

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)

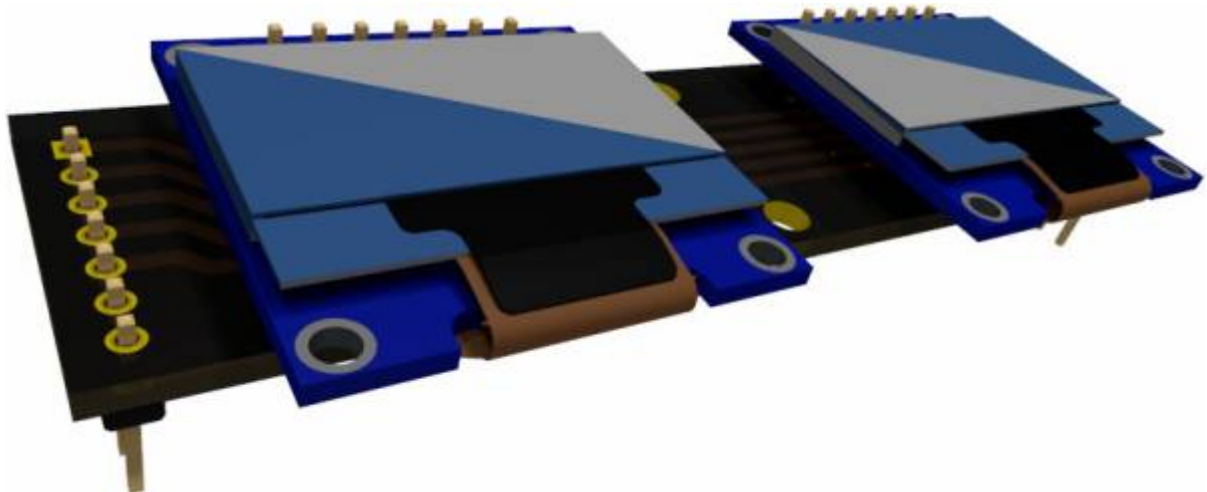
- Melody/Clock Source with ProgramChange-Output: [midibox_seq_v4l](#) oops that dont do PC...
- Melody/Clock Destination: NordDrum 2

Midibox:

- 1x [core32](#)



- 1x [LRE5-LCD2](#)
- 2x [mb-lre8x2cs_pcb](#)
- 8x [LRE-OLED-Bar](#)



- 17x SSD1306 OLED Screens (smalles variant, 7 Pin)
- 1x DINX4
- 1x 1xMidi IO or 1x Euro-Midi-IO
- SD-Card, formatted with FAT32
- Soldering Iron, Wires, PCB....
- USB Power Supply

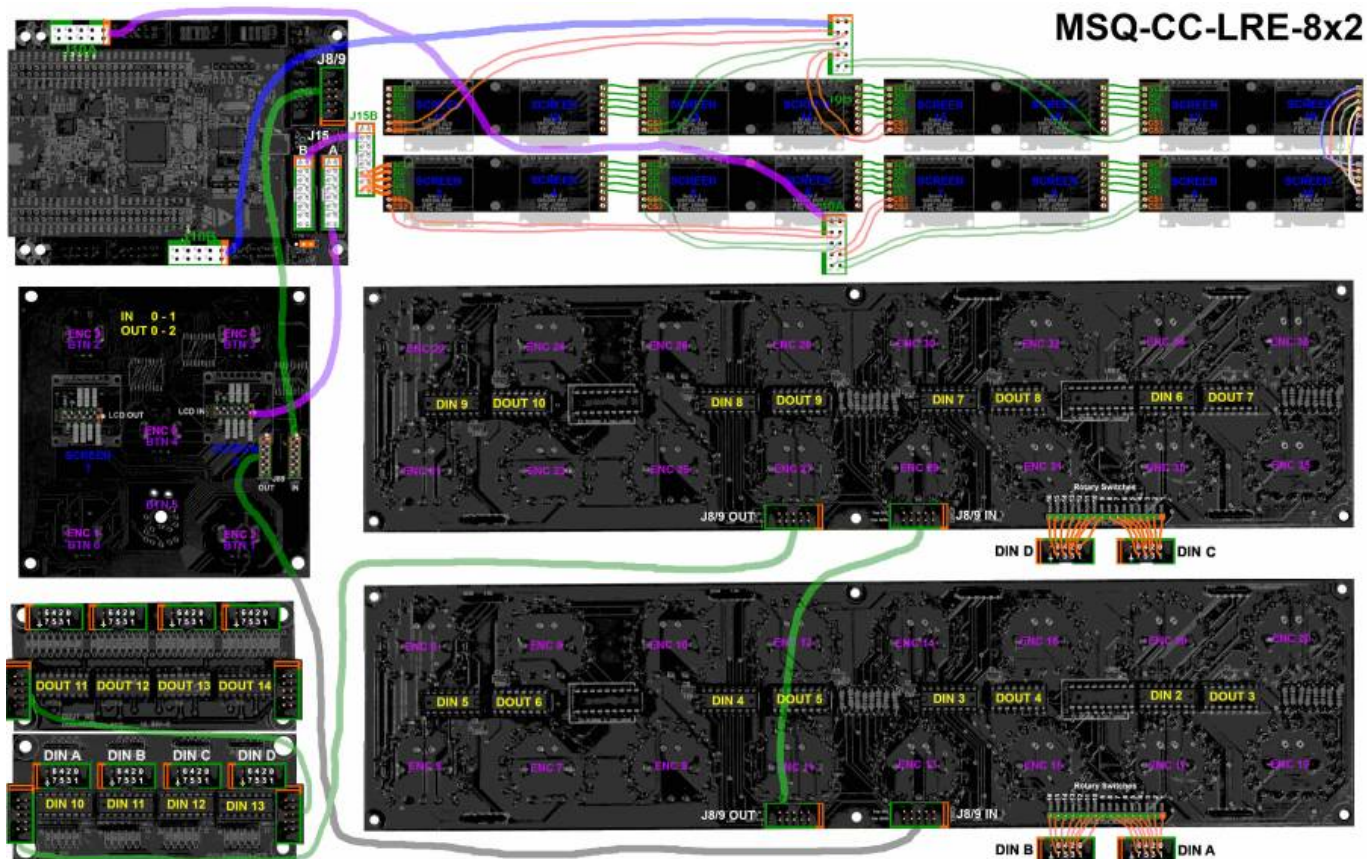
Setting

Cabeling MIDI

MidiiO PortB Out >> Synth Midi IN

MidiiO PortB In >> Clock+Notes

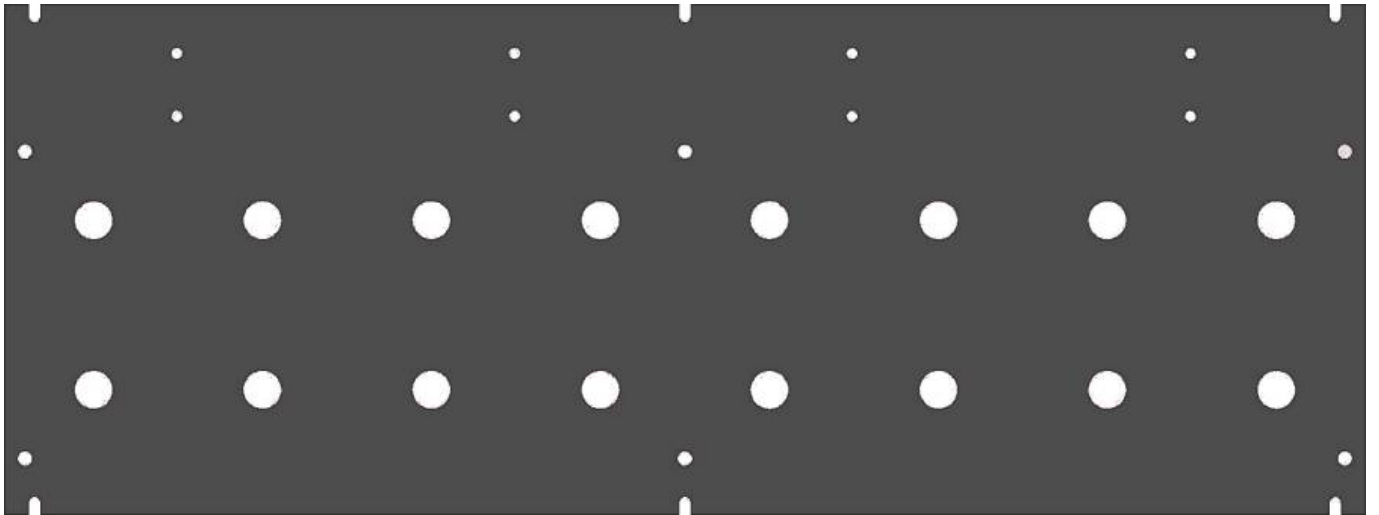
Cabeling Modules



Frontpanels

MBHP

see [LRE-OLED-Bar](#)



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
const u8 CC_Map0[132] = { // CC_Map0 [Part] [Internal CC Nr] = value of external CC =>
// CC_Map0 [Midichannel] [Remote/Source] = Value of Synth/Destination
// 1st Row Horizontal (top-row) // 2nd Row Horizontal // 3rd Row Horizontal // 4th Row Horizontal
// 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 // Nord Drum 2 Voice 1 MidiCh 7
[ 57 56 54 53 52 51 50 7 55 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 54 53 52 51 50 7 55 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 54 53 52 51 50 7 55 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 54 53 52 51 50 7 55 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 54 53 52 51 50 7 55 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
[ 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255] //not in Use
[ 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255] //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 = 8x Channelstrip
const u8 CC_Map1[132] = { // CC_Map1 [Active_Strip_Set] [CC to rmap to Map]
// 1st Row Horizontal // 2nd Row Horizontal // 3rd Row Horizontal // 4th Row Horizontal
[ 1 1 1 1 1 1 32 32 28 28 28 28 28 28 30 32 3 3 3 3 3 3 32 32 7 7 7 7 7 7 32 32 ] // Channel-Strip-Set1 (Mixer)
[ 8 8 8 8 8 8 32 32 15 15 15 15 15 15 32 32 4 4 4 4 4 4 32 32 25 25 25 25 25 25 32 32 ] // Channel-Strip-Set2 (Filter)
[ 32 32 32 32 32 32 32 32 30 32 32 32 32 32 32 32 34 34 34 34 34 34 32 32 32 32 32 32 32 32 ] // Channel-Strip-Set3 (Decay)
[ 32 32 32 32 32 32 32 32 30 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 30 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 30 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 30 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_Map1[1] = Synth-CC:56 = ClickLevel-CC
// to get: CC_Map0[0-7] CC_Map1[0-7] = 56CC-Nr. = ClickGain CC_Map0[8-7] CC_Map1[8-15] = 58CC-Nr. = Bal
// to get: CC_Map0[8-7] CC_Map1[1][0-7] = 15CC-Nr. = N.Filter CC_Map0[8-7] CC_Map1[1][8-15] = 17CC-Nr. = N.Rez For Value: beat[0].CC_Store[12]
// to get: CC_Map0[8-7] CC_Map1[2][0-7] = 21CC-Nr. = N.Decay CC_Map0[8-7] CC_Map1[2][8-15] = 47CC-Nr. = Timbre beat[0-7].CC_Store[CC_Map1[Active_Strip_Set][0-32] ]
// to get: CC_Map0[8-7] CC_Map1[3][0-7] = 25CC-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

Since we have 18 Screens, write the code for it - special the labeling > Sys
Make a System Menu 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 included in the firmware .zip!!!

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