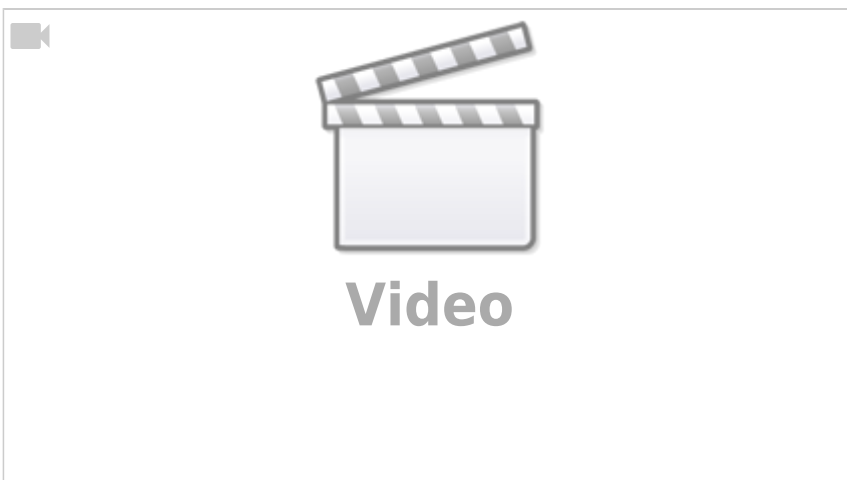


# MSQ-CC-LRE

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 hundrets 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 128x128 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 (128x128 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, formatted with FAT32, and the file "bcr1.syx" on it
- Soldering Iron, Wires, PCB....
- USB Power Supply... I tried to use the Midi-BUS-Power from BCR2000 but it is too weak!
- 2x LRE 8x2 [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 9.05.2018 [msq\\_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 Route Mode = 0: = In Synthesizer [Internal CC Nr] = value of external CC ->
const u8 CC_Map0[32] = { // CC_Map0 [Part]
    // CC_Map0 [Map0Channel] = Value of Synth/Destination
    // 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, 34, 23, 26, 25, 10, 7, 15, 17, 14, 16, 18, 19, 20, 21, 46, 52, 53, 47, 48, 54, 55, 254, 50, 51, 49, 38, 58, 255, 255, 255, // Nord Drum 2 Voice 1 MultiCh 7
      57, 56, 24, 23, 26, 25, 10, 7, 15, 17, 14, 16, 18, 19, 20, 21, 46, 52, 53, 47, 48, 54, 55, 254, 50, 51, 49, 38, 58, 255, 255, 255, // Nord Drum 2 Voice 2 MultiCh 8
      57, 56, 34, 23, 26, 25, 10, 7, 15, 17, 14, 16, 18, 19, 20, 21, 46, 52, 53, 47, 48, 54, 55, 254, 50, 51, 49, 38, 58, 255, 255, 255, // Nord Drum 2 Voice 3 MultiCh 9
      57, 56, 24, 23, 26, 25, 10, 7, 15, 17, 14, 16, 18, 19, 20, 21, 46, 52, 53, 47, 48, 54, 55, 254, 50, 51, 49, 38, 58, 255, 255, 255, // Nord Drum 2 Voice 4 MultiCh 10
      57, 56, 34, 23, 26, 25, 10, 7, 15, 17, 14, 16, 18, 19, 20, 21, 46, 52, 53, 47, 48, 54, 55, 254, 50, 51, 49, 38, 58, 255, 255, 255, // Nord Drum 2 Voice 5 MultiCh 11
      57, 56, 24, 23, 26, 25, 10, 7, 15, 17, 14, 16, 18, 19, 20, 21, 46, 52, 53, 47, 48, 54, 55, 254, 50, 51, 49, 38, 58, 255, 255, 255, // Nord Drum 2 Voice 6 MultiCh 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, //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, //not in Use
    }
```

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

```
// 4 CC Route Mode = 1: = In Channelstrip
const u8 CC_Map1[32] = { // CC_Map1 [Active_Strip_Set] [CC to remap to Map0]
    // 1st Row Horizontal // 2nd Row Horizontal // 3rd Row Horizontal // 4th Row Horizontal
    { 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, 32, // Channel-Strip-Set1 (Filter)
      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, 32, // Channel-Strip-Set2 (Filter)
      15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 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, 32, // Channel-Strip-Set2 (Decay)
      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, 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, 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, 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, 32, //not used
    }
    // CC_Map1[0]=1 = show CC_Map0[1] = Synth-CC:56 = ClickLevel-CC
    // to get: CC_Map0[0-7] CC_Map1[0-7] = 56CC-Nr. = ClickGain CC_Map0[8-15] CC_Map1[8-15] = 56CC-Nr. = Bal in the End: CC_Map0[10-7] CC_Map1[Active_Strip_Set][0-31] = ...CC-Nr.
    // to get: CC_Map0[8-7] CC_Map1[10-7] = 15CC-Nr. = N.File CC_Map0[16-15] CC_Map1[10-15] = 17CC-Nr. = N.Bes For Value: beat[0], CC_Start[32]
    // to get: CC_Map0[8-7] CC_Map1[20-7] = 21CC-Nr. = N.Decay CC_Map0[16-7] CC_Map1[20-15] = 47CC-Nr. = TimDec beat[0-7], CC_Start, CC_Map1[Active_Strip_Set][0-31]
    // to get: CC_Map0[8-7] CC_Map1[20-7] = 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 8×32 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:

<http://www.midibox.org/dokuwiki/> - **MIDIbox**

Permanent link:

<http://www.midibox.org/dokuwiki/doku.php?id=msq-cc-lre&rev=1526062989>

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