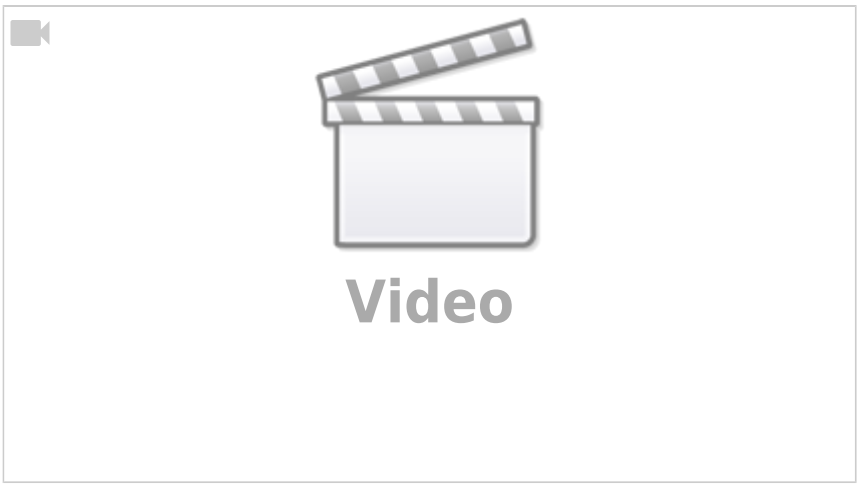
# MSQ-CC-BCR

MotionSeQuencer for ControlChanges for BCR2000 by wireing it to MBHP Synth-Patch-Editor & Motion-Sequencer 4 ControlChange (= CC-Automation)

(Feature Set)





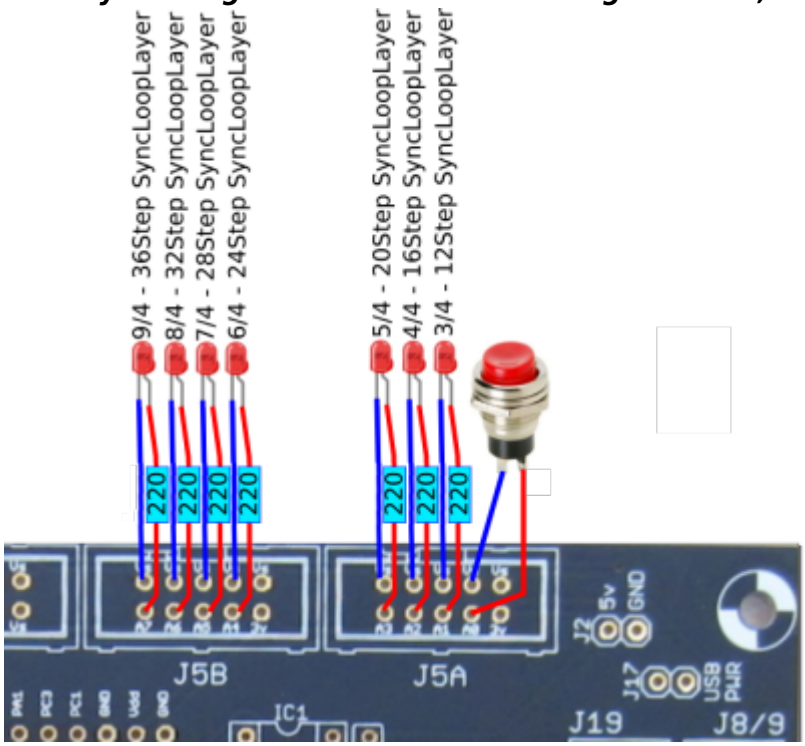

# Introduction

i have the need to control and automate my Nord Drum2 NORD DRUM 2
So i connect a BlackBox between Sequencer & Synthesizers...
This Box is called MSQ_CC_BCR: **M**otion **S**equencer for Midi**C**ontrol**C**hange controlled via a **BCR**2000 Midicontroller

**It acts as:**
- **Midi Merger** NTE,CLK,PC merge with CC... & CCinput is a thing between MSQ_CC_BCR and BCR only since we have intelligent UI with Pages..
- **Patch Manager** it replaces the Synths internal Patch Storage, to even get more, because, each PC event from your Sequencer is multiplied by the BANK CC (CC 32)...
- **Motion Sequencer** Record your Controller Movements in a Sequence in 32th Resultion @ maximal 256 Steps length
64th is possible, just a Factor in the code, but it will also reduce the max.Step length to 128 steps, also the midi traffic will go HI! imagine you automate 8*32=256CCs, and dump that @64th into your synth, over midi... ;)... but in cases like: drumcomputers, where a much things must be static to provide the percussive punching sound - there are normally not that much automations... so maybe for a drummachine 64th is a good yoice, but in my experience with a nord drum 2 (for which i have written the programm) in my expirience 64th is to high..... how ever i get lost in detail... ==== *Features ==== - **Remote your Synths** by: 8x Midichannels with up to 32x Control Change (CC)*
*For the BCR i only can provide 8×29, because i need some controlls to control the MB Program itself...*
- ***Save the Patches** - and dump it the 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..***
***-** Record CC-Motion-Sequences **use a footpedal connected to FSW1 on the backside of the BCR, to ARM/Disarm it… so you can tweedle 2 ore more CC @ once… but you dont have to, BCR-onboard is also a Button for it***
***-** PLAY Motions-Sequences, **up to 256 steps @ 32th rate… this steps of course are only right when you have choosen 4/4 in your Patch… elswhere of course will differ a bit…but 256 is max.***
***-** VELOCITY MORPH **Add Velocity-Ammount to CCs***
***-** MERGE incoming Midi-Notes/Clock/Pitchbend with Automated CCs**.***
***-** Set Sequencer Beatstructure **» how to interprete Clock-ticks (4/4, 5/4, 6/4, 7/4…)***
***- A** 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 2 MSQ_CC_BCR Tracks(booth set to MidiChannel 0, to get 64CCs instead of 32), then the Global Page: have the abillity 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 currently in the CODE itself (recompile***
***- Many of this features, especially the*** *System Settings would need a UI*, ***but that would it make bigger, more expensiv, and maybe more complex to use… &*** *this case is UI-less* ***- it is set once, for one multipart-synth+bcr2000, MSQ_CC_BCR 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 (1000Patches+3000 Variants) useless, so once done, it is a black box loadet via***

***Programchange! … it is not that i cant program a good UI*** 😉 ***, minimal is better here, there will be other MSQ outthere, be prebered for the MSQ_CC_2xLRE & MSQ_CC_ELO ====== 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***
**** Midicontroller: 1x BCR2000*** *Midibox:*
**** core32***
**** 1xMidi IO connect 1 midicontroller and 1 Note/Clock-Source/Destination***
**** SD-Card, formated 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!***
*Visual Feedback directly from MBHP* **** a Momentary Switch Connected to J5A Pin0 * 7 LEDs in serial with 220Ohm each to GND connected to J5A Pin1-3 and J5B Pin0-4 The LEDs show via Gestic (Patterns) if something is wrong, done, busy, & show the Rythm structure: The Switch switches as Radio-Button thru the Rythm Structures (4/4, 5/4…), the LED-Indicating this. By Holding the Switch and Powering the Core, it will Dump Out a Sysex Template to your BCR.***



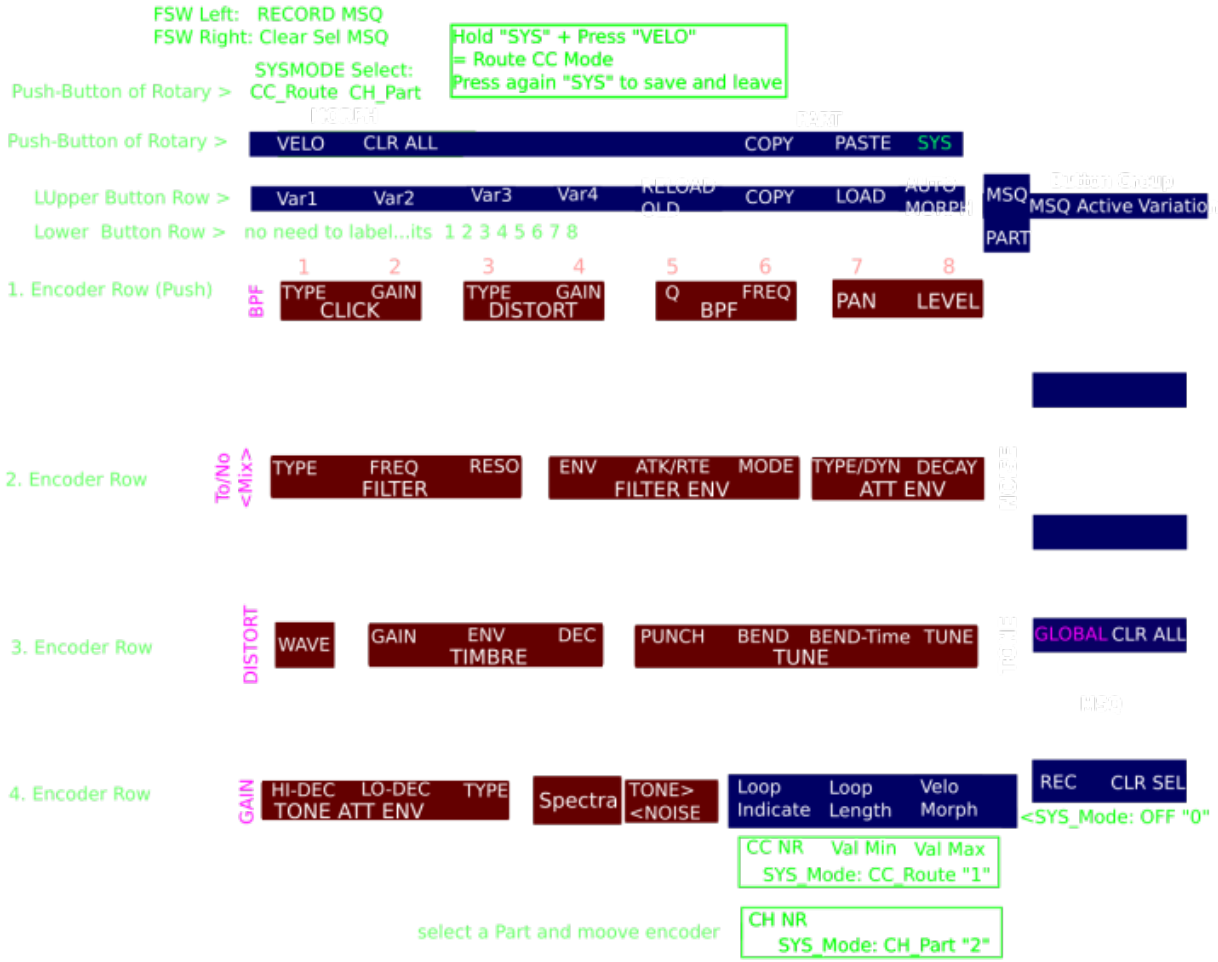





***==== Why BCR2000 ==== because I have 3 of them but they are to old dirty, damaged… i cant get a good price for it, so better hold it and make something with it.***
***==== Setting up a BCR2000 ==== == Cabeling == MidiIO PortA Out »> BCR Midi IN AFTER Uploading the Sysex, and restarting the BCR connect:***

***MidiIO PortA In »> BCR Midi OUT A***

***== Upload the Sysex-Template == 1. unpack bcr1.syx.zip and put “bcr1.syx” on a SD-Card (root level)***
***2. Put SD-Card into CORE32***
***3. bridge J5A Pin0 to ground, or connect a switch to it, that you will need if you want to sequence other song structures then 4/4 (which is default)!***
***4. Power the core up.***
***…if the filestructure (patches) are already existent…then it takes less then half a minute to dump the BCR-2000 Layout Data…***
***You dont have to save the preset, it will make it automatic***
***…when no filestructure… then it will take about 16minutes… the core has to make 4000Patches*32KB=139MB!!!!… so better:***
**** Faking a filestructure: make a empty folder “mq” and put it on SD-Card, make the syx.dump, make your first simple standart patch, the sound you will start with…to the next 1000 Patches ;) so choose carefully, young jedi… then remove the Card, earse the “mq” folder on the card, and put it into the core again, now it will copy your “standart patch” to 4000 others***
***==== Frontpanels ==== === BCR2000 Stickers === The Blue Elements are the MBHP Remotes… the Rest is for the Synth***




***UNTESTET, NOT SCALED!!!!***
***In Order to better understand the Routing of the Internal CCs to externals:***

## Deep Edit Mapping

**PART 1-6 Nord Drum2**

| | Click | | Distortion | | BPF | | Attenuator | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| MASTER | Type | Gain | Type | Gain | Q | Freq | Pan | Level | Group | |
| | 57 | 56 | 24 | 23 | 26 | 25 | 10 | 7 | Label | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | CC-Nr-Synth | 255: „not used“ |
| | 127 | 127 | 127 | 127 | 127 | 127 | 127 | 127 | Min Value | |
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Max Value | |
| | | | | | | | | | CC-Nr-BCR | |

| | Filter | | | Filter Envelope | | | ATT-ENV | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NOISE | Type | Q | Frequence | ENV | ATK/RTE | MODE | TYP/DYN | DECAY | Group | |
| | 15 | 17 | 14 | 16 | 18 | 19 | 20 | 21 oder 22? | Label | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | CC-Nr-Synth | 255: „not used“ |
| | 127 | 127 | 127 | 127 | 127 | 127 | 127 | 127 | Min Value | |
| | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Max Value | |
| | | | | | | | | | CC-Nr-BCR | |

| | | TIMBRE | | | TUNE | | | | |
|---|---|---|---|---|---|---|---|---|---|
| TONE | WAVE | Gain | ENV | Decay | Punch | Bend | Bend Time | Tune | Group | |
| | 46 | 52 | 53 | 47 | 48 | 54 | 55 | 12?7 | Label | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | LSB61 | CC-Nr-Synth | 255: „not used“ |
| | 127 | 127 | 127 | 127 | 127 | 127 | 127 | MSB31 | Min Value | |
| | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Max Value | |
| | | | | | | | | | CC-Nr-BCR | |

| | TONE ATT ENV TONE | | | TONE | <MIX> | Motion Sequencer | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| TONE & MIX | HI-Decay | LO-Decay | Decay Type | Spectra | Tone/Noise | Indicator | Length | Morph | Group | |
| | 50 | 51 | 49 | 30 | 58 | 255 | 255 | 255 | Label | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | CC-Nr-Synth | 255: „not used“ |
| | 127 | 127 | 127 | 127 | 127 | 127 | 127 | 127 | Min Value | |
| | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | Max Value | |
| | | | | | | | | | CC-Nr-BCR | |

## Channel Strip Mapping

each Vertical Row can be thougt copied 8 times per Map, i just wrote them on one Sheet to see what each Map can do

**Channel Strip 1 - Mixer**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Click | Noise Filter | Noise | | | | | | Group | |
| Gain | Q | LO-Decay | | | | | | Label | |
| 1 | 8 | 15 | | | | 255 | 255 | Re-Map | 255: „not used“ |
| 0 | 1 | 10 | 3 | 4 | 5 | 6 | 7 | CC-Nr-BCR | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| <MIX> | Noise Filter | Timbre | | | | | | Group | |
| Noise/Tone | Frequence | LO-Decay | | | | | | Label | |
| 28 | 9 | 19 | | | | 255 | 255 | Re-Map | 255: „not used“ |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | CC-Nr-BCR | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Distortion | BPF | Tone | | | | | | Group | |
| Gain | Q | HI-Decay | | | | | | Label | |
| 3 | 4 | 24 | | | | 255 | 255 | Re-Map | 255: „not used“ |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | CC-Nr-BCR | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Attenuator | BPF | TONE | | | | | | Group | |
| Level | Freq | LO-Decay | | | | | | Label | |
| 7 | 5 | 25 | | | | 255 | 255 | Re-Map | 255: „not used“ |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | CC-Nr-BCR | |

==== MBHP ==== ====== Software ====== ===== Firmware ==== V1. from 17.02.2018msq_cc_bcr_v1.norddrum2.zip hardcodet for a NordDrum2 (also newest sysex for the BCR includet) ===== CC Routing to Synths ===== MSQ_CC_BCR 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. this array could be saved and loadet from SD-Card aka “SYS settings”, and this array could be editet by a simple editor... Fix Me! i dont have a glue about this, nor time no interest in doing this... but the format of this setting is very simple, the file starts with (converted from hex) mq04 and then the Routing array starts [32][127] for those how know how to program a simple interface for it? ===== To Do ===== Nothing it is done! maybe scale min max values for CCs »> 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 ===== BCR-Manual
BCR-SYSEX-GUIDE
TOKEN-Reference

BC-Convert Convert SYX into Textfile to Edit and reverse... better then every BCR Editor! But Windows only... i run a oracle virtualbox with a VM-W7 under Linux, with a shared folder ====== 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!!!

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