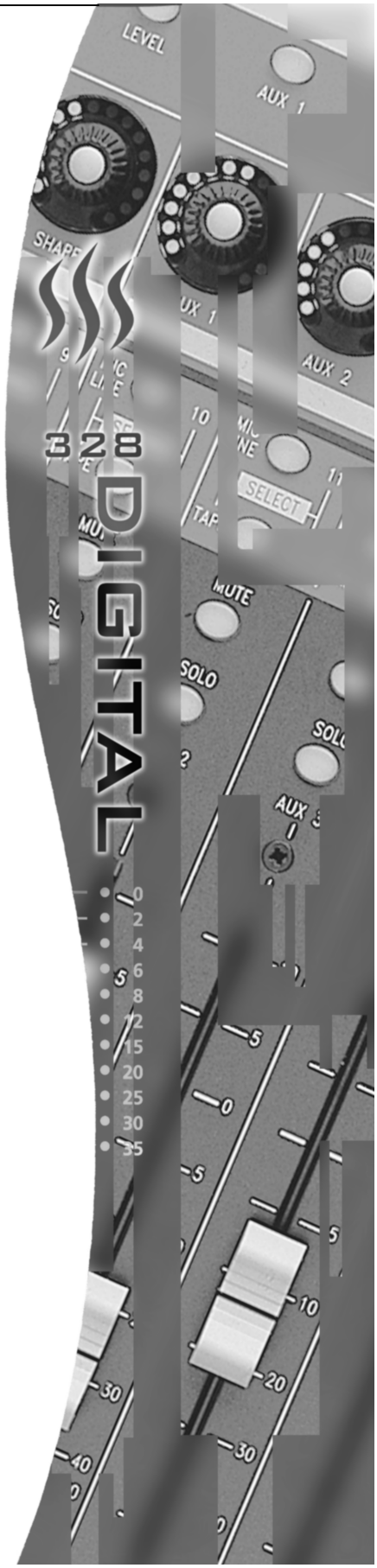
SPIRIT
BY SOUNDCRAFT

digital
three two eight
V 2.0



FRONTIER
DESIGN
GROUP

DAKOTA

Setup Guide

Revised: 04-12-00

Digital 328 v2 and Frontier Design Group Dakota Setup Guide

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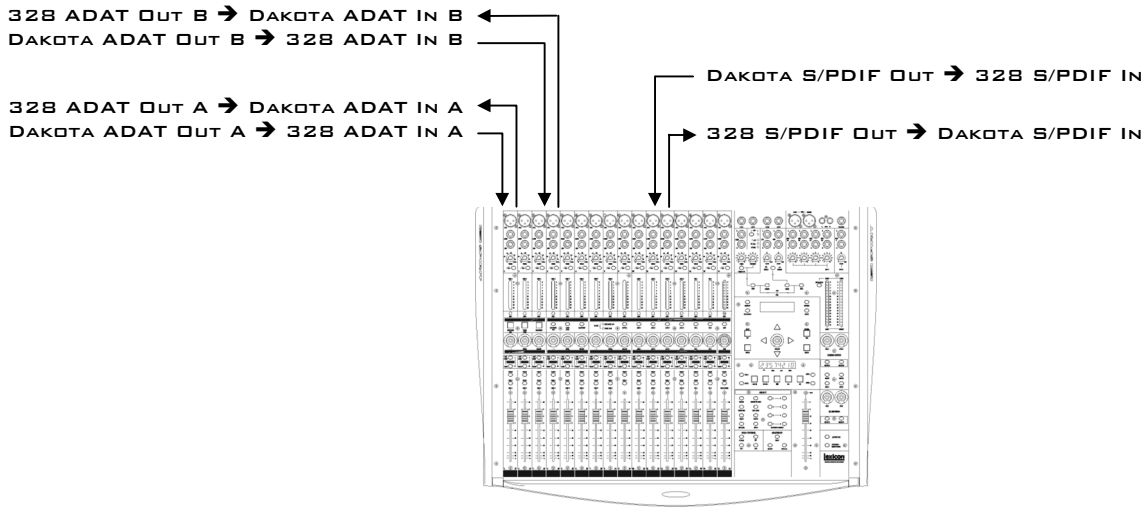
1 Connecting The System

Audio Connections

Audio connections should be made as shown in the diagram below. Toslink optical cables must be connected both from ADAT Out port A of the Dakota card to the ADAT In port A of the 328 and vice versa, and from ADAT Out port B of the Dakota card to the ADAT In port B of the 328 and vice versa. 75Ω Coaxial digital S/PDIF cables must also be connected from the Dakota S/PDIF output to the 328 S/PDIF input and vice versa.

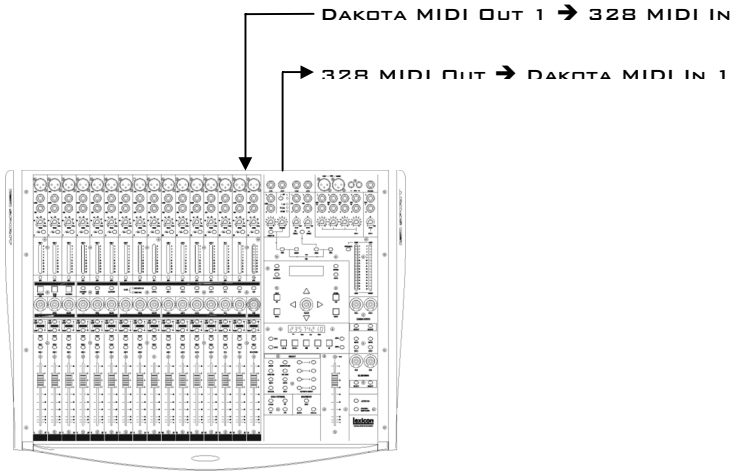


In this configuration, the ADAT connections allow digital transfer of either direct outputs from the 328's input channels 1-8 to the Dakota card, or the 328's 8 Group outputs. The S/PDIF output from the console can be assigned to either the Mix output or to 1 of 3 stereo auxiliary outputs (Aux 1/2, Aux 3/4, FX 1/2, Groups 1-8 and Control Room). The 328 S/PDIF Input can be configured as a digital Stereo Input or as a digital 2 Track Return.

Other Connections

You may also wish to connect the 328 to the Dakota card via MIDI to allow MIDI automation/System Exclusive dumps from the 328 to be recorded and played back from your PC.

If you wish to connect the 328 to the Dakota card via MIDI, the following connections must be made:



NOTE	**Either Dakota MIDI port 1 or MIDI port 2 can be used. It would be wise to use the same number Dakota MIDI port for 328 connection.**

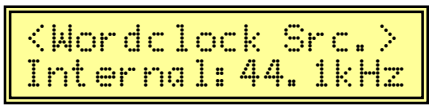
2 Digital 328 Setup

The Dakota card and the 328 (plus any other devices in the studio setup) must have their internal clocks synchronized to allow correct transmission and reception of digital information throughout the system. This is achieved by configuring one of the devices as a wordclock master, and configuring all other devices in the studio setup to slave to this wordclock, hence synchronizing all clocks in the studio setup.

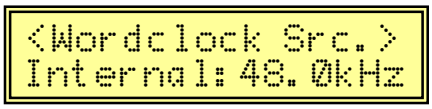
In this case, the 328 will be set to wordclock master, and the Dakota will be set to slave to the 328, via the Dakota S/PDIF input. Any other devices interfacing digitally with the 328 within the studio setup will also be configured to slave to the 328's wordclock.

NOTE	**Wordclock information is automatically embedded into the S/PDIF data stream output by the 328, allowing the Dakota to slave to the 328's S/PDIF output, providing clock synchronization between the 328 and the Dakota.**

To configure the Digital 328 as the wordclock master, enter the 328's Main Menu page by pressing the **<MENU>** button to the right hand side of the LCD display. Using the rotary encoder beneath the display, scroll up or down until the 'Clock Source Sel' menu is highlighted, and press **<ENTER>**. Here, either 'Internal 44.1kHz' or 'Internal 48kHz' clock must be selected for the 328 to function as wordclock master. Set this to the samplerate you wish to work at then press **<ENTER>** to confirm the samplerate setting.



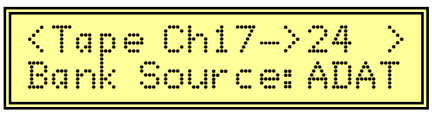
or



Tape Ports

To ensure that the Digital 328 Tape Ports are configured to 'ADAT' to work with the Dakota, enter the 328 Menu pages by pressing the **<MENU>** button to the right hand side of the LCD display. Using the rotary encoder beneath the display, scroll up or down until the 'Tape Port Select' menu is highlighted and press **<ENTER>.**

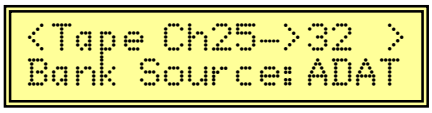
Now repeatedly press the Up cursor arrow until the '<Tape Ch17-24 >' menu page is displayed. Using the rotary encoder set the 'Bank Source' to 'ADAT':

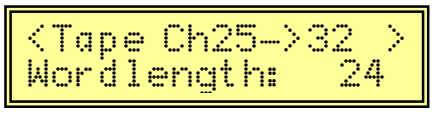


Now press the Down cursor arrow once, to set the wordlength. The Dakota is capable of 24 bit recording, and so for optimum results, 24 bit wordlength can be selected here. If your sequencer supports 16 or 20 bit resolution, make this setting here – Check your sequencer manual for more information.

Set the desired wordlength on the 328 with the rotary encoder.

Press the down cursor to set the port for 328 ADAT port B, as for port A, and again to set the wordlength for port B. Press **<ENTER>** to confirm the settings.





S/PDIF Input

The 328 S/PDIF input can be routed to any one of the following inputs:

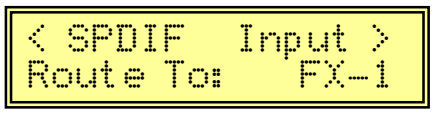
Stereo Input 1, Stereo Input 2, FX Return 1, FX Return 2, 2 Track Tape Return,

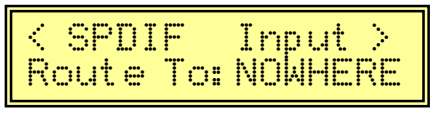
providing that the AES/EBU input or oscillator has not already been assigned to that input.

Commonly the Dakota S/PDIF output would be routed to Stereo Input 2, or the 2 Track Tape Return input.

NOTE	**Assigning a digital source to an input will override any analogue signal present on that input.**

Press **<MENU>** to enter the menu pages, scroll through the pages until the 'SPDIF I/P Setup' is highlighted and press **<ENTER>**. Using the rotary encoder, select the destination for the S/PDIF input, and press **<ENTER>** to confirm the setting:





NOTE	**If the S/PDIF input is not required, NOWHERE should be selected in the menu.**

S/PDIF Output

On the 328, the stereo S/PDIF output can be sourced from any of the following busses:

Mix L/R, Aux 1/2, Aux 3/4, FX1/2

This will usually be set to 'Mix', to allow a stereo mixdown to be recorded directly into the Dakota on the playback of a composition.

As the Dakota is a full duplex device, it is possible to playback a composition consisting of all 8 ADAT tracks + 1 Stereo S/PDIF track from the Dakota, recording the mixed signal from the 328 back into the Dakota S/PDIF input as a stereo mixdown.

Press **<MENU>** to enter the menu pages, scroll through the pages until the 'SPDIF O/P Setup' is highlighted and press **<ENTER>**. Using the rotary encoder, select the source for the S/PDIF output

NOTE	**If the S/PDIF output is not required, NOWHERE should be selected in the menu. In this case, wordclock will still be transmitted through the S/PDIF output of the 328, even though no audio signal is being transmitted.**

The wordlength of the S/PDIF output must now be set. Press the down cursor to access the S/PDIF output wordlength setting. Here, the desired wordlength can be set to 16, 20 or 24 bit.

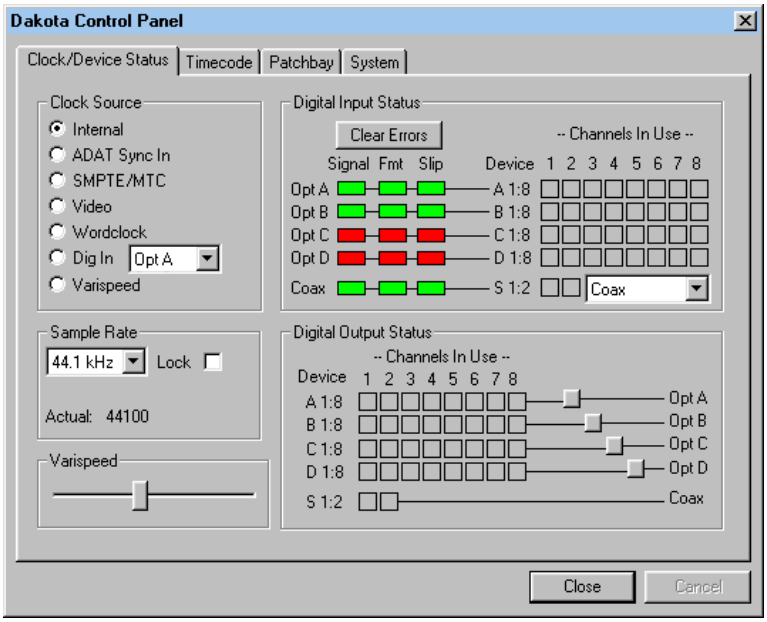
NOTE	**If using the Dakota as an ASIO device, it is important here that the wordlength set here is the same as the 328 Tape Port wordlength (See 'Tape Port' section earlier in this chapter).**

WORDCLOCK & S/PDIF INPUT

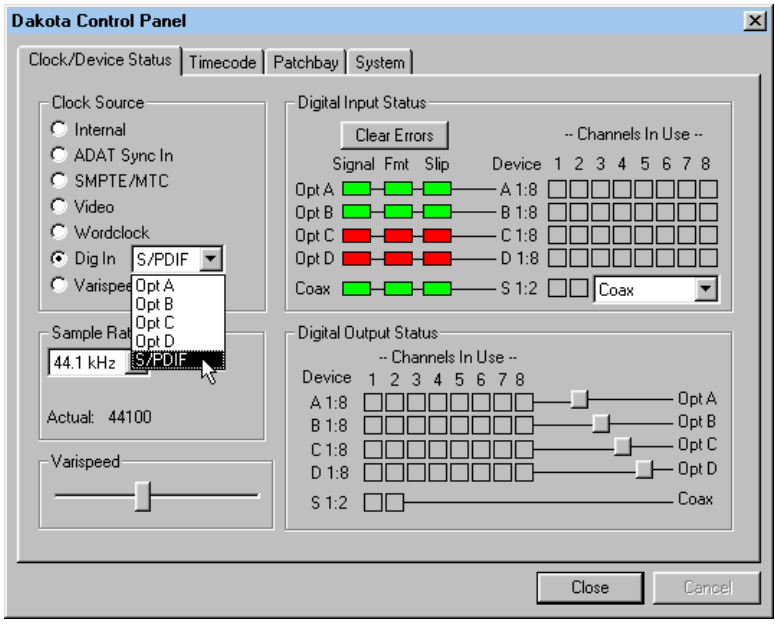
The Dakota must be set up to receive the wordclock transmitted by the 328 (via the 328's S/PDIF output).

Open the Dakota Control Panel, accessed by double clicking the Dakota icon on the Windows Taskbar:

Click on the 'Clock/Device Status' tab. The following window should open:

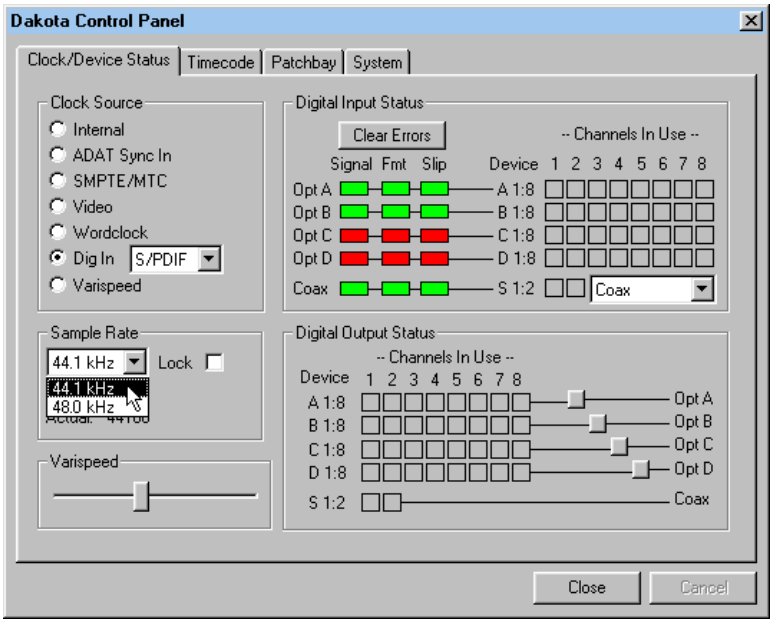


Firstly, the Dakota clock source must be set to slave its internal clock to the incoming S/PDIF wordclock (outputted from the 328). Set 'Clock Source' to Dig In: 'S/PDIF':



NOTE	**Alternatively, the Dakota will also successfully clock to either ADAT output of the 328. The Dakota could also be set as wordclock master, and the 328 can slave to the Dakota via the S/PDIF connection. However, the recommended configuration is with the 328 as wordclock master, with the Dakota slaving via S/PDIF, as outlined in this Setup Guide.**

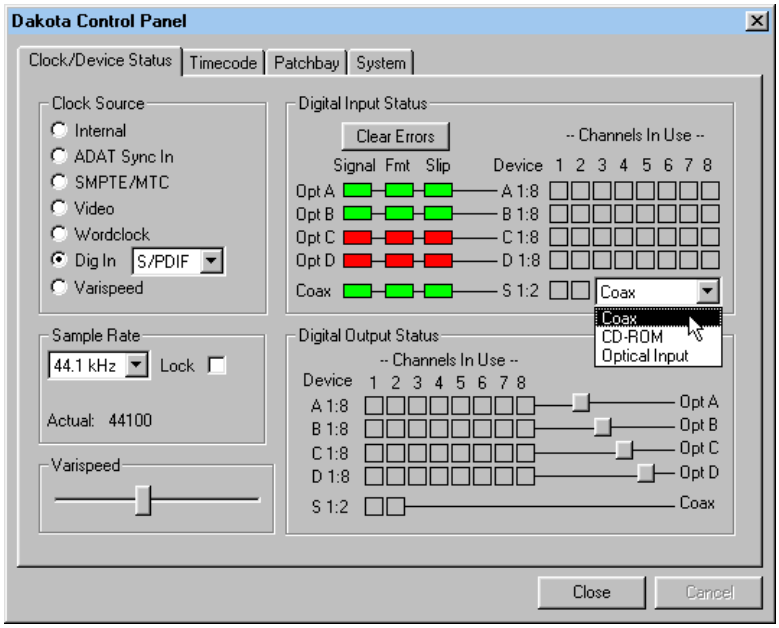
Now the samplerate must be set. In the 'Sample Rate' section, select the samplerate you wish to work at. This should match the samplerate of the internal clock on the 328, which was configured in section 2 of this Setup Guide:



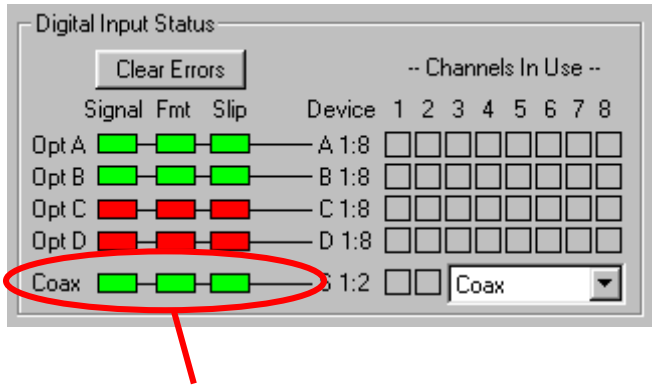
NOTE	**You can force Windows applications to only playback at the chosen samplerate by ticking the 'Lock' tick box in the 'Sample Rate' section.**

On the Dakota, the stereo device 'S 1:2' (S/PDIF format) can be sourced from any physical input. In this configuration, it must be set to source from the Dakota coaxial S/PDIF input. With the 'S 1:2' input set to 'Coax', the Dakota receives the S/PDIF stream from the 328, enabling the Dakota to slave to the 328 via S/PDIF, and also allows the 328 to send S/PDIF stereo data back to the Dakota.

To make this setting, select 'Coax' from the 'S 1:2' pull-down menu.



Now the validity of the S/PDIF input received by the Dakota must be checked. The 'Digital Input Status' section of the 'Clock/Device Status' Dakota Control Panel shows the validity of the S/PDIF input with the following 3 indicators:



S/PDIF input status indicators (From left to right): Signal Active/Inactive, Digital Audio Format Valid/Invalid, Dakota Locked/Unlocked

Firstly, click on 'Clear Errors' to initialize the indicators.

In this configuration, all indicators should be continuously showing green. If any of the indicators are red, or display a slash, the S/PDIF being outputted by the 328 is not correctly being interpreted by the Dakota. If this is the case, check the S/PDIF cable is correctly connected from the S/PDIF output of the 328 to the S/PDIF input of the Dakota. If the indicators are still showing errors, check also that all the correct 328 and Dakota settings have been made, as described so far in this Setup Guide.

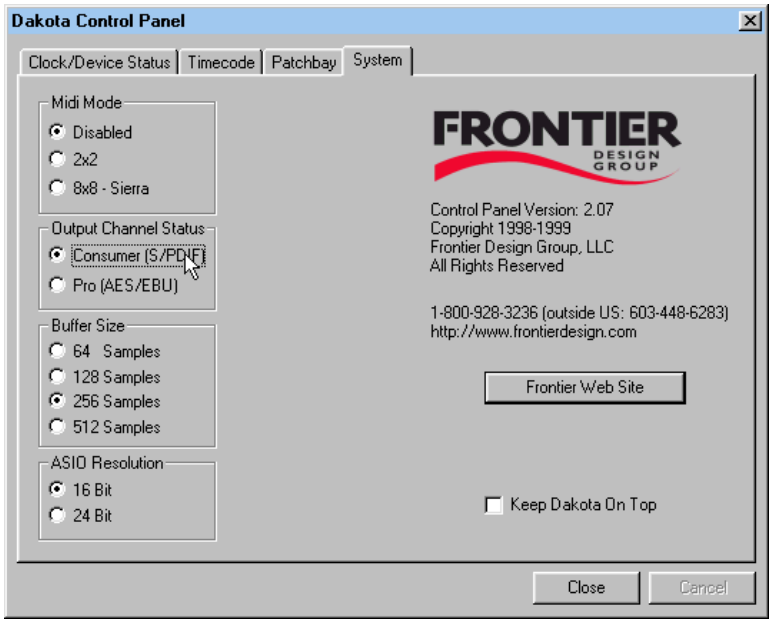
NOTE	**A 75Ω coaxial S/PDIF cable must be used to correctly transfer the S/PDIF digital data from the 328 to the Dakota. A standard phono cable will not guarantee satisfactory data transfer.**

If all three indicators are continuously showing green, the Dakota is correctly slaving to the 328's wordclock, and the S/PDIF data format is being correctly interpreted by the Dakota.

S/PDIF Output

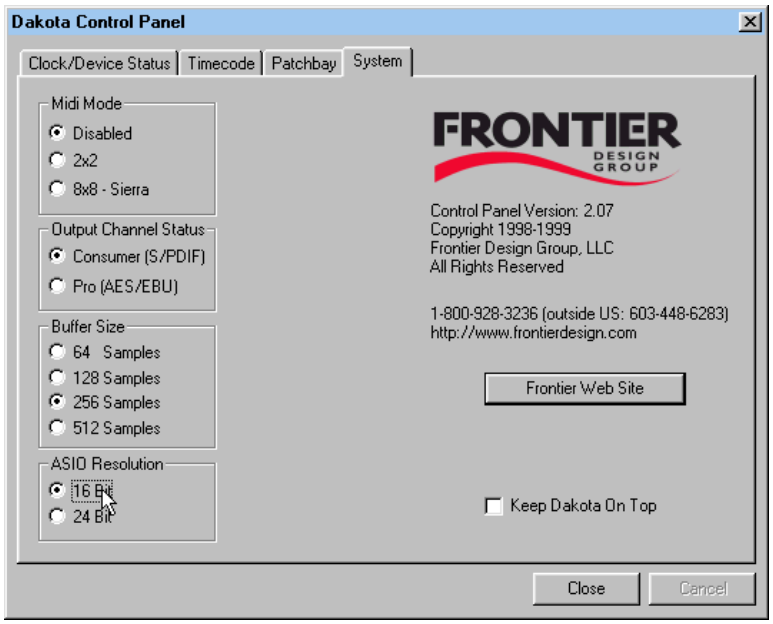
The stereo output from the Dakota can be set to either AES/EBU or S/PDIF format. In this configuration, this should be set to S/PDIF, so that the 328 correctly interprets the stereo data incoming to the 328's S/PDIF input.

In the Dakota Control Panel, select the 'System' tab. In the 'Output Channel Status' section, select 'Consumer (S/PDIF)':



ASIO Resolution

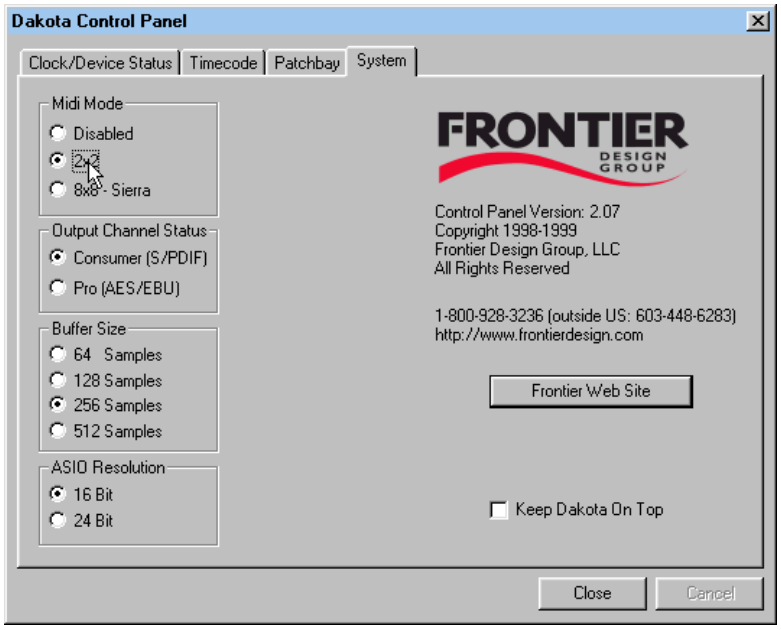
If you wish to use the Dakota as an ASIO device (e.g. with Cubase VST), the playback/record wordlength should also be set. The Dakota supports both 16 bit and 24 bit ASIO wordlength resolution. Set the desired wordlength resolution in the 'System' page of the Dakota Control Panel under the 'ASIO Resolution' section:



NOTE	**If you are using the Dakota as an ASIO device it is important that the wordlength set here is the same as the 328 S/PDIF output wordlength and also the same as the 328 Tape Port wordlength. The PC software supporting the ASIO devices (e.g. Cubase VST) must also be set to work at this resolution – see the software manual for more information. This maintains an optimum bit resolution throughout the entire system. See Section 2 - 'Digital 328 Setup' for information on making these settings on the 328.**

MIDI

If you wish to use the MIDI interface on the Dakota with the 328, ensure that the MIDI mode is enabled on the Dakota Control Panel. With the System page still open, in the 'MIDI Mode' section, select '2x2':



MIDI information can now be recorded and played back via the Dakota. Connecting the 328 to the PC via the Dakota MIDI interface has several benefits:

- MIDI automation data from the 328 can be recorded into a sequencer, which can then be replayed at any time to allow full dynamic automation of the 328.
- MIDI (System Exclusive) data dumps from the 328 to be saved onto the PC, which can be restored into the 328 at any time. This enables the PC to be used as a MIDI librarian where all the data stored in the 328 (snapshots, presets etc.) can be backed up to a small system exclusive file on the PC.
- *328 software v1.1 and above users only:* The MIDI Controller bank on the 328 ('hidden' fader bank) can be used to remotely automate Windows software, e.g. Propellerhead's Rebirth 338, Native Instrument's Reaktor, Bitheadz Retro-AS1, vritual mixing consoles – practically anything that responds to MIDI controller changes!

4 Using The Dakota With The 328

Accessing The Dakota ADAT I/O From The 328

The Dakota will commonly be used with a software sequencer/hard disk recorder to allow the simultaneous playback and recording of 8 individual tracks of audio, via the ADAT I/O. Here, the software application must be configured to access the Dakota ADAT I/O via the relevant Windows device drivers that came with the Dakota.

When playing back audio tracks from the software application, tracks 1-16 will be accessible from channels 17-32 respectively in the Tape Fader Bank on the 328.

To record a signal onto a track within the software application, send the required channels to Tape Sends 1-16. See the 328 manual for full instructions on how to send a channel to tape.

NOTE	**Ensure that the relevant device drivers are fully installed for the software application to correctly access the Dakota ADAT I/O.**

Accessing The Dakota S/PDIF I/O From The 328

You may wish to utilize the Dakota S/PDIF output to transmit a stereo signal to the 328. Again the software application must be configured to access the Dakota 'S 1:2' S/PDIF output via the relevant Windows device drivers that came with the Dakota.

The stereo Dakota S/PDIF input will be accessible on the 328 from either

Stereo Input 1, Stereo Input 2, FX Return 1, FX Return 2, 2 Track Tape Return,

depending on the 328 S/PDIF input setting (see the 'S/PDIF input' section in chapter 2 of this guide).

The 328 can also be configured to transmit a stereo signal back to the Dakota via the Dakota S/PDIF input. Here the 328 can be set to either transmit any of the following signals to the Dakota S/PDIF input:

Aux 1/2 sends, Aux 3/4 sends, FX 1/2 sends, Groups 1-8 and Control Room

The desired setting can be configured via the 'S/PDIF O/P Setup' menu on the 328 (see the 328 manual for full instructions).

Again, ensure that the relevant drivers are fully installed for the software application to correctly access the Dakota S/PDIF I/O.

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