

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 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](#)

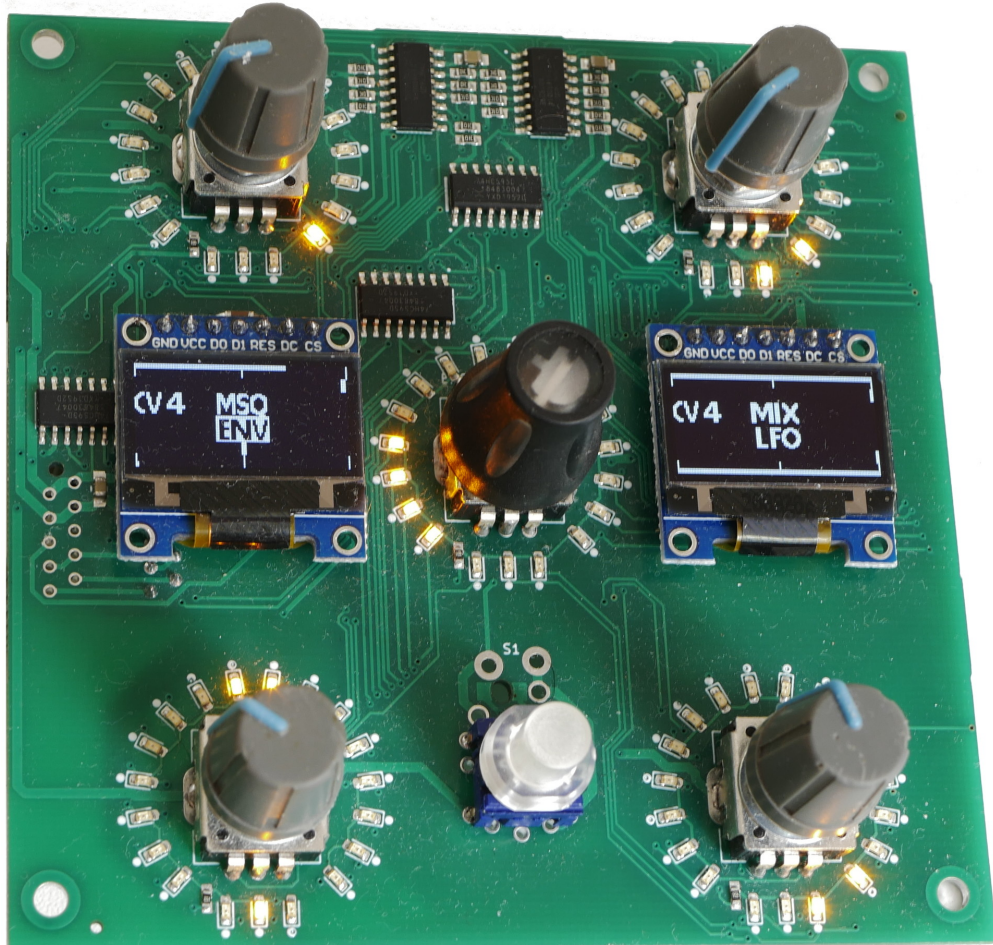
Hardware Requirements

External Requirement:(for example)

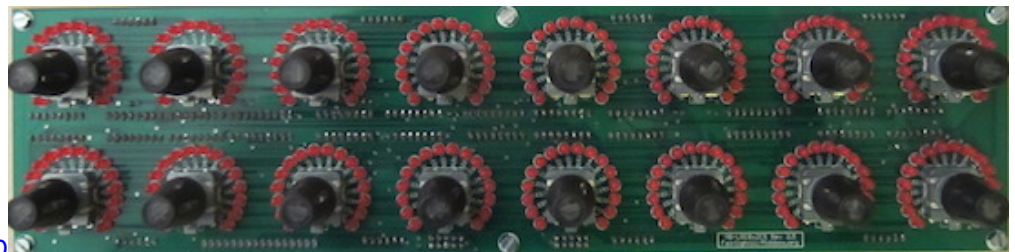
- Melody/Clock Source with ProgramChange-Output: [midibox_seq_v4l](#) oops that dont do PC...
- Melody/Clock Destination: NordDrum 2

Midibox:

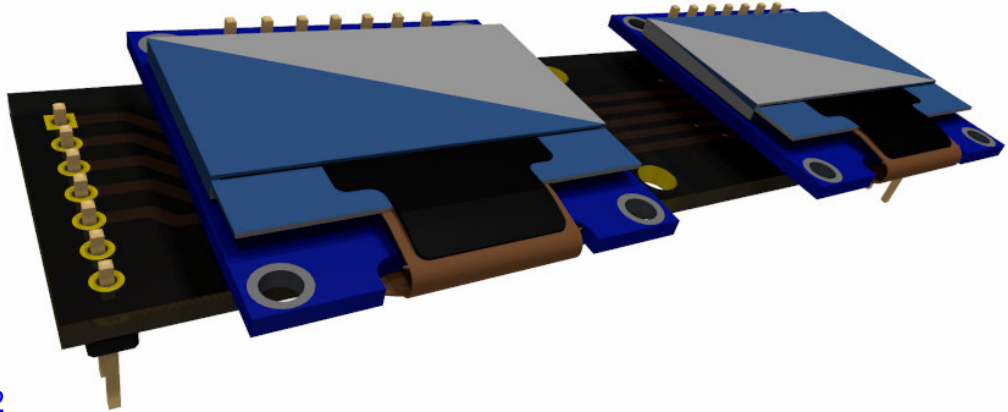
- 1x [core32](#)



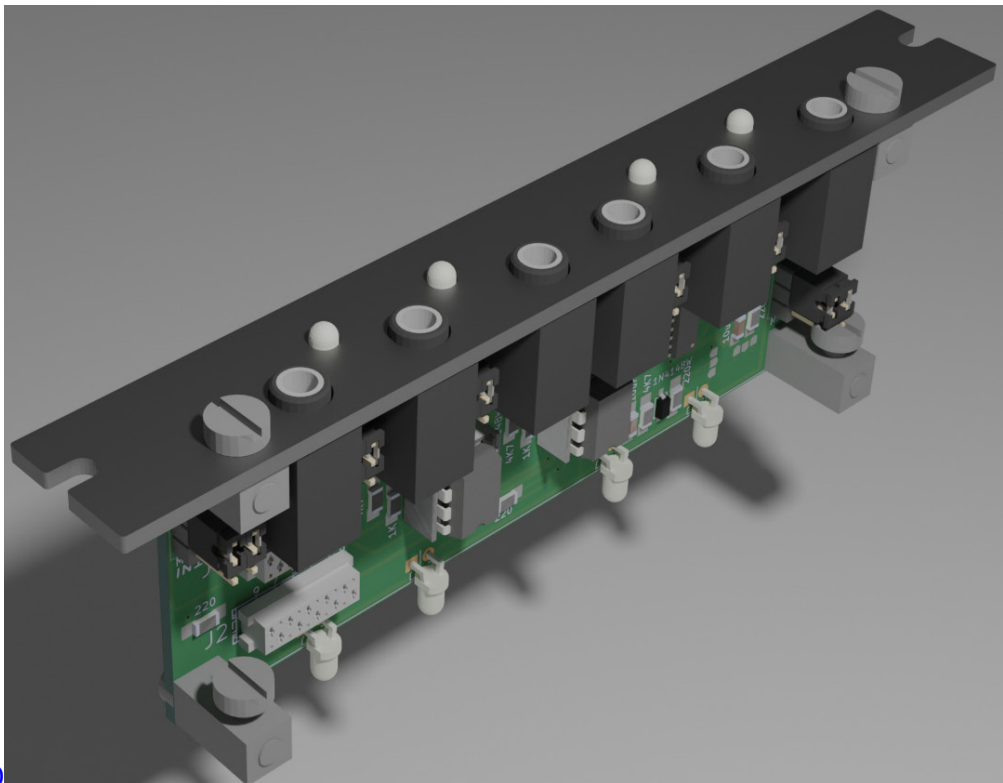
- 1x [LRE5-LCD2](#)



- 2x [mb-lre8x2cs_pcb](#)



- 8x [Ire-oled-bar2](#)
- 17x SSD1306 OLED Screens (smalles variant, 7 Pin)
- 1x [displaydriver-smd](#)
- 1x DINX4



- 1x [Euro-Midi-IO](#)
- SD-Card, formatted with FAT32
- Soldering Iron, Wires, PCB....
- USB Power Supply

Setting

Cabeling MIDI

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

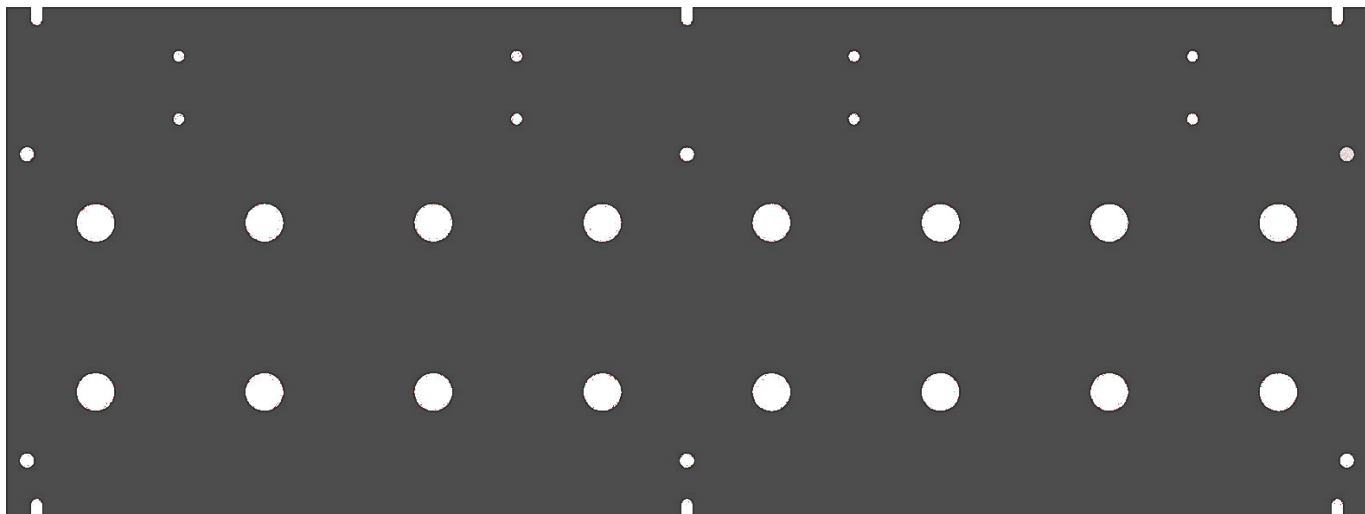
Cabeling Modules



Frontpanels

MBHP

see [LRE-OLED-Bar2](#)



Software

Firmware

V2. from x.02.2022msq_cc_lre_v2.norddrum2.zip - published when finished

Initialized for a NordDrum2 - but change-able in Mapping via a Array in Sourcecode or via System-Menue:

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: = 1x Syntheditor
const u8 CC_Map0[8][32] = { // CC_Map0 [Part] [Internal CC Nr] = value of external CC >>
// CC-on-LRE: // 1st Row Horizontal (top-row) // 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, 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 Midich 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 Midich 8
{ 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 3 Midich 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 Midich 10
{ 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 5 Midich 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 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}, //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}, //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[8][32] = { //CC_Map1 [Active_Strip_Set] [CC to renap to Map0]
// 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, 32, 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, 9, 9, 9, 9, 9, 9, 32, 32, 4, 4, 4, 4, 4, 4, 32, 32, 5, 5, 5, 5, 5, 5, 32, 32 }, // Channel-Strip-Set2 (Filter)
{ 15, 15, 15, 15, 15, 15, 32, 32, 19, 19, 19, 19, 19, 19, 32, 32, 24, 24, 24, 24, 24, 24, 32, 32, 25, 25, 25, 25, 25, 25, 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, 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][0]=1 > shows CC_Map0[x][1] = Synth-CC:56 = ClickLevel-CC
// to get: CC_Map0[0-7][ CC_Map1[0][0-7] ] = 56CC-Nr.= ClickGain CC_Map0[0-7][ CC_Map1[0][8-15] ] = 58CC-Nr. = Bal in the End: CC_Map0[0-7][ CC_Map1[Active_Strip_Set][0-32] ] = ..CC-Nr.
// to get: CC_Map0[0-7][ CC_Map1[1][0-7] ] = 15CC-Nr.= N.Filt CC_Map0[0-7][ CC_Map1[1][8-15] ] = 17CC-Nr.= N.Res For Value: beat[0].CC_Store[32]
// to get: CC_Map0[0-7][ CC_Map1[2][0-7] ] = 21CC-Nr.= N.Decay CC_Map0[0-7][ CC_Map1[2][8-15] ] = 47CC-Nr.= TimDec beat[0-7].CC_Store[ CC_Map1[Active_Strip_Set][0-32] ]
// to get: CC_Map0[0-7][ 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

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** = Hardware, Programming, Documentation...

From:

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

Permanent link:

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

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