

Using WaveCenter/PCI with Cakewalk Pro Audio

Released 000528

This application note was created based on:

- Cakewalk Pro Audio version 9.02
- WaveCenter/PCI driver v2.06 (WCPCI in this document)

Cakewalk includes wonderful help documents and tutorials. Please refer to them for help with topics that are not directly related to WCPCI set-up and use.

Audio Set-up

The first time you open Cakewalk with WCPCI installed, the “Wave Profiler” runs automatically to set Cakewalk’s internal parameters for each input/output device pair. You can examine and modify the resulting settings in Cakewalk’s Options/Audio/DeviceProfiles tab. Make sure that the “Use Wave Out Position For Timing” checkbox is enabled as shown in Figure 1, so Cakewalk will use WCPCI’s accurate audio timing. If you ever want to run the Wave Profiler again, go to the Options/Audio/General tab (Figure 3), and click the “Wave Profiler” button.

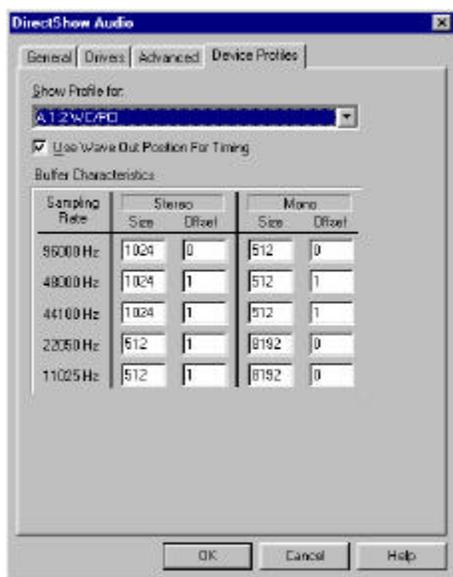


Figure 1

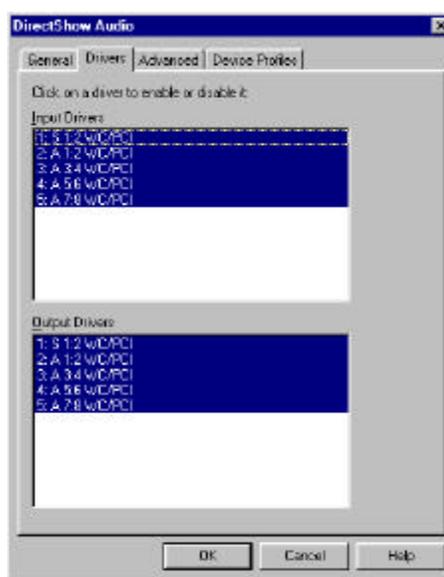


Figure 2

To enable the WCPCI input and output devices, go to the Options/Audio/Drivers tab (Figure 2), and click on all the devices you want to use for recording and playback. A highlighted device is enabled; clicking on it again disables it. For example, highlight “S 1:2 WC/PCI” if you want to record through WCPCI’s stereo SPDIF input (coax, optical or CD-ROM). Close and restart Cakewalk for the changes to take effect.

In the Options/Audio/General tab (Figure 3), set the Playback Timing Master and Record Timing Master to WCPCI devices, preferably ones that you’ll be using anyway. In the section labelled “Default Settings for New Projects” (see Figure 3), you can also set the File Bit Depth (typically 16 or 24). You can change the bit depth after starting a project by selecting “Change Audio Format” from the Tools menu.

The “Mixing Latency” settings affect how quickly Cakewalk responds to control inputs such as mute buttons or console faders. There is always a tradeoff between low latency and safe (click-free) audio. Many systems can get great audio performance with fewer than 5 buffers and with very small buffer sizes, but the only way to know what your system can handle is by experimenting with these settings in a large project. See “Reducing Mixing Latency” in Cakewalk’s online help for more details.

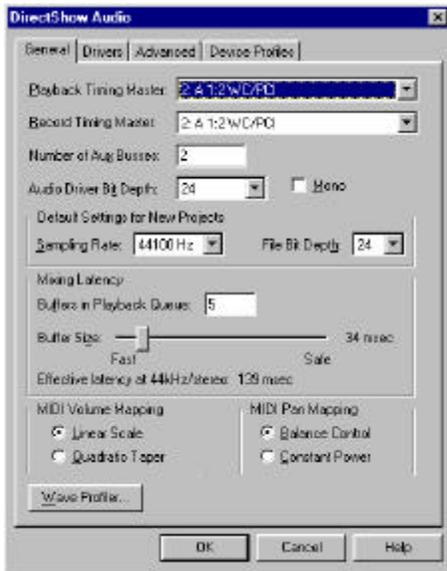


Figure 3



Figure 4

The Options/Audio/Advanced tab contains many audio-related settings. Our recommendations are shown in Figure 4. If you use MTC or SMPTE timecode for synchronization from a digital device, such as an Alesis BRC, we strongly recommend using the “Trigger & Freewheel” setting, so that Cakewalk won’t alter incoming digital audio to keep it locked to the MTC. For more details about any of the settings shown in Figure 4, please refer to Cakewalk’s online help.

Before recording or playing audio, go to the Options/Project/Clock tab, and set the Source to “Audio” (Figure 5) to make WCP/PCI the master timing source for Cakewalk.

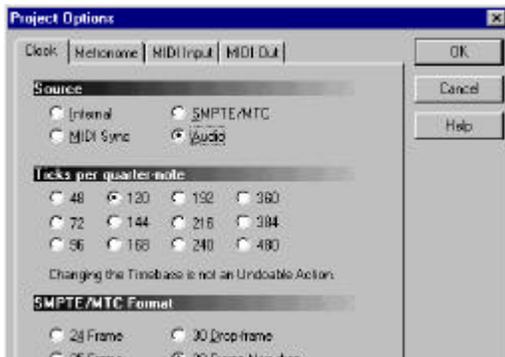


Figure 5

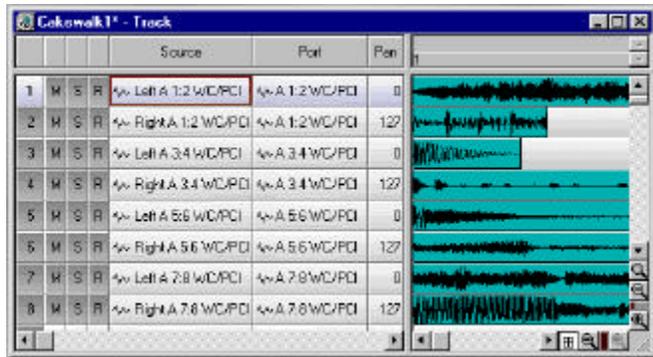


Figure 6

Version 9 of Cakewalk supports both mono and stereo tracks. However, the outputs are always stereo (listed in the Port field). When you first create a mono track (by recording or importing), the default Pan setting is 64 (centered) which means that the mono track will play through both audio output channels. If you want to play individual mono tracks, remember to set the Pan field for each track to 0 (hard left) or 127 (hard right). The example in Figure 6 shows track 1 panned left (to play only through WCP/PCI output A1), track 2 panned right (to play only through WCP/PCI output A2), and so on for all 8 mono tracks.

MIDI Set-up

To use WCPPI's MIDI ports, you must enable them in two places. First, go to the System tab of the WCPPI control panel, and set the Midi Mode to "2x2" as shown in Figure 7. Reboot your computer for the change to take effect.



Figure 7

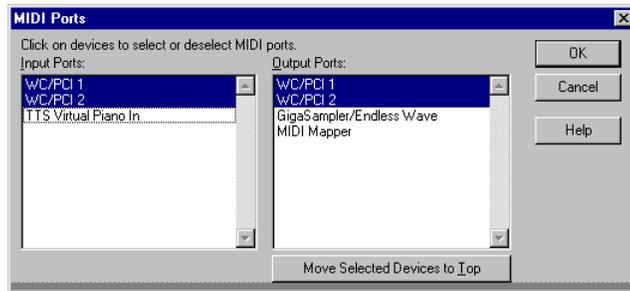


Figure 8

To enable the WCPPI MIDI ports in Cakewalk, select "MIDI Devices" from the Options menu, and click to highlight the "WC/PCI 1" and "WC/PCI 2" ports for recording (input) and playback (output), as shown in Figure 8.

Recording and Playback

Cakewalk's Track screen includes several columns, which you can re-arrange. In this example, we display the Mute, Solo, Record, Source (Input), Port (Output), and Pan columns. We'll record audio on Track 1 and MIDI on Track 2.

1. Connect an audio source to channel 1 of WCPPI's ADAT optical input.
2. Double-click in the Source or Port column for Track 1 to open its Track Properties window (Figure 9).
3. Set the Source field to a WCPPI device, such as "Left A 1:2 WC/PCI" for ADAT optical input 1. ("Right A 1:2 WC/PCI" is for ADAT input 2, and "Stereo A 1:2 WC/PCI" is for ADAT inputs 1 and 2).
4. Set the Port field to a WCPPI device, such as "A 7:8 WC/PCI" and set the Pan field to "0" (hard left) for ADAT optical output 7. (Leaving the Pan set to "-1" would center the audio on outputs 7 and 8.)
5. In the WCPPI control panel, open the Patchbay tab, and route input A1 to output A6 (Figure 10) so you'll be able to monitor the input through output 6 of an ADAT-compatible D/A converter.

Note: Cakewalk uses WaveCenter/PCI's MME driver, and the MME driver takes priority over the Patchbay. Therefore, any outputs that are designated as ports for Cakewalk tracks cannot be used for input monitoring. In this example, you must route input 1 to an output *other than* 7 or 8 in the Patchbay, since those outputs are already designated as ports for playing back track 1.

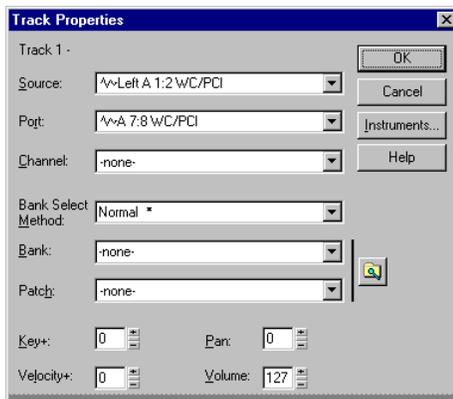


Figure 9

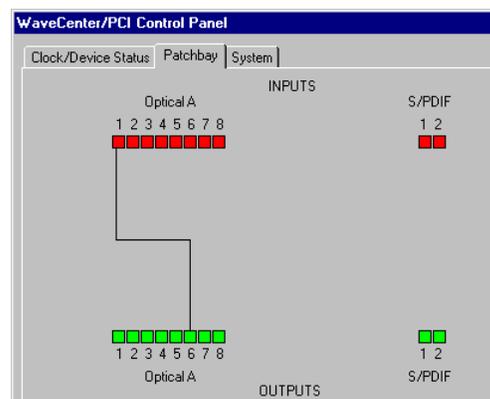


Figure 10

(continued on next page)

6. Double-click in the Source or Port column for Track 2 to open its Track Properties window (Figure 11).
7. Set the Source field to a WCPPI MIDI input channel, such as “MIDI Channel 3.”
8. Set the Port field to a WCPPI MIDI output, and set the Channel field to the desired MIDI channel.
9. In Cakewalk’s View menu, open the “Console” window so you can activate the Record Meters (Figure 12).

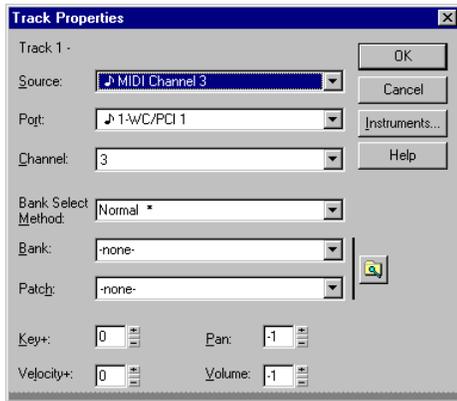


Figure 11

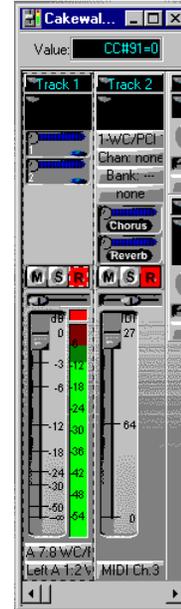


Figure 12

10. To arm the tracks for recording, click the “R” column for Track 1 and Track 2 (Figure 13). In the Meters window (Figure 12), you can adjust the audio input level for channel 1 to make sure it’s hot but not clipping.
11. Click the Record button at the top of the Track screen to start recording.
12. Click the Stop button to stop recording.
13. To unarm the tracks, click the “R” column for Track 1 and Track 2.
14. To play back the tracks, click the Play button at the top of the Track screen.

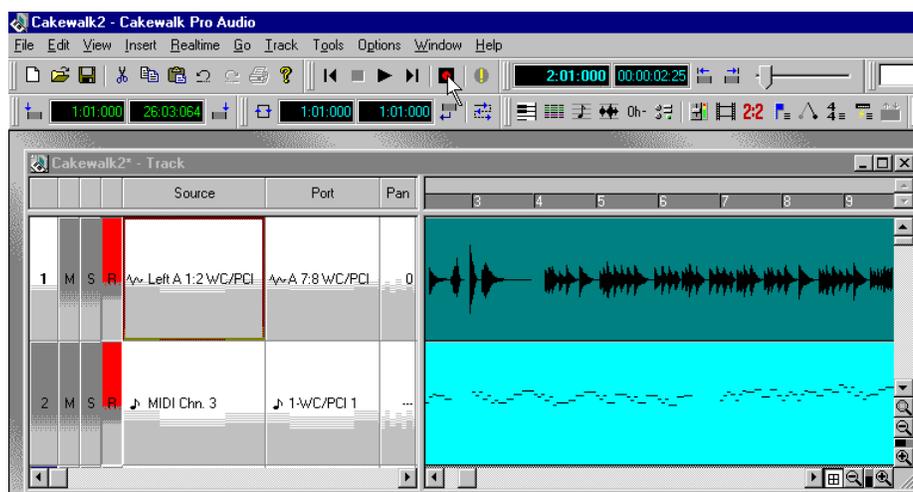


Figure 13

Cakewalk's Tuner

Cakewalk includes a chromatic tuner (Figure 14). To use the tuner with WCPCI, ignore the Help information provided by Cakewalk, and use this procedure instead:

1. Make sure the input channel that is recording the instrument to be tuned is *not* armed (not record-enabled).
2. From the Windows Start menu, go to Settings > Control Panel > Multimedia > Audio (Figure 15).
3. In the Recording section, set the Preferred Device to the input device you want to tune.
4. Make sure that "Use only preferred devices" is enabled.
5. In Cakewalk, select "Tuner" from the Tools menu. Make sure that there is sufficient input level to tune well. (There is a level meter at the bottom of the Chromatic Tuner window.)

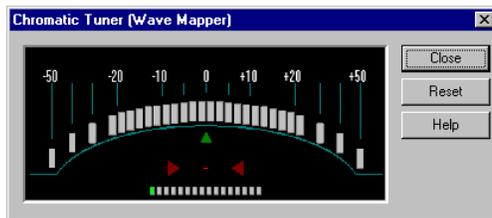


Figure 14



Figure 15

Synchronization

If you want to synchronize Cakewalk to an incoming MTC source, you need to change the Clock Source in Options/Project to SMPTE/MTC, as shown in Figure 16. Make sure that the digital audio and MTC clock sources derive from the same master device, or else they will slip relative to each other. For example, MTC sent to WCPCI from a BRC will work with digital audio sent to WCPCI from an ADAT that is controlled by the same BRC.



Figure 16

Optimization

This suggestion comes from Cakewalk's online Help file:

Usually, as the number of tracks increases, it becomes difficult to achieve a very low latency value without suffering dropouts during playback, but with the right hardware, and not too many real-time effects (plug-ins), you may be able to achieve low latency even when playing a large number of audio tracks by making the following adjustment:

1. In the Options/Audio/General tab (Figure 3), reduce the number of Playback Buffers to 2.
2. Exit Cakewalk.
3. Navigate to the directory where your Cakewalk software is installed, and use Notepad (or any text editor) to open the AUD.INI file.
4. Locate the line that says "MixScheme=0", and change it to "MixScheme=1"
5. Save the file.
6. Launch Cakewalk, and replay your project. If your project plays without a problem, you may be able to push the latency slider further to the left, depending on the number of tracks, clips and real-time effects in your project.

If you encounter dropouts or other problems during playback, undo the above changes; you'll have to make do with a more conservative mixing latency setting.