

# MSQ-CC-LRE V2

MotionSeQuencer for ControlChanges

for 2xLRE8x2 Boards

for 1x LRE5-LCD2 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** vie 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 simular 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 hardcoded 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:

- 1x [core32](#)
- 1x [LRE5-LCD2](#)
- 2x [mb-lre8x2cs\\_pcb](#)
- 8x [LRE-OLED-Bar](#) AND 2x Frontpanel for Eurorack
- 17x SSD1306 OLED Screens (smalles variant, 7 Pin)
- 1x DINX4
- 1x [1xMidi IO](#) or 1x [Euro-Midi-IO](#)
- SD-Card, formated with FAT32
- Soldering Iron, Wires, PCB....
- USB Power Supply

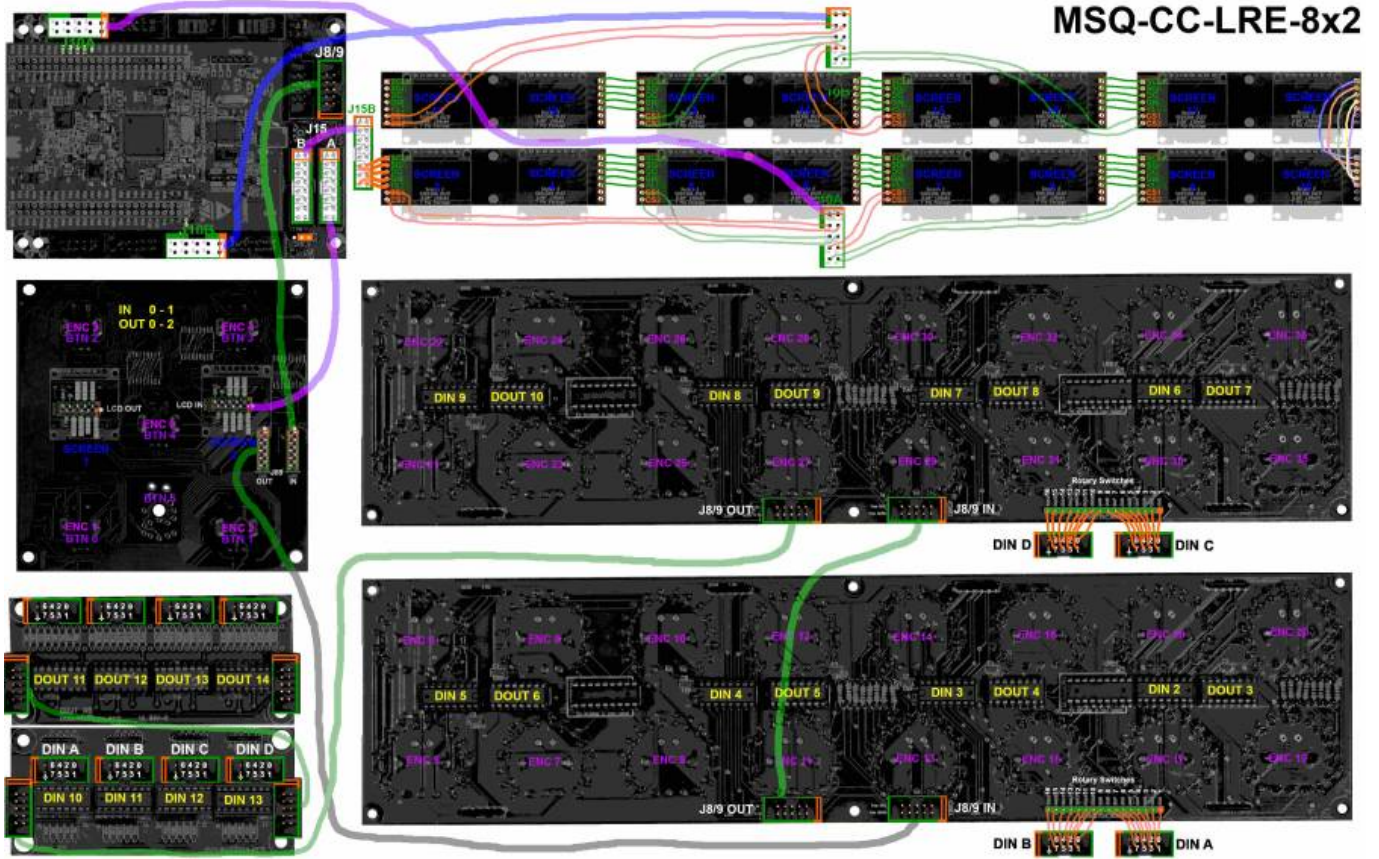
## Setting

### Cabeling MIDI

MidiIO PortB Out »> Synth Midi IN

MidiIO PortB In »> Clock+Notes

### Cabeling Modules



### Frontpanels

### MBHP

# Software

## Firmware

V1. from 9.05.2018 [msq\\_cc\\_lre\\_v0.norddrum2.zip](http://msq_cc_lre_v0.norddrum2.zip)

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

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

```
// 4 CC Mode = 0: = In Synthesizer [Internal CC Nr] = value of external CC =
const ul CC_Map0[128] = { // CC_Map [Part] [Route/Source] = Value of Synth/Destination
// CC-an-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 // 32
// 1st Row Horizontal // 2nd Row Horizontal // 3rd Row Horizontal // 4th Row Horizontal
1 57 56 34 23 26 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 MudiCh 7
1 57 56 34 23 26 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 MudiCh 8
1 57 56 34 23 26 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 MudiCh 9
1 57 56 34 23 26 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 MudiCh 10
1 57 56 34 23 26 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 MudiCh 11
1 57 56 34 23 26 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 MudiCh 12
1 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 // not in Use
1 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 // 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: = 8x Channelstrip
const ul CC_Map1[320] = { // CC_Map [Active_Strip_Set] [CC to rmap to Map0]
// 1st Row Horizontal // 2nd Row Horizontal // 3rd Row Horizontal // 4th Row Horizontal
1 1 1 1 1 1 1 1 32 32 20 20 20 20 20 20 32 32 3 3 3 3 3 3 32 32 // 4th Row Horizontal
4 4 4 4 4 4 4 4 32 32 25 25 25 25 25 25 32 32 3 // 5 5 5 5 5 5 5 5 32 32 3 // Channel-Strip-Set2 (Filter)
15 15 15 15 15 15 15 15 32 32 19 19 19 19 19 19 32 32 24 24 24 24 24 24 32 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 // 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 // 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 // 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 // not used
}
// CC_Map1[0-1] = show CC_Map0[x] = Synth-CC-56 = ClickLevel-CC
// to get: CC_Map0[0-7] CC_Map1[0-7] = 58CC-Nr. = ClickGais CC_Map0[8-15] CC_Map1[8-15] = 58CC-Nr. = Bal
// to get: CC_Map0[16-23] CC_Map1[16-23] = 13CC-Nr. = N.File CC_Map0[24-31] CC_Map1[24-31] = 13CC-Nr. = N.Res For Value: beat[0], CC_Straw[32]
// to get: CC_Map0[32-39] CC_Map1[32-39] = 21CC-Nr. = N.Decay CC_Map0[40-47] CC_Map1[40-47] = 47CC-Nr. = Tindoc beat[0-7], CC_Straw[32]
// to get: CC_Map0[48-55] CC_Map1[48-55] = 255CC-Nr. = Nothing-will be filtered out = blank out LEARNING
```

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

Since we have 18 Screens, write the code for it - special the labeling > Sys

Make a System Menue to set CC NRs on the fly...

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

Permanent link:

<http://midibox.org/dokuwiki/doku.php?id=msq-cc-lre-v2&rev=1643334031>

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