

### Using SW1000XG with DS2416

There will always be some quality loss by the conversion of digital audio to analog audio or vice versa, so staying in the digital domain will produce higher a quality transfer between devices. It is possible to connect the SW1000XG and DS2416 with a digital audio connection, the SW1000XG voices can remain in the digital domain and up to eight separate digital channels of audio can be transferred into the DS2416. The digital channels can carry more than one voice and by default the master channels left and right are assigned to the first two digital channels.

The SW1000XGs SO (serial out) port has up to 8 individually assignable outputs. The DS2416 has a matching SI (serial in) port can be routed to individual channels of the DS2416 mixer. The DS2416 will chase and lock to the word clock of the digital audio of the SW1000XG's SO port, to allow clean transfer of digital audio. Digital audio word clock, if synchronized, enables both units to open and close the digital "garage door" at the same time so no words or digital bits get chopped off in the middle of transfer which would result in hearing snaps, pops or other audio anomalies.

This SO/SI connection allows digital communication from the SW1000XG to the DS2416. What voice or mix of voices is being sent over, and to which one of the 8 available channels, is programmed by the software provided with the SW1000XG. The assignment to mixer channels and word clock synchronization is handled by the software used to run the DS2416.

Synchronizing the two cards:

On most software packages used with the DS2416, the ability to switch the clock source for the card is found under "Patchbay". For instance, on Cubase VST24 AUDIO you can set the pull down menu to YAMAHA DSP FACTORY and choose "Output Patchbay" and select EXT SI as clock source. With Cakewalk 9.x users open the View pull down and choose AudioX console. On the console is a button with a clock face, click it and choose External Clock on Digital Input. For MXTRAX users, choose the Options pull down, choose Devices and then Clock Source should be set to "DigilN".

Setting the DS2416 to receive the digital data from the SW1000XG:

For this example, enable all eight channels to eight inputs of DS2416. In Cubase VST24, pull down AUDIO menu and select Yamaha DSP Factory and choose the "Channel Overview". In the upper lefthand corner shows what channel presently is selected, choose channel 9. The lower lefthand corner displays the audio source for this channel probably VST9, click on that box and choose Sub1...select the next channel (10) and pick SUB2 repeat for eight input channels. Cakewalk users click View and select AudioX console. Then, near the top of each channel is a box with the current channel input source (most likely Wave Out #5 left for channel 9), click on that square and choose SW1000XG.

Once the DS2416 is clocked to the SW1000XG and the DS mixer inputs are set to receive signals from the SI, it is time to set the SW1000XG to send some or all of its voices to the DS2416 mixer. Run the XGedit95 program and build a performance with several voices. Near the lower lefthand corner is the OPUT (output) for the voice that is highlighted, click in the square and hold down the mouse button while moving up/down or left/right. The choices are "S" for stereo and "I" for individual outputs in stereo pairs or single individual outputs. The XGedit95 program indicates 1~6 individual outputs as it already assigned the Stereo Master signals to a pair of the SI/SO connection. Set up to 6 of the key performance solo voices to individual outputs.

As the sequence is playing, see how each voice or group of voices shows up on the DS2416 mixer and thus allows monitoring and recording these synthesizer signals.