help

For further details contact

Harman International Industries Ltd, Cranborne House, Cranborne Road, Potters Bar, Hertfordshire EN6 3JN, UK
Telephone +44(0) 1707 665000 Fax +44 (0)1707 660742 email: soundcraft@harman.com

© Harman International Industries Ltd. 2014

All rights reserved. Parts of the design of this product may be protected by worldwide patents.
Part No. 5031819.V



Soundcraft is a trading division of Harman International Industries Ltd. Information in this manual is subject to change without notice and does not represent a commitment on the part of the vendor. Soundcraft shall not be liable for any loss or damage whatsoever arising from the use of information or any error contained in this manual.

No part of this manual may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, electrical, mechanical, optical, chemical, including photocopying and recording, for any purpose without the express written permission of Soundcraft.

Harman International Industries Limited
Cranborne House, Cranborne Road, POTTERS BAR, Hertfordshire, EN6 3JN, UK

Tel: +44 (0)1707 665000
Fax: +44 (0)1707 660742
<http://www.soundcraft.com>

IMPORTANT SAFETY INSTRUCTIONS

Read these instructions.

Keep these instructions.

Heed all warnings.

Follow all instructions.

Do not use this apparatus near water.

Clean only with a dry cloth.

Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

Do not defeat the safety purpose of a polarised or grounding type plug. A polarised plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.

Only use attachments/accessories specified by the manufacturer.



Use only with the cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

Unplug this apparatus during lightning storms or when unused for long periods of time.

Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



NOTE: It is recommended that all maintenance and service on the product should be carried out by Soundcraft or its authorised agents. Soundcraft cannot accept any liability whatsoever for any loss or damage caused by service, maintenance or repair by unauthorised personnel.



WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Do not expose the apparatus to dripping or splashing and do not place objects filled with liquids, such as vases, on the apparatus. No naked flame sources, such as lighted candles, should be placed on the apparatus.

Ventilation should not be impeded by covering the ventilation openings with items such as newspapers, table cloths, curtains etc.



NOTE: 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 when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This Class B digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

FOR YOUR OWN SAFETY AND TO AVOID INVALIDATION OF THE WARRANTY PLEASE READ THIS SECTION CAREFULLY.

SAFETY SYMBOL GUIDE

For your own safety and to avoid invalidation of the warranty all text marked with these symbols should be read carefully.

WARNINGS



The lightning flash with arrowhead symbol, is intended to alert the user to the presence of un-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTIONS



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

NOTES



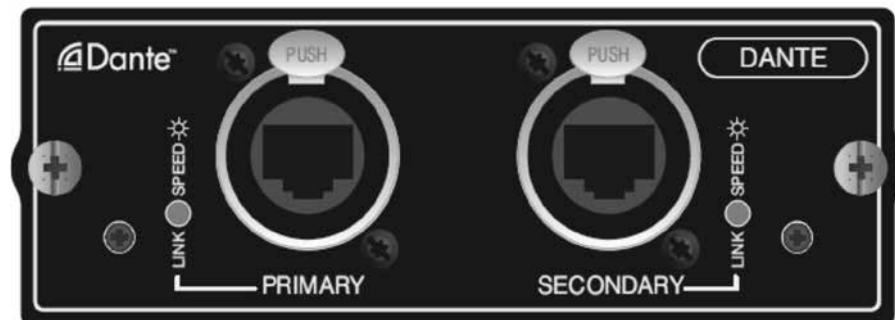
Contain important information and useful tips on the operation of your equipment.

HEADPHONES SAFETY WARNING



Contain important information and useful tips on headphone outputs and monitoring levels.

INTRODUCTION



The Soundcraft® DANTE™ card is a 64 x 64 interface between an Si series console*¹ and any Dante compatible device from Harman or other third-party manufacturer.

Dante provides a digital audio network that uses standard Internet Protocols over both 100Mbps and 1 Gigabit Ethernet. Dante uses audio-independent, high accuracy network synchronization standards to ensure all Dante devices are synchronized at all times. Dante runs on inexpensive off the shelf computer networking hardware, and does not require dedicated network infrastructure.

The Audinate Dante Virtual Soundcard software allows connection of a PC/Mac to a Dante audio network. This system allows the computer to record from and playback to the Dante network using most common DAW packages. Dante Virtual Soundcard uses the Ethernet port on the computer to communicate with the Dante network; no special hardware is required other than installing Dante Virtual Soundcard software.

Additional information about the DANTE system including the latest software set-up and tools may be found on the Audinate® web site <http://www.audinate.com/>

*¹ Not Si1, 2, 3 including 'plus' variants



NOTE: The packaging, in which your card arrived, forms part of the product and must be retained for future use.

CONFIGURING THE DANTE CARD

In a manner similar to CobraNet™, patching on the console makes a connection between console expansion bus channels and channels on the Dante card. Connections between the Dante cards are set using a tool, in this case the Dante Controller software from Audinate®. As communication across the Dante network is essentially between named cards and channels, the configuration must be correct to ensure cards talk and listen to the correct/desired channels on the Dante network.

This user guide summarises the process and provides a simple worked example; full setup details and configuration tools are downloadable from the Audinate web site www.audinate.com.



NOTE: This manual used the 'Example Files' for an Si Performer 3 and Audinate Si Dante card, these may be downloaded from www.soundcraft.com.

Card dipswitches

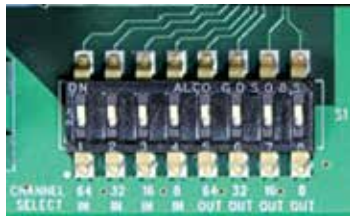
There are two sets of dip switches located on the card's surface that can be used to adjust card specific settings such as channel width and clock source.

Switch S1:

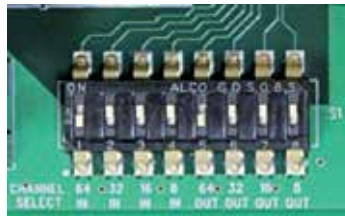
The larger Switch S1, located at the rear of the card, allows the user to reduce the channel count both to and from the network from 64x64 to 8x8 and all variations between.

To achieve the channel count required, the user must turn OFF the dipswitches until the correct count is achieved. All switches ON is the full 64x64 card capacity.

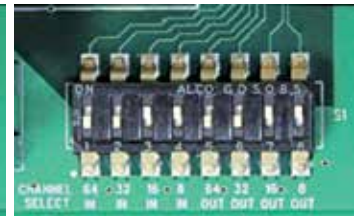
Below are a few picture examples of dip switch settings for desired channel counts:



*64x64:
All dipswitches 1-8 turned ON*



*32x32:
Switch 1 and 5 are switched OFF
(64 ch dipswitches are off)*



*16x16:
Switches 1,2 & 5,6 are switched OFF
(64 & 32ch dipswitches are off)*

Switch S2:

Switch S2 is located towards the front of the card and allows the user to determine the clock source for the card. The two settings available on switch 1 are either CARD or MIX (short for Mixer). If set to CARD, the Dante card will clock from an incoming Dante signal, If set to Mix, the Dante card is clocking off of the mixer.

If a console and subsequently card is to be made the master, then the card must be set to MIX and other Dante cards within the system set to CARD. This allows for correctly clocked digital audio connections between cards being fed from a master card within the master console.





NOTE: Clock settings represented on the Dante cards must match the console and Dante Controller software in order for the network to be clocked correctly which is critical to ensure clean digital audio.

More information on the Console and Dante controller setup will be explained further in this user guide.

Card installation:

Before the card is inserted into the console's option card slot, there are a few things to check:

1. Ensure the card has the correct dipswitch settings for its intended purpose. (Mix or Card clocking and card width)
2. Ensure the power to the console is either unplugged or set to OFF!



NOTE: inserting the card into a console that is on or 'hot plugging' could cause irreparable damage to the card or console. Please make sure there is no power reaching the console and the green light on the power button of the console is not lit or flashing.

3. Locate the card onto the option slot's guide rails and push firmly to locate the card.
4. Tighten up the thumb screws to secure the card in the slot.
5. Power up the console.

The card is now ready to use.

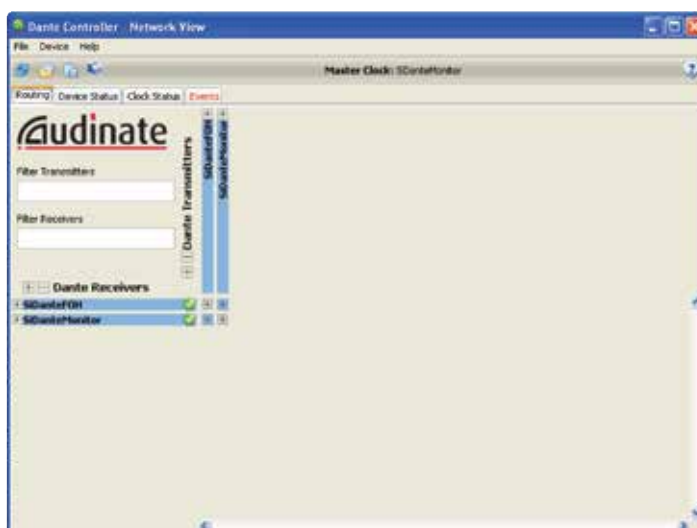
Initial Setup

- Download and install the latest software for the Si consoles from www.soundcraft.com.
- Download and install 'Bonjour' for PC from www.audinate.com/DownloadBonjour. Bonjour should be standard for Mac OSX; Bonjour is normally installed with iTunes®, ensure your version is current.
- Download and install latest Dante Controller software.
- Connect a Mac/PC to the Dante card, this may be via a switch/router or direct to either the PRIMARY or SECONDARY ports. The LINK indicator on the card will begin to flash indicating an active connection.



NOTE: A crossover cable is not required as the network ports on the Dante card are auto-MDIX.

- Start the Dante Controller application, after a few moments a screen similar to the one below will appear:



USING DANTE

The following sections cover basic setup and use of the Si Dante cards. For detailed information regarding Dante please refer to information on Audinate's web site www.audinate.com.

Network View

Routing – Matrix view of routing (click on a '+' symbol to expand the matrix view).



NOTE: Although Dante Controller software can work through a firewall some information such as Device Config, Network Config, Dante Controller etc. may not be accessible until the firewall is disabled or a port to Dante is opened



Device Status – Displays information about discovered Dante devices; double click a device name to enable its configuration.

Device Name	Product Type	Product Version	Primary Address	Primary Link Speed	Secondary Address	Secondary Link Speed
SDanteFOH	Si Dante Option Card Module		169.254.46.139	2Gbps	Not Supported	Not Supported
SDanteMonitor	Si Dante Option Card Module		169.254.46.215	2Gbps	Not Supported	Not Supported

Clock Status – View and edit Dante Network clock configuration.

Device Name	Primary Interface Clock Status	Secondary Interface Clock Status	Clock Role	Slave To External Word Clock
SDanteFOH	Slave	Not Supported	<input type="checkbox"/> Preferred Master	<input type="checkbox"/> Yes
SDanteMonitor	Master	Not Supported	<input checked="" type="checkbox"/> Preferred Master	<input type="checkbox"/> Yes

Clock Role: Setting a single 'Preferred Master' will ensure that device is selected as the clock master, if two or more devices are set for 'Preferred Master' the master will be elected by the Dante system.



NOTE: Clock Status settings apply to the clocking of the Dante network, attached devices such as consoles must be clocked to/from the Dante network as appropriate or required in any given system.

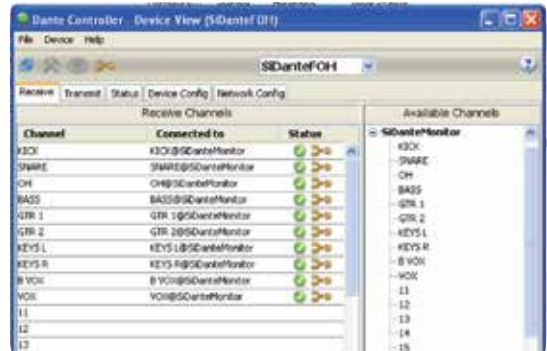
'Slave to External Word Clock': When checked the Dante card will clock from the console internal word clock, if not checked the host device must be clocked to the Dante card or system word clock as appropriate or required in the given system.

DEVICE VIEW

The Device View allows viewing and editing of a selected Dante device.

Receive – This tab presents information about all channels being received, and channels available to the current device. The tab is arranged into two areas:

- **Receive Channels:** Lists the Rx channels in the left pane of the window. It shows whether or not they are connected and, if connected, the channel they are connected to and the status of that connection.
- **Available Channels:** On the right pane of the window, lists the Tx channels from other devices that are available for subscription by the current device. You may drag and drop Available Channels to Receive Channels.



Transmit: This tab is used to view and edit the transmit configuration of a device.

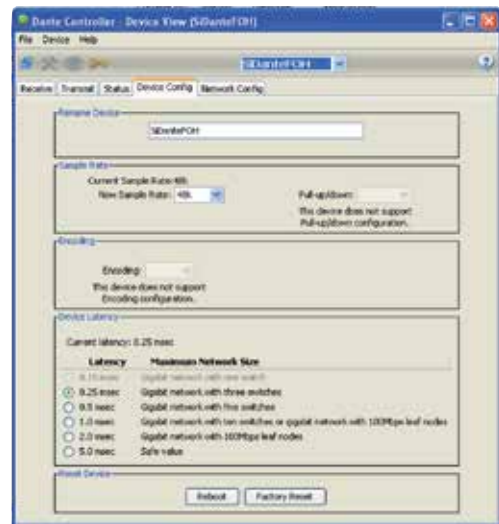
Transmit Channels: The area on the left pane of the tab shows the Tx channels for the device, and any user-defined channel label. It allows the user to create labels for transmit channels. Input to the table is filtered to prevent illegal characters from being used in channel labels. To change a Tx channel label double click on the label and type in a new one. Tx channel labels must be unique on a single device.



Status: The Status tab is used to view information about a Dante device, this information may be required for trouble shooting and checking software / firmware is up-to-date.

Device Config: This tab on the device view allows viewing and editing of the following device specific parameters.

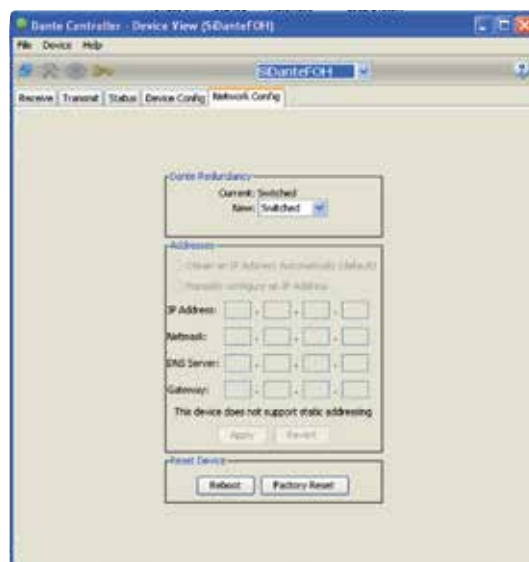
- **Rename Device:** Allows renaming of the Dante device.
- **Sample Rate:** 48K – this is fixed and cannot be edited.
- **Latency:** Allows selection of an appropriate latency.



NOTE: The 0.15 msec setting is unavailable on Si Dante cards as these include an internal switch.

Factory Reset: Allows remote reboot of the Dante interface and to reapply factory settings. Following a reboot it is recommended to power-cycle the console including disconnection of the AC power cord. Factory Reset wipes the following device configuration settings:

- User-defined device name.
- User-defined channel labels.
- Clock configuration (clock master / external clock master setting).
- Static IP addresses.
- Redundancy configuration.
- Sample rate setting (including pull-up/down).
- Latency setting.
- Any existing audio routes.



Network Config: This tab enables viewing and editing of Dante Redundancy mode.

Switched Mode: When set to Switched, the secondary Ethernet port will behave as a standard switch port, allowing daisy-chaining through the device.

Redundant Mode: When set to Redundant, the device will duplicate Dante audio traffic to both Ethernet ports, allowing the implementation of a redundant network via the secondary port.

DANTE PRESETS

Although patching to and from the Dante card in the console is stored as part of a show, or part of a cue, the configuration and routing of the Dante cards and Dante audio streams is not.

In the event a Dante card is replaced or similar, the 'new' card will require configuring, this may be done manually or by loading a previously stored preset from the 'File' menu of the Dante Controller software.

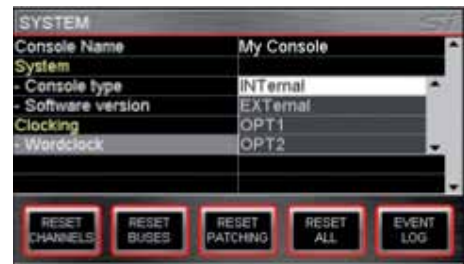


SOUNDCRAFT CONSOLE CLOCKING OPTIONS

Since the V1.6, 1.6 and 3.1 updates to Si Performer, Expression and Compact software respectively, Si consoles now have the ability to clock from an option card slot. This allows consoles with Dante cards installed to clock from the Dante network without running a separate BNC word clock connection.

The option to clock from the option card slot is located within the SYSTEM menu and is under the header of OPTION or OPT 1, OPT 2 on consoles with two option card slots.

When a console is being slaved to the network, permitting the Dante controller and card setup are correct, the console should be set to clock from the option card slots OPT 1, OPT 2.



When a console is the master and the Dante controller and Card setup are correct, the console should be set to clock from the INTERNAL clock generator.

The above picture is within the SYSTEM menu on the console's touchscreen.



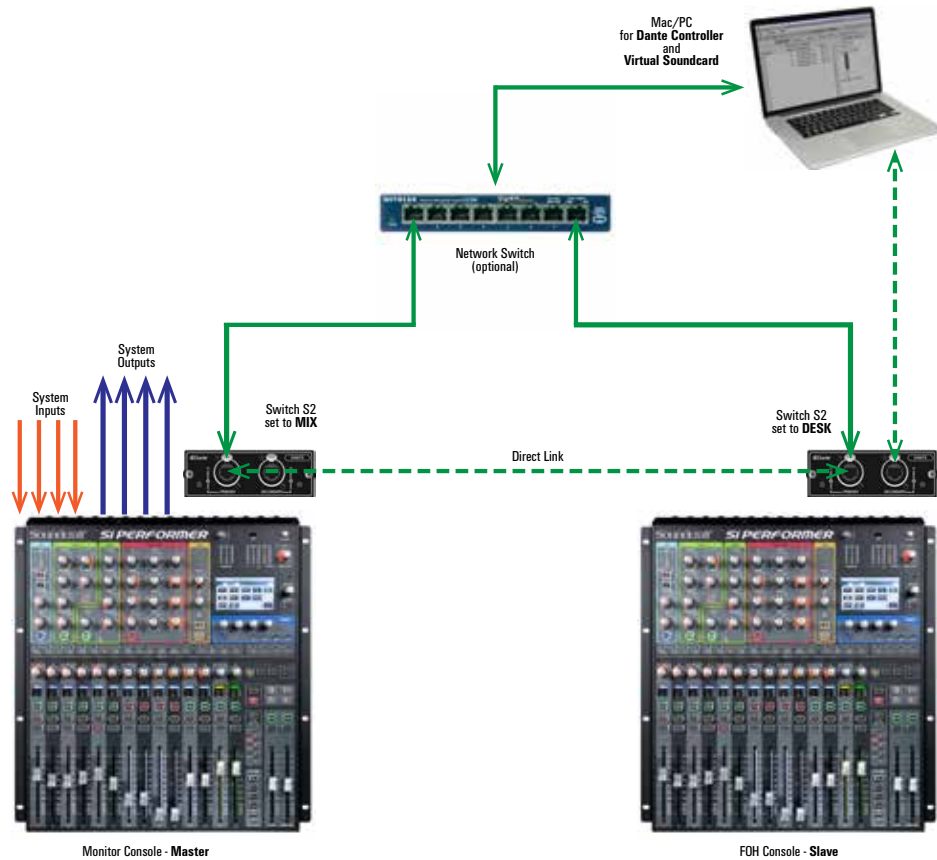
NOTE: Incorrect clocking selections on the console could cause loud clocking errors and drop outs. Caution must be taken when selecting the right clock source to prevent damage to peripheral devices.



NOTE: console clocking options are dependent on Dante controller and the card dipswitch settings to be coordinated. More information on this is available further on in the user guide.

CONNECTING DANTE DEVICES

The following example illustrates two Si Performer 1 consoles 'House' and 'Monitor'.



Audio inputs are sent to the monitor console, these can be connected directly to the console or via a stagebox attached via a MADI card to the monitor console.

A direct output from each input of the monitor console feeds the FOH console which is patched to receive audio from the Dante option card.

The FOH console mix is returned to two spare channels of the monitor console and the direct outputs of those inputs are in turn patched to the system outputs; once again these can be directly on the console or attached via a MADI card to the monitor console.

On the above diagram, the FOH console is receiving clock from the Monitor console via the Dante card installed in the option slot. In order to achieve a glitch-free connection, the correct clock setup must be made within Dante controller.

The Monitor console is set to 'Preferred master' to ensure that Dante picks up this console as the network master. The option card within this console is set to receive clock from the MIXER (Switch S2 set to Mix)



The 'Slave to external word clock' check box is also shown as checked. This enables the option card within the monitor console (our master console) to be slaved to an external word clock, in this case, from the mixers internal clock.

On the console side, the Monitor console is set to INTERNAL clock and the FOH is set to clock off of OPT 1 or 2 (option card 1 or 2) depending on which slot the card is plugged in.

The link between the Dante cards may be via a switch as shown with a solid green line or direct from card to card as shown by the dotted green line.



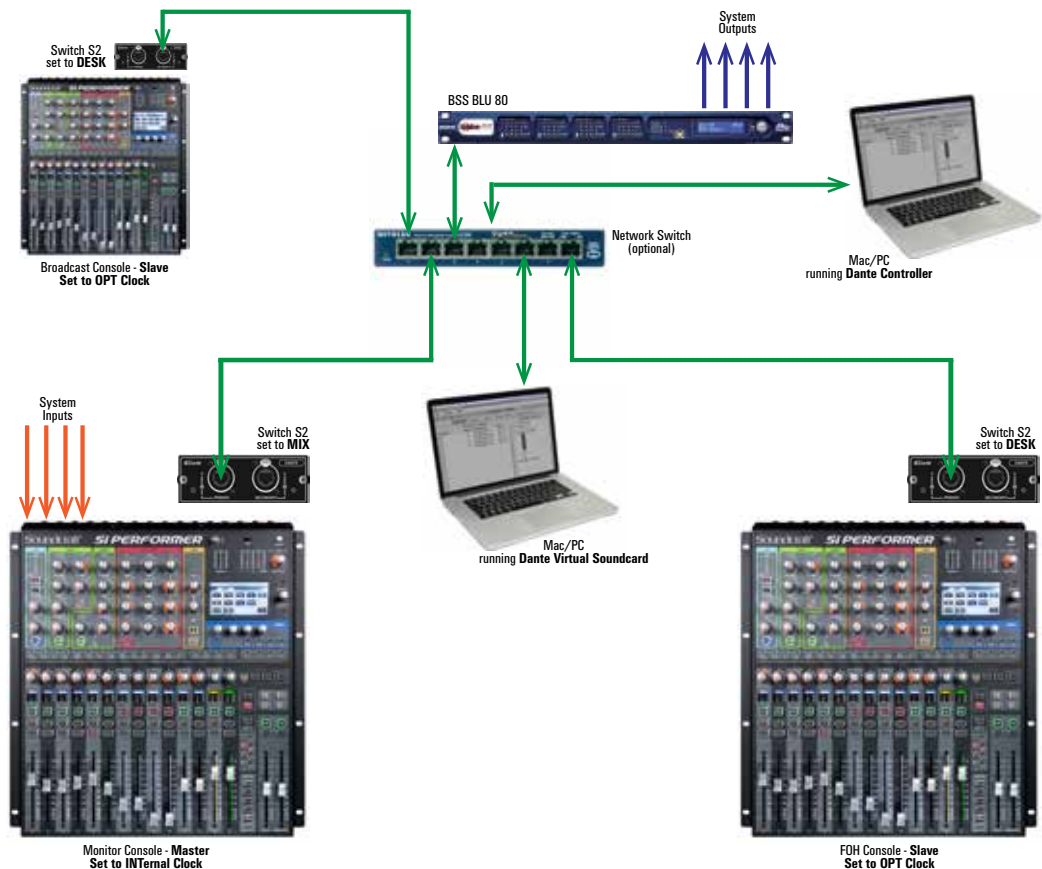
NOTE: Once configured the PC is not required.

NOTE: Dante may operate in redundant mode, this is not shown for simplicity.

ALTERNATIVE OPTION

Once audio is in the Dante domain the possibilities become near endless. In this alternative system:

- All system outputs leave via a Dante enabled processor such as the BSS BLU 806.
- An additional console does a live stereo mix-down for web streaming or similar.
- A laptop running the Audinate Virtual Soundcard makes a multi-track recording.





**Soundcraft
Harman International Industries Ltd
Cranborne House
Cranborne Road
Potters Bar
Herts. EN6 3JN
United Kingdom**

+44 (0)1707 665000

www.soundcraft.com