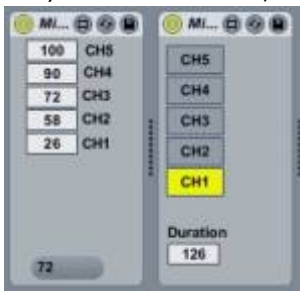


# TriggerMatrix V0

The Idea from Retriggering Melodys and Drums from a more or less static drum-sequence, goes (for me) back into 2010, where i realized it via Max4Live:



in abletons drumtrack, i placed the SENDER, it triggered via CC the RECEIVERS, the Receivers directly where feedet with Midi-Melodys in there Parent-Track, a basic ReTrigger

[Max4Live-Device](#)

2012 i kicked Ableton, and made a standalone MAX-MSP Groovebox with Triggermatrix as Core-Feature:



[Video-GruftBox-in-use](#)

then comes the 8bit Prototype, built in a Techstar made it a TEKKSTAR, but also there it was soon replaced with a 32Bit Core,



[Tekkstar in use](#)

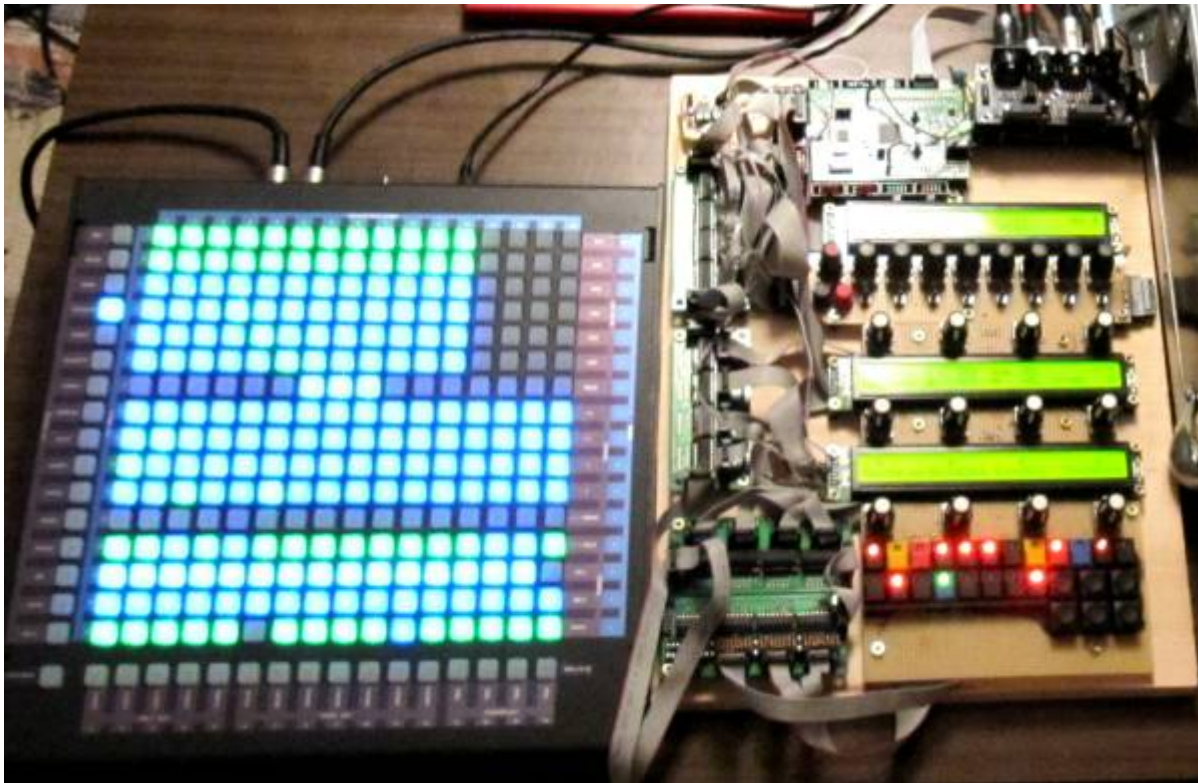
it was a 8x8 LED-Matrix, with 2x8 Buttons, on Breadboard



a other 32bit Variante built in on the Upper-Manual in Crumar 198, UI-controlled via a BCR2000  
[Video-Crumar-In-Use](#)

# TriggerMatrix V1

32 Bit PROTOTYPE



## TriggerMatrix V2

not supported any more, it has timing issues, use the way more lightweight V3!



## What is Triggermatrix ?

a quick but not full view into triggermatrix and sequencing (german-austrian)

[Triggermatrix Teaching](#)

[Triggermatrix-basics](#)

[Echtzeit Musik](#)

## Teaser

You have spend time to program a cool rythm, and you already know which chords/melodys you want to play, and now its time to programm the timing/steps/the rythm in the melody... after quite a while of trying and looking on your drumline you have a fitting melody line for your drums...

now you change the drums a bit... o no i also have to change the melody now... i make a break, a intro...oh no so much work and time...and all because, the melody is fixed in arrangement,

you want a melody line that goes with beat? you want to change the beat note stream also (noteprocessing)? > read more... i have a tool for you!!! it will change your way doing LIVE! get ready for JAM!

## Features

### Short spoken:

- 16xdrumtriggers > Trigger-Routing-Matrix > Drum-Syntesizers
- Melody-lines > Trigger-Routing-Matrix > Melody-Syntesizers

### Rules:

- Drum-Trigger are Velocity Master > we dont care about the velocity of the Melodys
- There are Songs (ProgramChange), each Song has 16 different Trigger-Routings Presets> these are the Song-Parts
- 512 Songs saved on SD-Card, and Load-able while playing
- 512 System-Settings(Setups) saved on SD-Card...i use only one of it
- Triggermatrix midi-outs are connected to all synths, so it manage the program-change also
- 16x Trigger-OUTs with fixed Notes, on one midichannel - to connect Drum-Synths, Drum-Samplers
- 6x Polyphonic Melody-Retrigger-OUTs on 6 MidiChannels - to connect MelodySynths to it
- 12x Monophonic Melody-Retrigger-OUTs on 12 MidiChannels - to connect Monophonic Synths like pitchable Drums or Bass-Synths
- All 16 Trigger & ReTrigger-OUTs share the same Routing and Channelstrip UI (Mute, Solo, Roll...)
- Trigger, Poly, Mono-OUTs can be controlled seperatly by > **Random-Kill & Velocity-OFFSet**
- 6x Melody-Input-Matrix - Route & Mix Melody Inputs to the 16 Melody-Retrigger-Outs (saved in Song)
- 16x Melody-Input-Matrix-Hold-Buttons - hold the last Note, save it in the Patch - usefull when pitch drums.

V1: the Matrix has also a Trigger-Sequencer built in, the Melodys have to come from anywhere else, but @ the end, they have to be plugged into the matrix...

### Trigger-sequencer, a few facts:

- is a Drum-Step-Sequencer
- 256 Steps in total
- minimal LoopSection is 16steps = 1 Page, there are 16 pages to chain
- intro LoopSection, from step 0 until to the "minimal LoopSection"- is played once, then it loops

the normal LoopSection

- The sequencer is made to give a static NoteStream, the Song-Structure is done by the TriggerMatrix
- Full Velocity control, visible with 3 different colours, each colour-Vel is set with its own CC
- Free programmable Swing to each Step, with 2 different swing Length-sets, which are controlled live via CC
- copy, paste, erase of pages
- copy, paste, erase of rows
- forward, backward, fw><bw - play direction
- Not only 4/4 are possible, all other things like 5/4 are possible! +++

## Generic Interface

Generic in sense of: PCBs that already out there:

- [Wilba SEQ CS](#)
- [BLM16x16x](#)
- [LRE8x2CS\\_PCB](#)
- [CORE32 STM32F4](#)
- [2x 2x40Char Display](#)
- [2x Midi IO](#)
- SD-Card and some wires (which all are crimpable)

so when you have those things, upload [the Code](#) & watch the videos above

Serial Chain is: Wilba SEQ-CS and then LRE8x2

code is working, SEQUENCER timing is a mess, i was still a newbie in c > "learning by doing"

here is a "[FrontPanel+Pin-Out](#)" where the functions on the WILBA CS & LRE8x2 are explained

SWING	JAM	PIN	6	4	2	0	6	4	2	0	6	4	2	0	6	4	2	0		
63	55	ENC	16	JOG																
58	49	SR	6																	
ROUTE	FullVel	PIN	2																	
46	38																			
57	34																			
CC	SetVel																			
47	39																			
56	33																			
BLM+x																				
32	33	40	41	48	49	56	57	24	25	16	17	8	9	0	1					
39	38	37	36	47	46	45	44	55	54	53	52	63	62	61	60	31	30	29	28	
Intro	SoLine	QntRec	Swing	Copy	Paste	Clear	<Move Move>				STORE	LOAD	Qnt16	Qnt32	Qnt64					
35	42	43	50	51	58	59	26	27	18	19	10	11	2							
35	43	42	51	PAGE																
SHIFT	Vel-Inv	LoopL	SyncTy	Copy	Paste	Clear	BEAT				STOP	PLAY	REC	<	>	<>				
37	44	45	52	53	60	61	1	28	29	20	21	12	13	4						
07	41	40	48	FOCUS																
0	2	4	6	8	10	12	14													
17	19	21	23	25	27	29	31													
MB-LRE8x2 CS 2.5 in seriell to MB-SEQ CS Wilba																				
ENC	Kill_M	Dcy_M	Vel_M	Delay	Swn16	Swn32	BTN													
SR	7	7	8	9	10	10	LED													
PIN	0	4	0	4	0	4														
ENC	Kill_D	Dcy_D	Vel_D	Kill_T	FullVel	Vel_Lo	Vel_Mi	Vel_Hi												
SR	7	7	8	9	9	10	10	10												
PIN	2	6	2	6	2	6	2	6												
18	20	22	24	26	28	30	32													
1	3	5	7	9	11	13	15													



## TriggerMatrix V3



### Teaser

V2 was Song-Structured, **V3 is to JAM**

in V2 where lot of UI-Elements, Menues, and Settings.

**V3 is stripped down and optimized:** 8 Faders, 5 Tactial Buttons, 3 Switches, 1 Encoder, + BLM16+16X.

its more the original V0 Tekkstar, there we had only a matrix a view buttons and Pots 3/4 4/4 5/ 7/4... and others, is Set on the 16x16 Matrix with "on matrix text".

Timing now is rock-steady. And we are Sequencing on 32th

New is the **Clip-Launcher**, here we can Ableton-Style switch Clip-Variations and Songs

Now we have a **Roll-Variation Fader!**

## Features

### Short spoken:

- 16xdrumtriggers > Trigger-Routing-Matrix > Drum-Syntesizers
- Melody-lines > Trigger-Routing-Matrix > Melody-Syntesizers

### Rules:

- Drum-Trigger are Velocity Master > we dont care about the velocity of the Melodys
- There are Songs (ProgramChange), each Song has 8 different Trigger-Routings Presets> these are the Song-Parts
- 256 Songs saved on SD-Card, and Load-able while playing
- System-Settings, like Ports or MidiChannels are Hardcodet
- Triggermatrix midi-outs are connected to all synths, so it manage the program-change also
- 16x Trigger-OUTs with fixed Notes, on one midichannel - to connect Drum-Synths, Drum-Samplers
- 5x Polyphonic Melody-Retrigger-OUTs on 5 MidiChannels - to connect MelodySynths to it
- 11x Monophonic Melody-Retrigger-OUTs on 11 MidiChannels - to connect Monophonic Synths like pitchable Drums or Bass-Synths
- All 16 Trigger & ReTrigger-OUTs share the same Routing and Channelstrip UI (Mute, Solo, Roll...)
- Trigger, Poly, Mono-OUTs can be controlled seperatly by > **Random-Kill & Velocity-OFFSet**
- 6x16 Melody-Input-Matrix - Route & Mix Melody Inputs to the 16 Melody-Retrigger-Outs (saved in Song)
- 16x Melody-Input-Matrix-Hold-Buttons - hold the last Note, save it in the Patch - usefull when pitch drums.

the Matrix has also a Trigger-Sequencer built in, the Melodys have to come from anywhere else, but @ the end, they have to be plugged into the matrix...

### Trigger-sequencer, a few facts:

- is a Drum-Step-Sequencer
- 256 Steps in total
- 32 th fixed rate
- 3,4,5,7,11,13/4 tact
- minimal LoopSection is 16steps = 1 Page, there are 16 pages to chain
- intro LoopSection, from step 0 until to the "minimal LoopSection"- is played once, then it loops the normal LoopSection
- The sequencer is made to give a static NoteStream, the Song-Structure is done LIVE by the TriggerMatrix-ROUTER

- Full Velocity control, visible with 3 different colours, Velocity Set via FADER
- Free programmable Swing to each Step, with 2 different swing Length-sets, which are controlled live via CC EDIT no CC for that right now
- copy, paste, erase of pages
- copy, paste, erase of rows
- fixed forward play direction

## U Interface

PCBs that already out there:

- [BLM16x16x](#)
- [CORE32 STM32F4](#)
- [2x Midi IO](#)
- SD-Card and some wires (which all are crimpable)

so when you have those things, upload [the Code](#) & watch the videos above

Extendet UI via GPIO via J10AB, J5AB:



## Community users working on it

- [Phatline](#) = Programming, Documentation, Hardware-Prototype, Testing, Jamin...

## Getting Involved ?



Just let a Private message on the forum to user already involved

From:

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

Permanent link:

<http://www.midibox.org/dokuwiki/doku.php?id=triggermatrix&rev=1517194357>

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