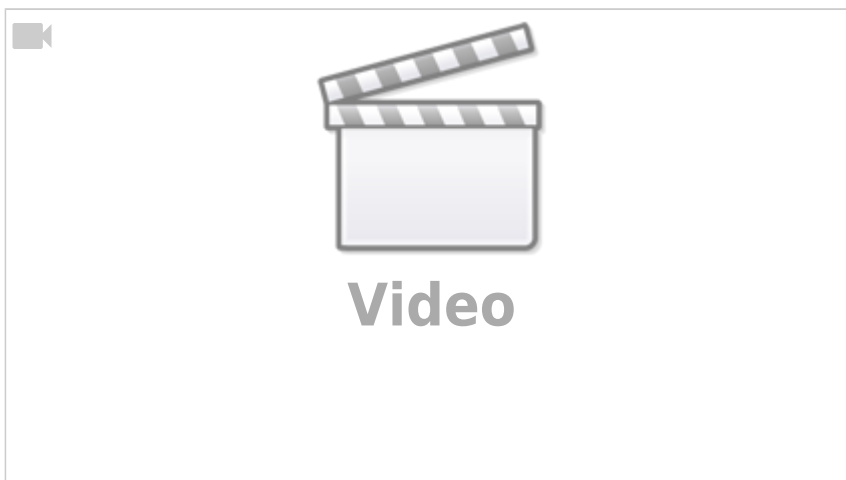


# MSQ-CC-LRE

MotionSeQuencer for ControlChanges for 2xLRE8x2 Boards

Synth-Patch-Editor & Motion-Sequencer 4 ControlChange (= CC-Automation)



## Introduction

Controls and automate a Nord Drum2 (Drum-Synth )[NORD DRUM 2](#)

### **It acts as:**

- **Midi Merger** NTE,CLK,PC merge with CC... - **Patch Manager** it replaces the Synths internal Patch Storage, each PC Number from your Sequencer is added by the BANK CC (CC 32), where each Nr is ADD 128 PC Numbers more...
- **Motion Sequencer** Record your Controller Movements in a Sequence in 32th Resultion @ maximal 256 Steps length

## Features

- **Remote your Synths** by: 8x Midichannels with up to 32x Control Change (CC)
- **Save the Patches** and dump it to Synth
- **Load hundreds of Patches** via received Program Change + the Bank-CC (CC32)
- **Save Patches** via CC24 + CC value 0-127... when sending before a BankCC32 you can expand that to 128×128 patches
- **Record CC-Motion-Sequences - PLAY Motions-Sequences** up to 256 steps @ 32th rate -
- VELOCITY MORPH** Add Velocity-Ammount to CCs
- **MERGE** incoming Midi-Notes/Clock/Pitchbend with Automated CCs
- **Set Sequencer Beatstructure** - how to interpret Clock-ticks (4/4, 5/4, 6/4, 7/4...) - CC23
- **Global Page:** for example you use 8 similar Drum-Voices, with the Global you have 8 channel strips with dedicated Controlls, for example:  
8xVolume, 8xTone/Noise-Mix, 8xDistortion, 8xClick
- if you have one Synth over 2xMSQ\_CC\_LRE Tracks(booth set to MidiChannel 0, to get 64CCs instead of 32), then the Global Page: have the ability to show/edit a parameter from Track1Voice on Track1Global, and from Track2Voice on Track2Global... it depends how you set the Midichannel in the Systemsettings (which are hardcodet but via Mapping Array changeable)
- for one multipart-synth, MSQ\_CC\_LRE do all the Preset Store, and Automations, so it is one Unit > to use the Unit in a other way would make all the Patches (128×128 patches) useless, so once done, its bound to it, load all with Programchange! minimal is better here, there will be other **MSQs** outthere see [MSQ-CC-BCR](#)

## Hardware Requirements

**External Requirement:**(for example)

- Melody/Clock Source with ProgramChange-Output: [midibox\\_seq\\_v4l](#) oops that dont do PC...
- Melody/Clock Destination: NordDrum 2

**Midibox:**

- [core32](#)
- [1xMidi IO](#) connect 1 midicontroller and 1 Note/Clock-Source/Destination
- SD-Card, formated with FAT32
- Soldering Iron, Wires, PCB....
- USB Power Supply
- 2x LRE 8×2 [mb-lre8x2cs\\_pcb](#)
- 3 extra Encoders and Ledrings (to controll the unit) + Pushfunction inclusive Button LED
- 8 Momentary Buttons without LED
- 1 Momentary Button with LED
- 1x DINX4
- 1x DOUTX4

## Setting

### Cabeling

MidilO PortB Out >> Synth Midi IN  
MidilO PortB In >> Clock+Notes

## Frontpanels

### Stickers

### LCD

it would be possible to add 16 OLEDs but... but i dont have the money for that right now....

### MBHP

# Software

## Firmware

V1. from 9.05.2018msq\_cc\_lre\_v0.norddrum2.zip

hardcodet for a NordDrum2 - but change-able in Mapping via a Array in Sourcecode:

this is the maping which says wich of the 32 internal CCs are one of the outhernal CCs (0-127):

```
// 4 CC Mode = 0: = In Synthesizer
const ul CC_Map0[128] = { // CC_Map0 [Part] [Internal CC Nr] = value of external CC =
// CC_Map0 [Midichannel] [NoteSource] = Value of SynthDestination
// 1st Row Horizontal // 2nd Row Horizontal // 3rd Row Horizontal // 4th Row Horizontal
// CC-on-LRE: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
{ 57, 56, 24, 23, 28, 25, 18, 7, 15, 17, 14, 16, 18, 19, 20, 21, 46, 52, 53, 47, 48, 54, 55, 254, 58, 51, 49, 38, 58, 255, 255, 255, // Nord Drum 2 Voice 1 MidiCh 7
{ 57, 56, 24, 23, 28, 25, 18, 7, 15, 17, 14, 16, 18, 19, 20, 21, 46, 52, 53, 47, 48, 54, 55, 254, 58, 51, 49, 38, 58, 255, 255, 255, // Nord Drum 2 Voice 2 MidiCh 8
{ 57, 56, 24, 23, 28, 25, 18, 7, 15, 17, 14, 16, 18, 19, 20, 21, 46, 52, 53, 47, 48, 54, 55, 254, 58, 51, 49, 38, 58, 255, 255, 255, // Nord Drum 2 Voice 3 MidiCh 9
{ 57, 56, 24, 23, 28, 25, 18, 7, 15, 17, 14, 16, 18, 19, 20, 21, 46, 52, 53, 47, 48, 54, 55, 254, 58, 51, 49, 38, 58, 255, 255, 255, // Nord Drum 2 Voice 4 MidiCh 10
{ 57, 56, 24, 23, 28, 25, 18, 7, 15, 17, 14, 16, 18, 19, 20, 21, 46, 52, 53, 47, 48, 54, 55, 254, 58, 51, 49, 38, 58, 255, 255, 255, // Nord Drum 2 Voice 5 MidiCh 11
{ 57, 56, 24, 23, 28, 25, 18, 7, 15, 17, 14, 16, 18, 19, 20, 21, 46, 52, 53, 47, 48, 54, 55, 254, 58, 51, 49, 38, 58, 255, 255, 255, // Nord Drum 2 Voice 6 MidiCh 12
{ 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, //not in Use
{ 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, 255, //not in Use
}
```

This Mapping says which one of the 32 internal CCs are positioniered in the Mixer/Overview/Channelstrip-Mode

```
// 4 CC Mode = 1: = Re Channelstrip
const ul CC_Map1[32] = { // CC_Map1 [Active_Strip_Set] [CC to map to Map0]
// 1st Row Horizontal // 2nd Row Horizontal // 3rd Row Horizontal // 4th Row Horizontal
{ 1, 2, 1, 1, 1, 1, 32, 32, 29, 29, 29, 29, 29, 29, 30, 30, 30, 30, 30, 30, 31, 31, 31, 31, 31, 31, 32, 32, 32, 32, 32, 32, // Channel-Strip-Set1 (Filter)
{ 8, 8, 8, 8, 8, 8, 32, 32, 19, 19, 19, 19, 19, 19, 20, 20, 20, 20, 20, 20, 21, 21, 21, 21, 21, 21, 22, 22, 22, 22, 22, 22, // Channel-Strip-Set2 (Decay)
{ 15, 15, 15, 15, 15, 15, 32, 32, 19, 19, 19, 19, 19, 19, 20, 20, 20, 20, 20, 20, 21, 21, 21, 21, 21, 21, 22, 22, 22, 22, 22, 22, //not used
{ 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, //not used
{ 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, //not used
{ 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, //not used
{ 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, //not used
}
// CC_Map1[0]=1 = show CC_Map0[x][1] = Synth-CC:96 = ClickLevel-CC
// to get: CC_Map0[0-7][ CC_Map1[0-7] ] = SRCC-Nr. = ClickGain CC_Map0[8-15][ CC_Map1[0-7] ] = SRCC-Nr. = Bal in the End: CC_Map0[16-31][ CC_Map1[0-7] ] = ..CC-Nr.
// to get: CC_Map0[8-7][ CC_Map1[1][0-7] ] = 15CC-Nr. = R.Filt CC_Map0[8-7][ CC_Map1[1][0-15] ] = 17CC-Nr. = R.Res For Value: beat[0], CC_Storw[32]
// to get: CC_Map0[8-7][ CC_Map1[2][0-7] ] = 21CC-Nr. = R.Decay CC_Map0[8-7][ CC_Map1[2][0-15] ] = 47CC-Nr. = TimDec beat[0-7], CC_Storw[ CC_Map1[Active_Strip_Set][0-31] ]
// to get: CC_Map0[8-7][ CC_Map1[3][0-7] ] = 255CC-Nr. = Nothing-will be filtered out? = blank out LEDRING
}
```

there are 8 deep edit pages, and 8 overview pages.

## CC Routing to Synths

MSQ\_CC\_LRE internal i have 8x32 CCs, they are always identical.  
but with a simple input output matrix i can decide which CC it gets in real world.  
each of the 8 Part can have midichannle 0-15...

So we talking about Mapping... in the moment it is made in the source code with a simple array.

## To Do

alot, but since it is base on MSQ-CC-BCR! most is done, and its running solid

maybe scale min max values for CC: for example different synths have only 0-3value instead of 0-127, by different functions like WAVEFORM...) - this will be interesting when using other synths then nord drum...

## Resources

# Community users working on it

- **Phatline** = Programming, Documentation...

Just let a Private message on the forum to user already involved, the sourcecode is includet in the firmware .zip!!!

From:

<https://midibox.org/dokuwiki/> - **MIDIbox**

Permanent link:

<https://midibox.org/dokuwiki/doku.php?id=msq-cc-lre&rev=1645738013>

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