

of the chosen song will be switched with the below song. For example, if you choose the 2nd song in the list and click "▲" button, the chosen song will be the 1st song in the track and the 1st will be the 2nd. Also, if you choose the second song in the list and click "▼" button, the chosen song will be the 3rd song in the list and the 3rd will be the 2nd.

"◀,▶" button are to move the song between the track A and B. After choose a song in track A and click "▶" button, the chosen song will be moved to track B as the last song in the list. In a reverse way, you can move a song from track B to track A with the button "◀".

So, users can sort the order and change the track of songs freely with these "▲, ▼, ▶, ◀" arrow buttons.

● CUE Function

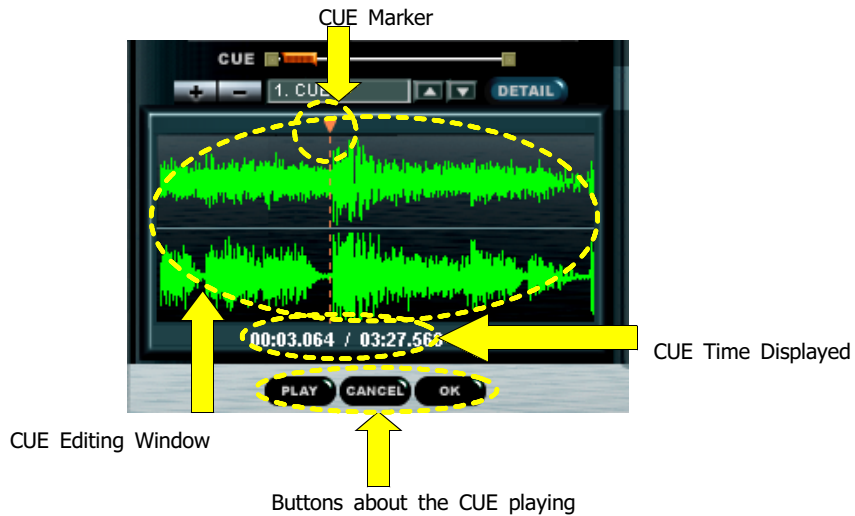
There are a playing point slider, "+", "-", "▲", "▼" buttons and "DETAIL" button below the each virtual turn table. Playing points slider shows the playing position of a song, so that you can move the slider to change the playing position of a song.



(Fig. 13) CUE Function

"+", "-", "▲", "▼" buttons and "DETAIL" button are for CUE function. CUE function will make users to be able to cue the exact point in a song for some purposes that users want. So, users can insert the CUE point into a song up to 10 points per one song and save it in the list. Click "+" button while a song is being played, then there will be a small window. In this window, you can type the name of cue point like CUE1, CUE2,...After type the CUE name and click "OK" button, you will see NO. and the name of cue point inside the small box besides "+", "-", "▲", "▼" buttons. In this state, if you click the stop button in the virtual turn table, the song will stop at the Cue point you saved. "-" button is to delete the cue point that you select.

If you want to make the more exact point, you can click the "DETAIL" button. The "DETAIL" mode shows you as follows.



(Fig. 14) Cue Editor

DJs want to make CUE point in the song exactly. In the DJPAD2020 S/W, there is a 10ms-precision CUE marking window, so that user can move the marker and modify the CUE point precisely. You can just click the point in the sound wave, then the cue marker will be moved to that point. There is a play button in this window, so you can hear and check the sound at the cue pint.

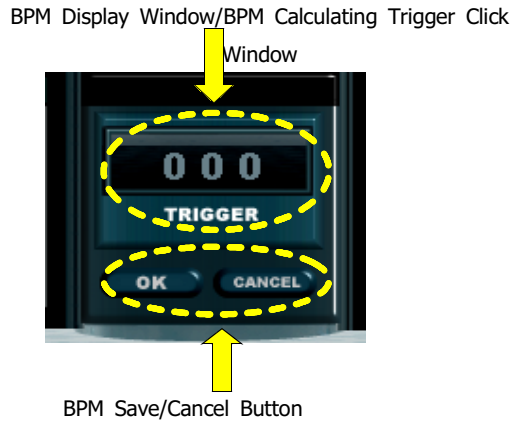
In this way, you can get the exact point you want, then click the "OK" button and go back to the play-list window. Using CUE function, you can save up to 10 cue points in one song. Using "▲,▼" buttons, you can change the cue points. While the song is being played, you can change the cue point. Then playing point will move to the exact cue point you choose and play.

CUE point is very useful in DJ re-mixing. User can access to any point easily in the song using the CUE finder. Using CUE function in DJPAD2020 gives users more benefits than the analog system does when DJs re-mix, make scratch and synchronize with drum machine, etc. Once you save the CUE points, you do not have to remember all the cue points in a song. The CUE point is saved in the list, and you can use it at any time.

● BPM Calculator

The another strong function with CUE function is BPM calculator. Pitch of a song is usually displayed in %. But you can calculate BPM and save the BPM data as a list. There is a BPM button below the play list. During the playing of a song, if you click

the BPM button, there will be a small window like Fig.15 as below.



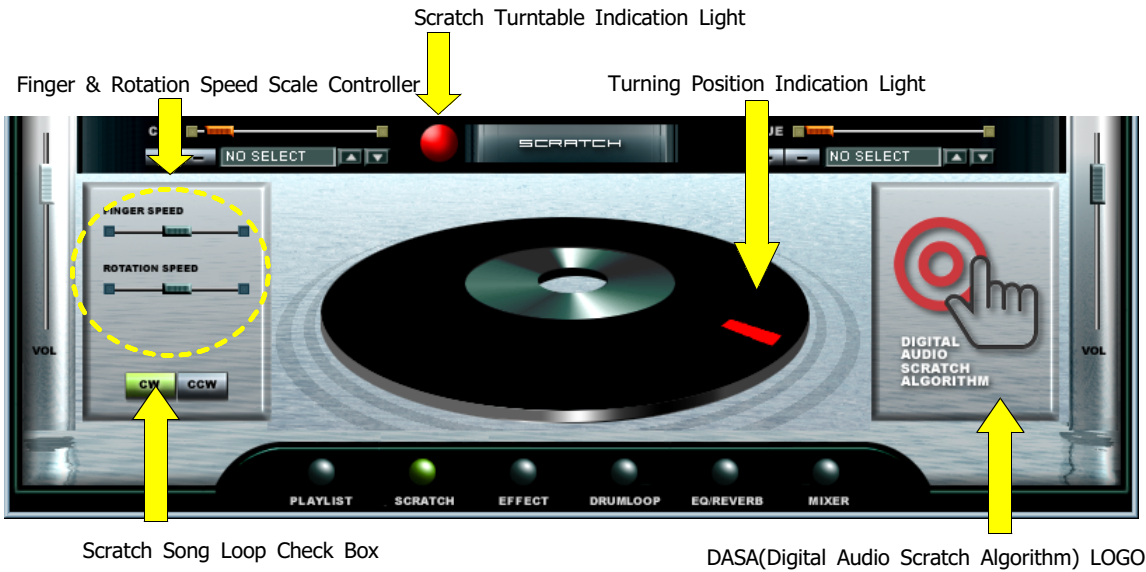
(Fig. 15) BPM Calculator

In this window, there is a trigger with the BPM information. At first, BPM value is just zero. Please move the cursor onto the trigger button, then click the button four times according to the rhythm of the songs, then the calculated BPM will be shown.

To click the button, you can tap your finger on touch pad. But we would like to recommend you to use the left button in DJPAD2020 H/W (See Fig.1) so that you can click faster and more correct according to the beat of a song. You can repeat clicking the BPM trigger and there will be a BPM information every four times you click the trigger button. After triggering, you can use the BPM data of the songs easily, and make the BPM adjustment using the digital pitch sliders on the basis of the pre-calculated BPM value.

The BPM calculating function is the useful function of the DJPAD2020 S/W. Synchronizing the BPMs of the two songs needs a special skill in the analog system. In order to make a BPM adjustment, usually DJs memorize all the BPM data of songs that they want to play, and control the pitch slider with their feeling and hearing and checking with a headphone. But in DJPAD2020 S/W, you just calculate the BPM data of the songs in their play list just one time. BPM calculation is very easy in DJPAD2020 S/W. This BPM calculation function gives you a lot of applications in DJ re-mixing by the combination with CUE function.

6.2 Scratch Pad



(Fig. 16) Scratch Pad

The history of scratch re-mix is about 20 years, and the use of scratch sound as an effect is very popular in the music scene not only in the dance music but also in the other styled music like hard rock, jazz and etc.

Usually DJs make the scratch sound by spinning the played LP record to the forward and backward with their fingers. Until now, this scratch is realized only when you use LP records and turntables.

However, SoundGraph, Inc. designed and developed the **DASA** (Digital Audio Scratch Algorithm) and made it possible to control the speed and direction of the digital audio. Due to **DASA**, DJPAD2020 S/W is the only and unique solution which can make the real time scratch of the digital audio. So users of DJPAD2020 can enjoy the digital audio scratch sound with MP3, CDA and Wave files.

In DJPAD2020 H/W, the digital audio controlling device is the touch pad which describes perfectly the motions of DJ as same on the LP records. Actually, scrubbing on the touch pad is like the same motion of fingers on the LP record when DJs scratch. In the control window(Fig.10), there is a selection button for the functions.

In this mode, you can scratch digital audio. If you choose and play the songs in the play list then press "Scratch" button in control window, the visual LP will rotate like real LP in turntable. Or, you can choose the songs in Play List and change to Scratch



mode, then choose play button "▶" in the virtual turntable. Beside the Cue function, you will see red-round indication light. This red sign indicates which turntable is for the scratch now. So you can scratch the songs from track A like Fig.16 and also can switch to the track B for the scratch.

To switch the tracks, you can use the Forward/Backward Buttons (See Chapter 4.5). You can choose one of 2 tracks (A, B) or choose both tracks. If you choose just one track (A or B), you will scratch the chosen track with volume control by the slider in H/W.

But if you choose both tracks - backgrounds of both tracks are highlighted -, you can choose one track for scratch and one track for background music as like the use of two LP turntables. In this mode, you can use Cross Fader to control the volumes from the both tracks with the slider of H/W. Please see the Chapter 5.1 Virtual Turntable Window for the Cross fader function. So, you will have the same functions like DJs use the cross-fader in the mixer to control the volumes of the two turntables at the same time when DJs use two turntables in the analog system.

When you finish to choose the songs and tracks for scratch, push the Mode selection button in H/W (See Chapter 4.4). You will see the cursor will disappear on the display. Now, it is ready to scratch. We call this state as Absolute mode. So, Just scrub your fingers on the touch pad of H/W, you will hear the scratch sound and you will see the visual LP will be moved according to your finger movement.

Usually, when the visual LP rotates clockwise, if you scrub from left to right, the visual LP will go backward and if right to left, the visual LP will go forward. You can see the red marking on the visual LP is moving according to your finger and the playing song will be scratched and moved related to the movement this visual LP. With this red indication in visual LP, you can scratch more exact and clearly. For example, you can scratch in specific area repeatedly because you will see the red marking on the visual LP and know the playing position of the song. You can even stop the visual LP, if you just touch the touch pad and stay your finger at standstill.

If you want finish the scratch, you can click the Mode Selection button, then cursor will appear again. You can choose or control other functions at this mode. We call this mode Relative Mode. You usually use under Relative Mode. Absolute Mode is just necessary in Scratch Mode and Effect Pad mode. You can simply change Absolute



Mode and Relative Mode with the Mode selection button. (See Chapter 4.4)

There are some sliders as follows beside the visual turntable in Scratch mode.

● Finger Speed

You can choose this slide - it will be highlighted - and change with the slider in H/W. If you move the slider to the right, the finger speed will go up in % and it will be displayed in virtual turn table. The scratch speed will be higher according to the finger speed. So, at high finger speed, you can scratch more (move the visual LP more) with small movement of finger on the touch pad of H/W. On the contrary, you are able to scratch very small even though you move your finger a lot in the touch pad if the finger speed is low.

● Rotation Speed

This is just to change the visual speed of LP in scratch mode. So, it is not related to the real speed of scratch but visual speed of LP. Also, there are 2 fascinating functions in this scratch mode as follows.

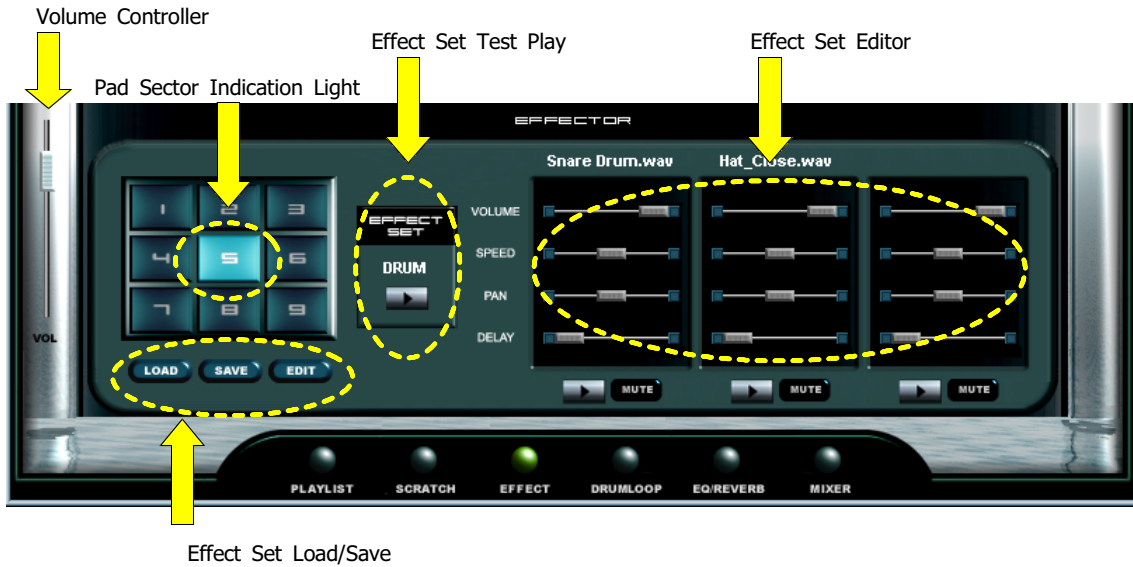
● Scratch at CUE point

User can make a cue point in A song as described in 6.1 Play List. Also CUE point making is possible under the Scratch mode. After user makes cue point, click the "stop" button in the virtual turntable. Then, user will see the visual LP stop at the cue point. At this state, user can scratch the song at the CUE point of the song after changing the mode into the Absolute Mode by Mode Selection button. After the scratching on the touch pad, the position of the visual LP goes to the exact pre-set CUE point every time. It is same like DJ's scratch method of real LP without turning the turntable. When user want to finish the cue point scratch, just click the play button in the virtual turntable.

● Scratch at Pause

If you pause in the scratch active virtual turntable, the visual LP stops as same in the cue point making. But at this time, if you scratch the song after the changing mode into the Absolute Mode, the song will start playing instantly at the pre-paused point just after the scratching. So user can make the scratching start point in the song using this function.

6.3 Effect Pad



(Fig. 17) Effect Pad

After you choose the function "EFFECT" in Control Window, you will see the effect window like Fig. 17 as above. Effect Pad part is used to insert the wave effect sample into the re-mix. The nine square blocks are able to contain up to 3 wave effect samples in each area. So, you can put your own samples to the each of nine areas and save it. After the change the mode to Absolute Mode, you can tap your finger on the each divided area of touch pad of H/W. Then, you will hear the effect sound of the saved samples of the area you touch.

There are many buttons as follows for the various functions in this mode.

● EDIT

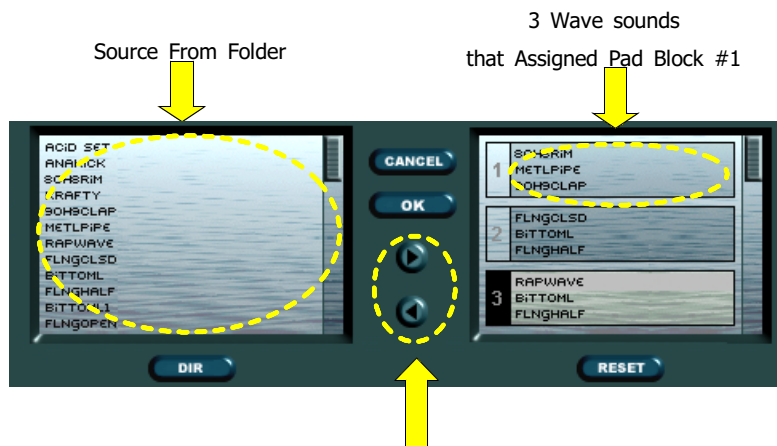
Below the Effect Pad in S/W, you will see the EDIT button. You can choose one of 9 divided areas by clicking of left button of H/W or double tapping on the touch. Then, if you click EDIT button, there will be a new window for the edit the wave sample files. If you click the "DIR", in this new window, you can choose a directory.

After you choose a directory, all the wave files in the chosen directory will be read out to the list box. You will also see the box including 3 small boxes at the right side. This means the 3 sample boxes for the one area of Effect Pad. So, just choose and click the wave sample and also choose the target box of 3 boxes. Then, click "▶"

button and you will see the chose sample wave will be moved to the targeted box. In this way, you can save 3 different samples in one effect pad area. You can save all 3 samples in one area or you can just save 1 wave sample for one area. Then click "OK". The window will be back to the initial window of Effect Pad and you will see the name of your saved files above the 3 boxes at the left.

In the above way, you can save all 9 areas of Effect Pad. So you can save up to 27 wave samples into the 9 areas.

There are 3 boxes of Effect Set Editor to edit each wave samples. Each Editor box contains 4 sliders for volume, speed, pan and delay. And also below the each box, there are play button and "MUTE" button. These 3 wave samples are saved in one Effect Pad, So if you tap this area of Effect Pad the combination of 3 wave sample will be heard. To get the maximum effect of this function, you are able to change the volume, speed, pan and delay of each wave file. With the combination of the adjustment of these 4 factors, users will have plenty of applications of re-mixing sample.



Add / Remove the Wave Sound
 (Fig. 18) Effect Pad Edit Mode

● **SAVE**

After editing the wave files into the areas of Effect Pad, you can save this editing as a file. If you click the "SAVE", there will be small window to write down the file name to save your edit work. After typing in a file name, just click "OK".

● **LOAD**

You can read out your saved file for the Effect Pad. If you just click "LOAD", you will see a small window including files that you saved. As you see there are 3 buttons -

"DELETE", "CANCEL", "OK". After you choose a file, click "OK", then the saved data will be read out to the Effect Pad. "DELETE" button is to delete the saved file and "CANCEL" button is to cancel "LOAD".



(Fig. 19) Load of the Effect Set

● VOLUME

This volume slider controls the volume of wave sample which is save to the box.

● SPEED

This slider will change the pitch of the saved wave sample.

● PAN

This slider will valance the volume for the left and right speakers.

● DELAY

You can give the time delay of the saved wave sample. Using this fuction you can get the time delay effect related among 3 wave samples in one pad area.

● Play button

Below the each Editor box, there is a play button. After editing each wave sample, you can click this button. Then you will hear the sound of the edited wave sample an check if it is all right as you intend.

● MUTE

Beside the play button, there is a MUTE button. If you click this button, the chosen wave sample in the Editor box will be muted.

● Effect Set

Between the virtual Effect Pad and Editor box, there is Effect Set box. In this box, there will be the name loaded file and play button. If you click the play button to hear, you can hear the combination of wave files together, so you can check the combination is all right as you intend. If you do not satisfy with the combination sound, you can change the factors like volume, speed, pan and delay until you get the satisfied