Double Tracking Effect

1.0.0

User Manual

Double Tracking Effect

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B-case audio

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1 Overview

DTE (Double Tracking Effect) is a simulation of the famous artificial double tracking recording technique.

The artificial double tracking effect was introduced in 60's to give a richer and wider sound.

The principle

The signal of a source tape player is routed to a second tape recorder-player.
This second tape records the source and plays it back adding both signals but not in a synchronous way.
The synchronization depends on the play head position of the second tape recorder-player.

By changing the head tape position (with LFO or manually) it changes the speed of the tape player generating alterations on timbre and pitch.

The DTE rack extension

There are 3 tape units :
- one tape player for the source
- two tape recorders-players with head position controls.
  When the tape player head position is on 0 ms, it is synchronized with the source.
  When the head position is negative then the signal is before the source signal.
  When the head position is positive then signal is after the source signal.
  The range is -40 ms to +40 ms.
  A special option allows to take control on the second tape recorder-player via the controllers of the first one, making easy to control both.
  The integrated Low Frequency Oscillators driving the head position have been especially adapted for their purpose.

The tape players have a drive parameter to control the amount of tape saturation.
The tape saturation has been precisely designed to simulate the rich sound of an analog tape player (signal driven compression, warm equalization and saturation).

Due to its high quality resolution, this tape saturation simulation can make high usage of CPU.
In order to fix this, you can disable the High Quality simulation and go to a lower quality mode that is still good enough for bass, synths, drums.
CPU consumers are only active when necessary (Drive > 0, Tape is ON, incoming signal).

The tape players have direct audio outputs. This allows to take advantage of the heads position (delay, pitch, timbre) in other effects.

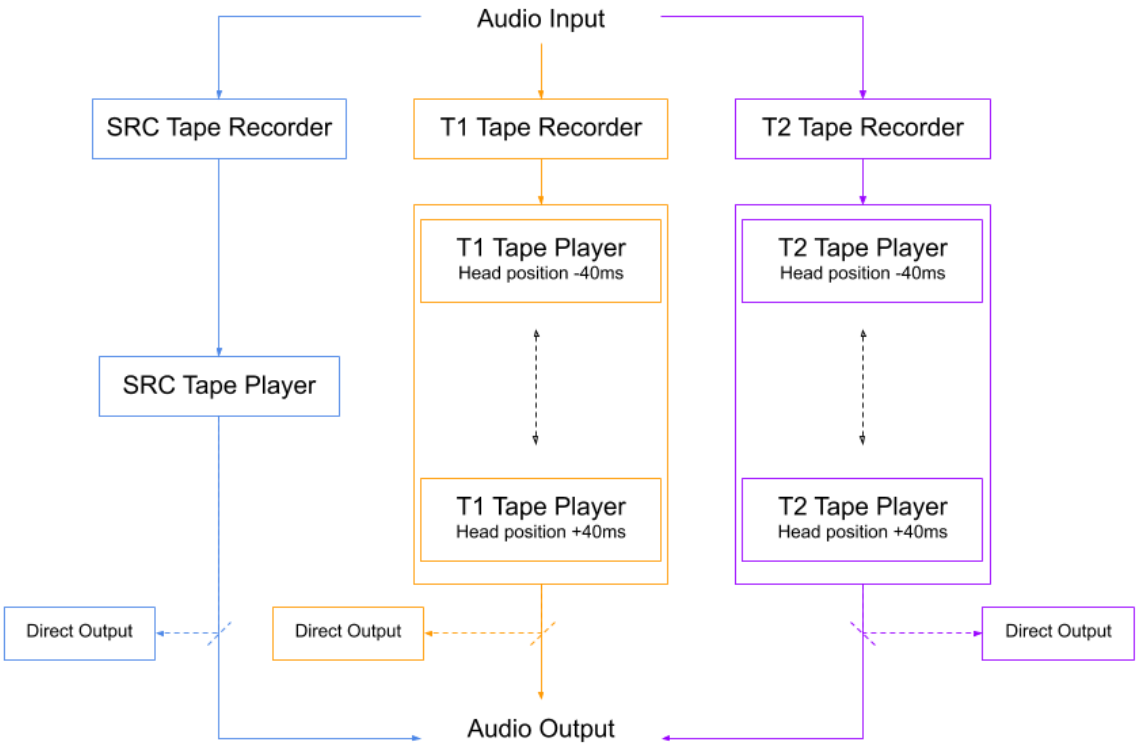
With DTE

You can make your sound warmer, wider, saturated.
You can generate flanging or phasing effect by moving the head position near the 0 position and enabling the phase inversion.
You can also design a lot of creative effects by combining DTE with other effects with the direct audio outputs.

Latency :

Sample Rate in Hz	Latency in Samples
22500	913
44100	1777
88200	3541
96000	3853
192000	7693

2 Audio Routing



3 Front controls

OutPut Adjusts global output volume from -24 dB to +24 dB.

SRC Parameters for the source tape player.
T1 Parameters for the first tape recorder-player.
T2 Parameters for the second tape recorder-player.

T1 controls T2 When enabled, T1 controller controls T2 controllers :
In same way : Output, Volume, Drive, LFO Sync, LFO Shapes only random modes, LFO Rate, LFO Range
In opposite way : Pan, Head Position, LFO Shapes except random modes, LFO Offset.
Exceptions : ON, Phase, LFO On/Off are not controlled by T1 controllers.

SRC Mute Mutes the source. Audio input is still routed to T1 and T2.
T1 ON Enables T1.
T2 ON Enables T2.

Common parameters for SRC, T1, T2

Phase Inverts the phase of the signal.
Output Adjusts output volume from -inf to +12 dB.
Pan Controls the position of the signal from left to right.
Drive Adjusts the amount of tape saturation.

Common parameters for T1, T2

Head Position Controls the playing head position from -40ms to + 40ms. Negative values mean the signal is before the source, positive value the signal is after the source. In center position (0 ms) the signal is in phase with the source.
LFO On/Off Activates the Low Frequency Oscillator. The LFO signal controls the head position.
LFO Sync Enables the frequency synchronisation with sequencer tempo. Rate is expressed in Bars when sync is enabled.
LFO Shapes Controls the shape of the LFO. There are 6 shapes : sine, reverse sine, synced random, random, triangular, reverse triangular.
LFO Rate Adjusts the frequency.
When LFO Sync is disabled, frequency is expressed in Hertz, from 0,01 Hz to 20 Hz.
When LFO Sync is enabled, frequency is expressed in Bars, from 64/4 bars to 1/4 bars.
LFO Range Adjusts the range of the LFO, from 1 ms to 20 ms.
LFO Offset Adjusts the offset of the LFO, from -20 ms to + 20ms.

4 Back controls

HQ Drive **D**efines the quality of the tape saturation. When enabled, the saturation signal is the best, with less noise in low frequencies and better definition in high frequencies, but it used more calculations and stress CPU more.

CV signals

Volume CV Global Output Volume input CV signal.

Common parameters for SRC, T1, T2

Volume CV Volume input CV signal.

Pan CV Pan CV signal.

Drive CV Drive CV signal.

Common parameters for T1, T2

Head Pos. CV Head position CV signal.

LFO Output CV LFO output CV signal. Not affected by LFO Range or LFO Offset parameters.

LFO Rate CV LFO rate CV signal.

LFO Range CV LFO range CV signal.

LFO Offset CV LFO offset CV signal.

Audio signals

See Audio Routing for a better understanding of audio input and outputs.

Input Left, Right main audio input signal.

Output Left, Right main audio output signal.

SRC Output Left, Right source audio output. When plugged, the source audio signal is not routed to the main output anymore.

T1 Output Left, Right T1 audio output. When plugged, the T1 audio signal is not routed to the main output anymore.

T2 Output Left, Right T2 audio output. When plugged, the T2 audio signal is not routed to the main output anymore.

5 Credits

Many thanks to all the beta testers who helped improve.