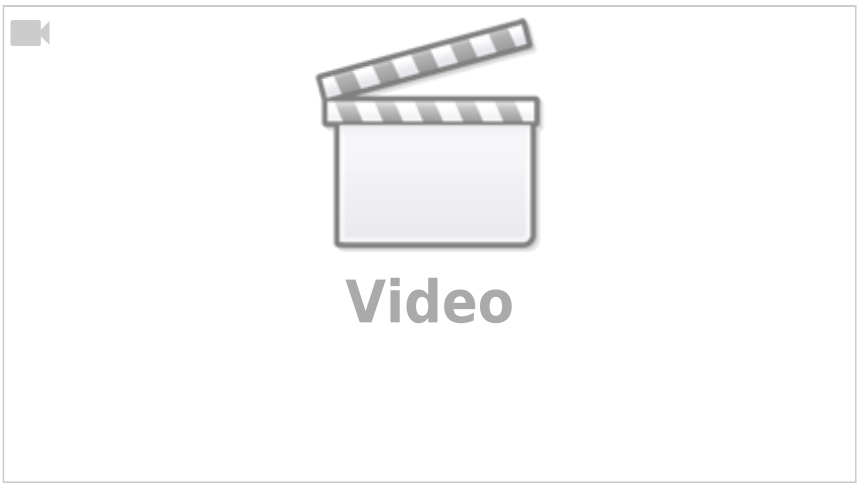
MSQ-CC-BCR

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

WARNING currently under heavy DEVELOPING ... i set the basics for the future of the device...(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 4... in each Program you have 4 Variants, and you can morph between them, to get smooth transition between them
- **Motion Sequencer** Record your Controller Movements in a Sequence in 32th Resultion @ maximal 128 Steps length
64th is possible, just a Factor in the code, but it will also reduce the max.Step length to 64 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 view 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... 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
- **Save 4xSnapshots per PROGRAM (=Song) && Morph between them** (exclusive MotionSequence!)
Morph between Snapshots: when Morph is activated, you are somewhere in between 2 Patches... so you have to save the patch to one of the other (2others, when morph between 2 = 4) in order to store the current “cool state” »> whole thing has to implemented... searching for a faster code
- 

want help for a FAST Code: Morph between ACTUAL & NEXT PATCH (via Morph Rotary)
- **Load Patches via received Program Change**

- **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, which is 128Steps @ normal 16th, this rate can changed in code only, and 256 is maximum... 512 make a RAM-Issue (8x32x512 + the rest of all variables...)!...\\so if you want 64th CC-Smoothness your Motionsequencer has only 64steps length then, 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...)
- 🔧 Fix Me! Need help for a FAST Code: **scale min max values for CCs** (synths have CCs which value are between 0-3 instead of 0-127)
- 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... in **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 😉

Hardware Requirements

External Requirement:(for example)

- Melody/Clock Source with ProgramChange-Output: midibox_seq_v4l oops that dont do PC...
- Melody/Clock Destination: Waldorf Pulse, NordDrum 2, anything which can handle CC
- Midicontroller: 1x BCR2000, or any other with LEDRing & Encoder.

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!

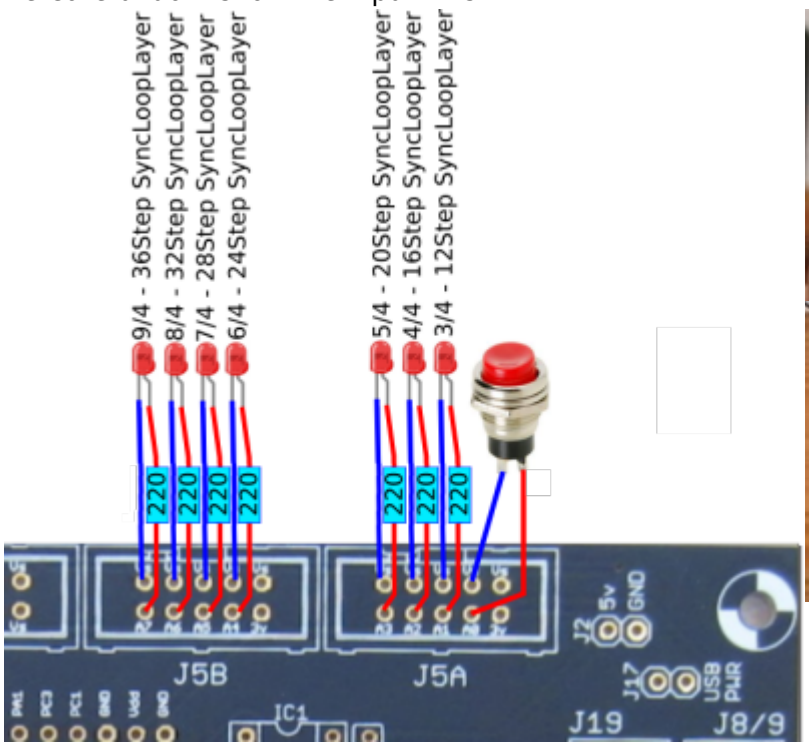
Visual Feedback directly from MBHP

- 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.

Be Careful dont short the Input Pins!





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

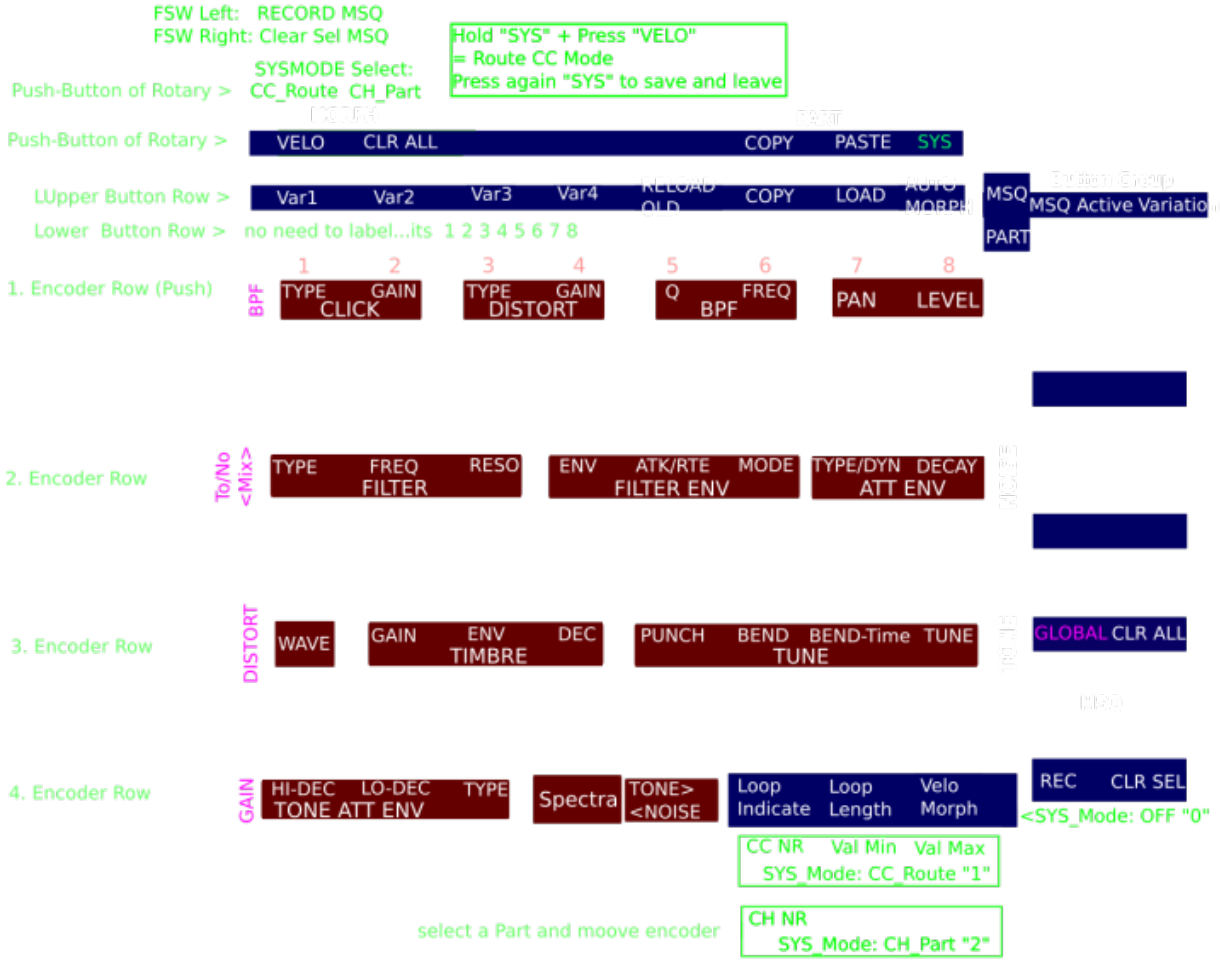
1. unpack bcr1.syx.zip and put “bcr1.syx” on a SD-Card (root level)
2. Put SD-Card into CORE32
3. bridge J5A Pin0 to ground, or connect a switch to it, that you will need if you want to sequence other song structures then 4/4 (which is default)!
4. Power the core up.
…if the filestructure (patches) are 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			
Type	Gain	Type	Gain	Q	Freq	Pan	Level	MASTER	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		
Type	Q	Frequence	ENV	ATK/RTE	MODE	TYP/DYN	DECAY	NOISE	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				
WAVE	Gain	ENV	Decay	Punch	Bend	Bend Time	Tune	TONE	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			
HI-Decay	LO-Decay	Decay Type	Spectra	Tone/Noise	Indicator	Length	Morph	TONE & MIX	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

V1.2016msq-cc-bcr.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… 

i dont have a glue about 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

getting Access to the 7segment Display on the BCR2000
needet for to see the actual Preset (0-999), the Machine is built to PC via Midi, but what when you want to copy a whole patch! to a other

scale min max values for CCs (for example different synths have only 0-3value instead of 0-127, by different functions like WAVEFORM…) - should also a part of the editor

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

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