# Soundcraft® Multi Digital Card

The Soundcraft Multi Digital Card for the Si consoles provides USB, FireWire and ADAT interfaces to external equipment. The USB and FireWire connectors provide 32 inputs and 32 outputs to and from the console, while the ADAT ports provide 8 inputs and 8 outputs on TOSLINK connectors. The card is compatible with Soundcraft® Si Compact, Si Expression and Si Performer consoles. The USB connection is only designed to work with PC computers, while FireWire will work with PC or MAC computers.

Either the USB or FireWire connections may be used at one time, with a switch on the panel to decide which is in use. The ADAT connections are always available.
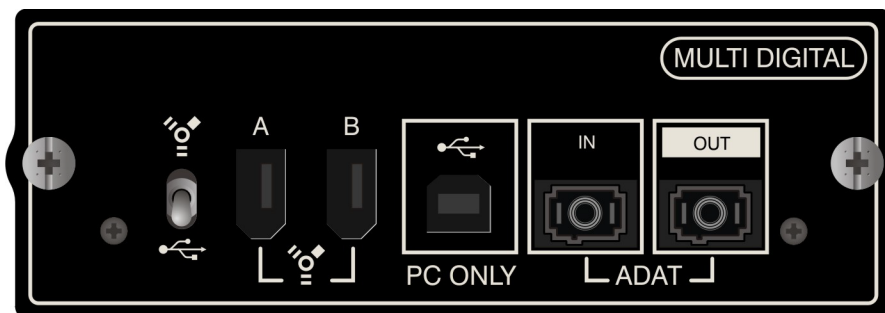
This application note offers advice on using the card in a number of applications, including:

- Recording live multitrack audio using an Si Expression or Si Compact

- Recording live multitrack audio and using a stagebox with the Si Performer

- Studio recording with the Si Expression

- Using the second FireWire port for storage (external hard disk)

- ADAT I/O : Expandability

# Live Recording with a Soundcraft® Si Expression or Soundcraft® Si Compact

With the Soundcraft Multi Digital Card installed in an Si Series* console, live recording couldn't be simpler! Standard mic/line input sources can be recorded through the Si series console via the multi-digital card to a DAW or similar. This simple yet powerful solution is suitable for recording live gigs but is equally at home in the studio.
(not applicable for Si1,2,3 or Si1+,2+ or 3+ consoles)*

To record audio into the Mac or PC you will require a Digital Audio Workstation (DAW). Any DAWs that allow the use of 3rd party audio drivers such as AVID Pro Tools®, Apple Logic®, Ableton™ Live, Cockos Inc Reaper™ or Steinberg Cubase® or Nuendo® can be used. These full featured tools will normally handle all the demands of live multi-track recording becoming the hub for all of the recording activities.

The system below shows a Soundcraft Si Expression 2 handling the FOH and monitor needs through the 24 channels of I/O on the back of the console. The multi digital card provides a clean (Pre or Post the high pass filter) multi track audio feed via the channel direct outputs to the laptop to be mixed later after the show.

This is a simple yet very effective way of recording a raw multi track to a computer to be mixed later or to be used as a multitrack virtual sound check at another time. The multi digital card can process 32 channels through USB 2.0 on a PC, or 32 channels via FireWire on a Mac or PC.
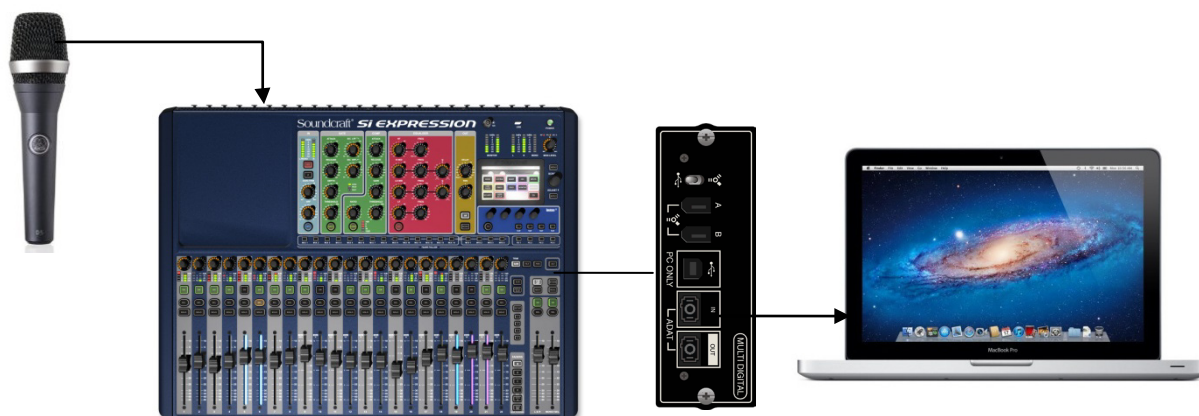

The outputs of the Multi Digital card (inputs to the DAW) are connected through the direct outputs on-board the Si Expression. Select an input by tapping 'inputs' located on the touch screen, scroll to direct outputs and select the appropriate output of the Multi Digital card. A patch is made from the input source, through the mic preamp then straight to the DAW in a multi-channel form. Using the auto complete function, several channels (up to 32) can be patched to the input of the DAW (output of the Multi Digital card).

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This system uses up the available slot onboard the Si Expression and so simultaneous use of the Multi Digital card and a Soundcraft stagebox is not possible. There is a solution using the Soundcraft Si Performer that can provide remote I/O and recording facilities.

Live Recording with a Soundcraft® Si Performer

Thanks to the 2 option slots available with the Si Performer, a greater array of options is available for recording live shows. With the Multi Digital card installed into the first slot of the Performer and a MADI card connected to a stagebox which is then installed in the second slot, simultaneous multi track recording and remote I/O is possible.
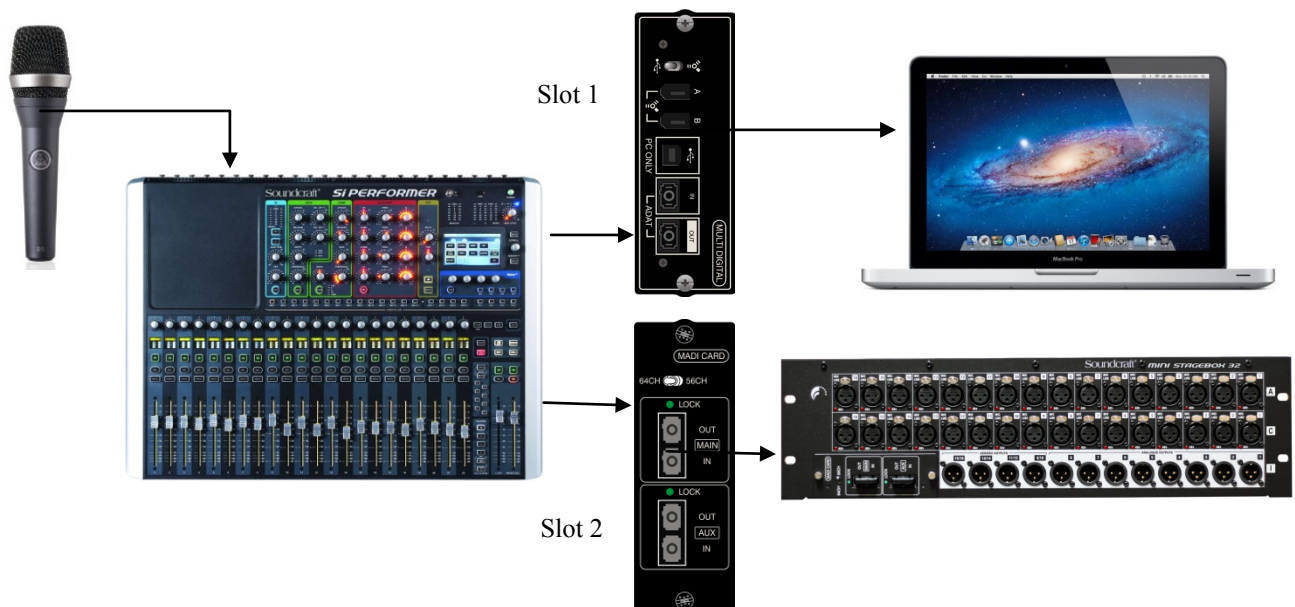
The diagram above is a perfect solution for recording larger shows using a mixture of onboard and remote inputs. Using the channel direct outputs, the appropriate order and mixture of inputs can be sent to the DAW for recording. For example, say the vocals are run wirelessly and are being sent straight to a rack of receivers by the console but the drums and other instruments are mic'd up on the stage. Both sets of Inputs from the stagebox and the locally sourced inputs can be patched to the DAW using the direct out facility on the desk, - perfect for arranging your workflow the way you want to work.
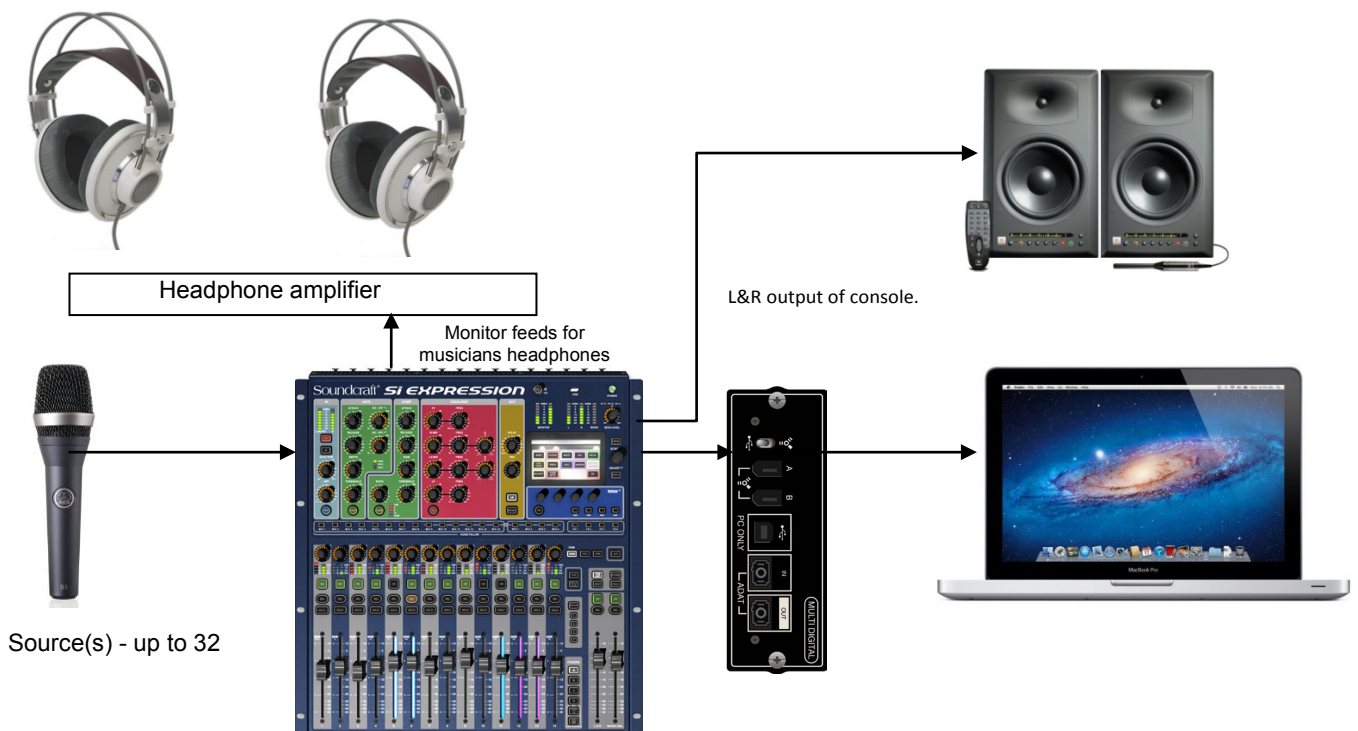
Note: a limitation of the second option slot is that it can only process 64x32 channels of I/O compared to the 64x64 capabilities of the first slot. Other than this the slots are identical and are compatible with all Si Option cards.

Studio Recording with a Soundcraft® Si Expression.

Although designed primarily for live use, the extraordinary sound quality and feature set of the Si Expression lends itself perfectly to recording at home or in the studio.

The Si Expression makes a fantastic front end mixer. It can handle the I/O of a session, Provide **6 latency free stereo cue mixes** for musicians making full use of the on board processing, create multiple sets of output environments for different studio monitors and all in a package that is portable and affordable. Once all of the audio has been passed through the console and into the DAW, it can then be played back through the console and mixed using the onboard processing whilst sending a stereo left and right back to the DAW for a 'print to track' type workflow.

The process would look like this when recording:

Headphone amplifier

Monitor feeds for musicians headphones

L&R output of console.

Source(s) - up to 32

This method allows the console to receive audio from the various sources, process it using its internal DSP, distribute monitor mixes for musicians and then send each track raw to the chosen DAW for mixing later. This requires a 1 to 1 patch of each channel to a direct out of the multi digital card.

An example patch might be;

Console	Console Direct Output	DAW Channel Inputs
Input 1: Kick	Multi Digital Out 1	Channel 1: Input 1
Input 2: Snare	Multi Digital Out 2	Channel 2: Input 2
Input 3: Hi Hat	Multi Digital Out 3	Channel 3: Input 3
Input 4: Tom	Multi Digital Out 4	Channel 4: Input 4
Etc	*Etc*	*Etc*

Once audio is recorded and stored on the hard drive of the PC, it is then possible to play back the audio through multi-track to be processed and mixed through the console and mixed just like a live show. This process utilises the processing in the console and requires the least amount of PC usage.

This also allows for a very hands-on process of mixing with minimal PC operation. This can result in a very 'analogue' way of mixing and producing songs whilst utilising the superior power of a digital console. To achieve this a '1:1 reversal' of the above table will return the DAW signals to the console such that the mic recorded from channel 1 in the DAW is played back on channel 1 on fader 1.

This patching would be as follows:

DAW Channel Outputs	Console Digital In	Console Channel Inputs
Channel 1: Output 1	Multi Digital In 1	Channel 1: Kick
Channel 2: Output 2	Multi Digital In 2	Channel 2: Snare
Channel 3: Output 3	Multi Digital In 3	Channel 3: Hi Hat 3
Channel 4: Output 4	Multi Digital In 4	Channel 4: Tom 4
Etc	*Etc*	*Etc*

Using the second FireWire port: storage

On the Multi Digital Card there are two FireWire 400 sockets that facilitate many uses. FireWire is a peer to peer network that allows for multiple devices to be connected to each other in a 'daisy chain' format. This allows chaining an external hard drive and console from the PC or Mac.

This connection method can avoid disk space issues, eases file management and makes files 'instantly portable'. For this configuration to work care is required when selecting the cable to connect your Multi Digital card to the hard drive and overall performance will depend on many factors.
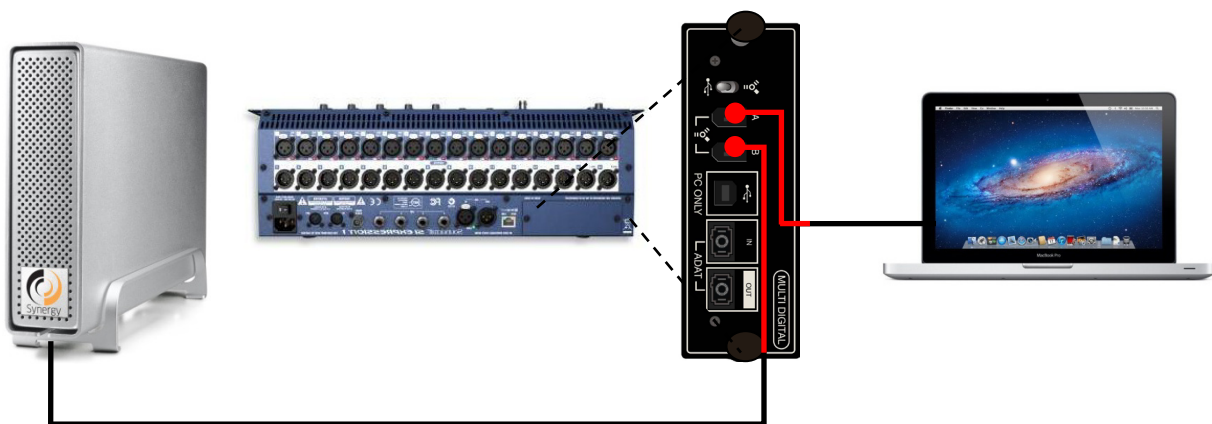
ADAT I/O: expandability

ADAT is a long-accepted method of digital transfer. Devices such as the Alesis ADAT XT-8 were used to record live audio long before FireWire or USB was an audio connectivity standard. The reliability and resilience of ADAT makes the setup of a system straightforward.

By patching direct outs, sub mix or mixes to the ADAT outputs of the Multi Digital card, signals can be sent to devices such as the Tascam HS-8 or similar hard-disk recorders - ideal for recordings in small venues where carrying a laptop is not ideal.

The ADAT port may also be used to input signals from other ADAT-enabled devices such as multichannel mic preamps.