

# TriggerMatrix V0

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



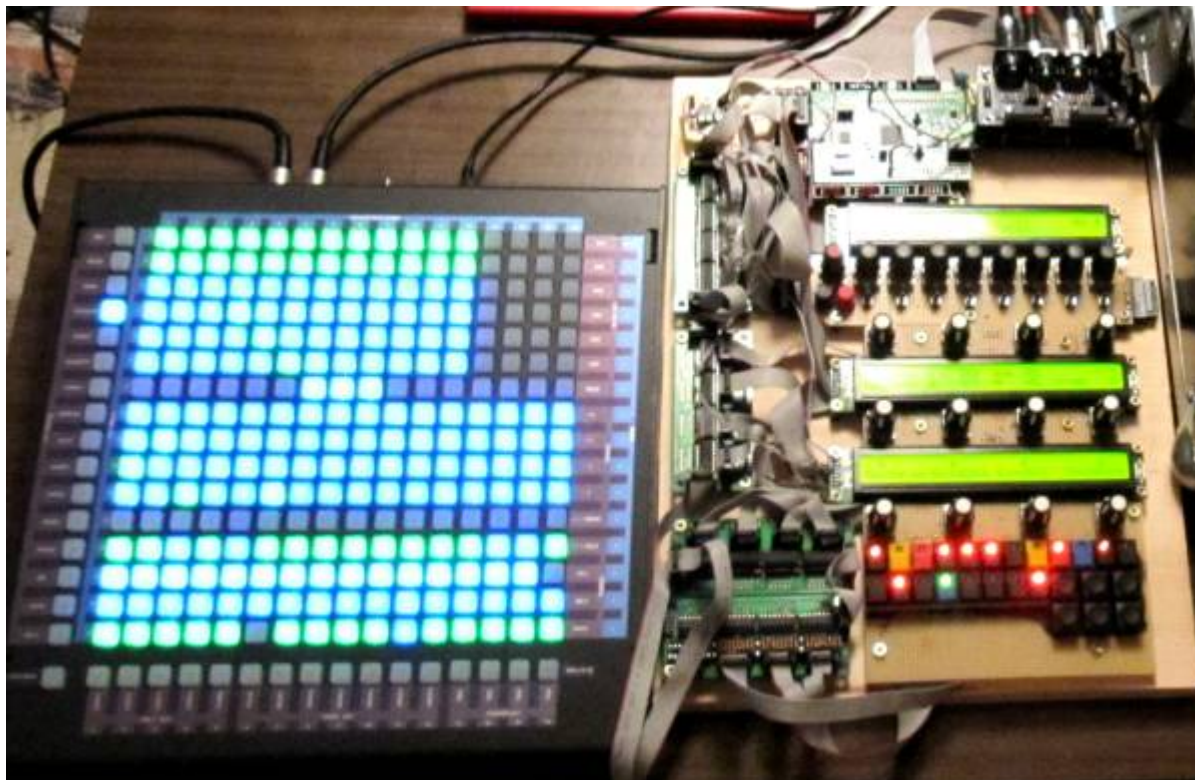
it was a 8x8 LED-Matrix, with 2x8 Buttons, on Breadboard



a other 32bit Variante built in on the other Upper-Manual in Crumar 198, UI-controlled via a BCR2000

# TriggerMatrix V1

32 Bit PROTOTYPE



# TriggerMatrix V2

not supported anymore, it has timing issues, use the way more lightweight V3 or V4!



# 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    |        |         |        |        |        |    |       |    |       |   |       |   |       |    |       |    |      |    |       |    |       |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| 58   | 49      | SR      | 6     | JOG    |         |        |        |        |    |       |    |       |   |       |   |       |    |       |    |      |    |       |    |       |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| ROUTE  | FullVel | SR      | 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 | 23 | 22 | 21 | 20 | 15 | 14 | 13 | 12 | 7 | 6 | 5 | 4 |
| Intro  |         | SolLine |       | OntRec |         | Swing  |        | Copy   |    | Paste |    | Clear |   | <Move |   | Move> |    | STORE |    | LOAD |    | Ont16 |    | Ont32 |    | Ont64 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| 35   | 42      | 43      | 50    | 51     | 58      | 59     |        |        |    |       |    |       |   |       |   |       |    |       |    |      |    |       |    |       |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| 35   | 43      | 42      | 51    |        |         |        |        |        |    |       |    |       |   |       |   |       |    |       |    |      |    |       |    |       |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| SHIFT  |         | Vel-Inv |       | LoopL  |         | SyncTy |        | Copy   |    | Paste |    | Clear |   | BEAT  |   | STOP  |    | PLAY  |    | REC  |    | <     |    | >     |    | <>    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| 37   | 44      | 45      | 52    | 53     | 60      | 61     |        |        |    |       |    |       |   |       |   |       |    |       |    |      |    |       |    |       |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| 07   | 41      | 40      | 48    |        |         |        |        |        |    |       |    |       |   |       |   |       |    |       |    |      |    |       |    |       |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| FOCUS  |         |         |       |        |         |        |        |        |    |       |    |       |   |       |   |       |    |       |    |      |    |       |    |       |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| 0  | 2       | 4       | 6     | 8      | 10      | 12     | 14     |        |    |       |    |       |   |       |   |       |    |       |    |      |    |       |    |       |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| 17   | 19      | 21      | 23    | 25     | 27      | 29     | 31     |        |    |       |    |       |   |       |   |       |    |       |    |      |    |       |    |       |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| MB-LREx2 CS 2.5 in seriell to MB-SEQ CS Wlba |         |         |       |        |         |        |        |        |    |       |    |       |   |       |   |       |    |       |    |      |    |       |    |       |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| ENC  | Kill M  | Dcy_M   | Vel_M | 8      | 9       | Delay  | Swn16  | Swn32  |    |       |    |       |   |       |   |       |    |       |    | BTN  |    |       |    |       |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| SR   | 7       | 7       | 8     | 8      | 9       | 10     | 10     | 10     |    |       |    |       |   |       |   |       |    |       |    | LED  |    |       |    |       |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |
| PIN  | 0       | 4       | 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     | 8      | 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 4/5 and other settings are Set on the 16x16 Matrix with "on matrix text".  
 The Timing now is rock-steady.  
 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:

<https://wiki.midibox.org/> - **MIDIbox**

Permanent link:

<https://wiki.midibox.org/doku.php?id=triggermatrix&rev=1517191831>

Last update: **2018/01/29 02:10**

