

# CV-1

CV-Recorder/Looper & CV-Generator

Control Voltage Recorder, Looper, and Generator - for a own Eurorack-Line... more in Future!



-this picture is the first prototype - pre-Eurorack



## Features

- \* A Envelope which can be Recored from an AIN-Source, it can be Editet on Startpoint,ATK-Playbackrate, Decay-Playbackrate
- \* LFO which Waveform is stepless morphable from Sine Square Tri Saw-Up to Saw-Down...(only Clocksynced!)
- \* MSQ MotionSequencer to loop a CV-Signal.
- \* A Mixer Page which Mixes/Mutes ENV+LFO+MSQ - and scales the output CV
- \* Copy, Paste, Clear: to Transfair the CV Sequence to other CV1 Instances
- \* ProgramChange Load and Store on microSD-Card, Load and Store are CC-Commands, so you can remote the device
- \* The Sequencer can be set to Tact Systems: 3/4 4/4 5/4 7/4 9/4 11/4 13/4

## Hardware Requirements

### Midibox:

- [dipcoref4](#) - this is the  $\mu$ C Brain for CV1
- no other PCBs needet - but expandable with other Eurorackmodules in Future

- µSD-Card, formatted with FAT32
- Soldering Iron - with a Dip that can Handle SMD-Parts, Wires, solder Paste for the µC....
- Eurorack Power Source +-12V AND +5V!

## Set

### Cabeling

Midi IN1 »> CV1 Remote Device or a Midi-Sequencer

Midi OUT »> to a Global CV1 Remote Device  **Fix Me!** - which will need a lot of Midiinputs [M16?](#)

- @JMidi1: connect your Sequencer to get Midiclock and Programchanges
- @JAIN1: 2 CV Inputs - 12V tollerant
- @JAUT3: 1 CV Output - (internal DAC with Protection Cirtuit > 12V Tollerant)
- @J19: Get up to 8 CV-Outputs, with a [AoutNG](#)
- @JLCD1: up to 4 Additional OLED-Displays for every one a Reset Line - so no additonal Circuit needet
- @J89: DIN and DOUT Shiftregister Chain: thought for decidet Expander Modules (which will come in near future)
- @J2/Bootload: If the core is not starting up - because of bad-Firmware, then bridge this Jumper to come into the Bootload-Mode

## Software

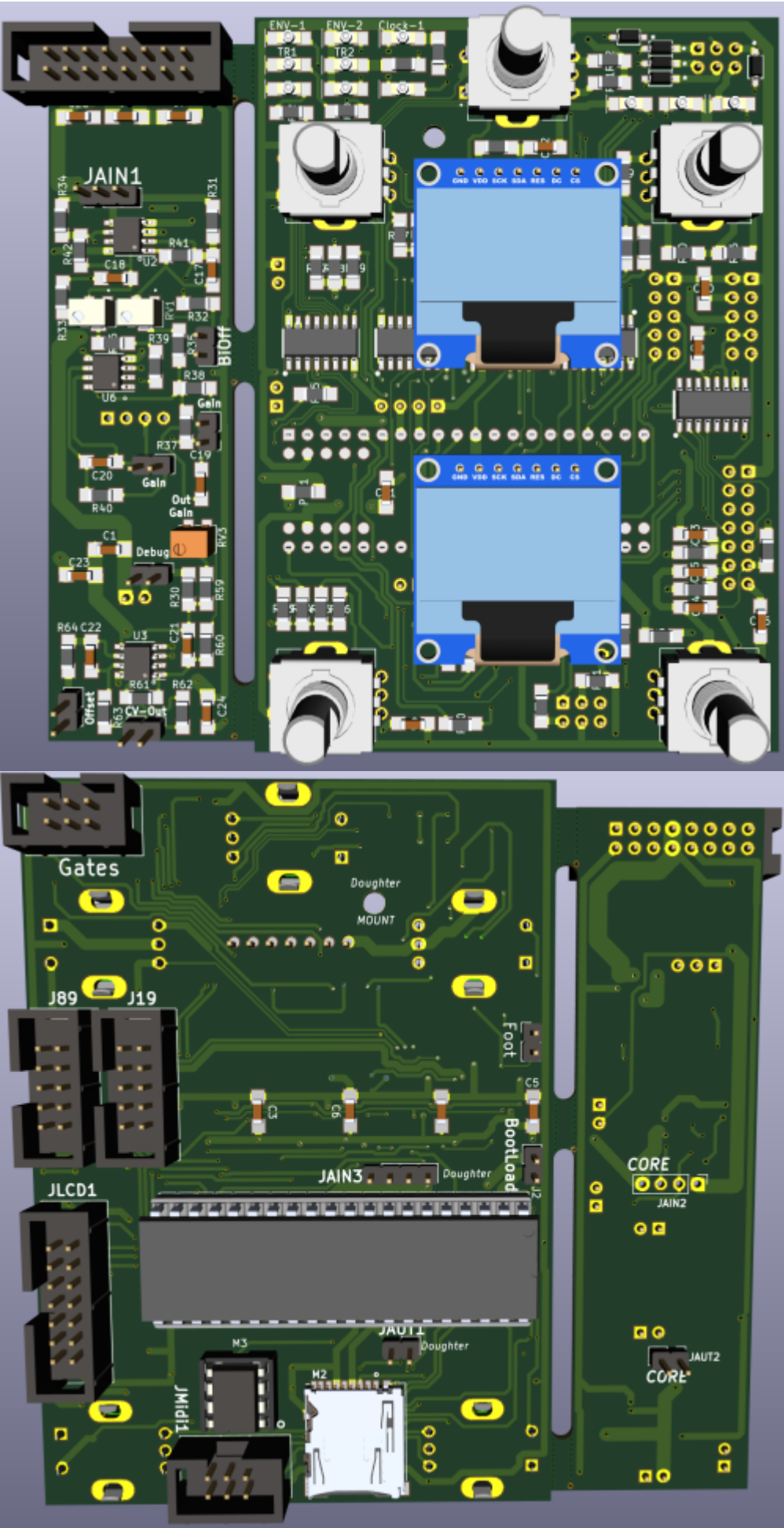
### Firmware

yes it loopin... but not good enough to release anything...

## Building

The Design is optimized for Pick and Place most SMD Parts are on the Top-PCB  
i ordered 5 PCBs from JLCPCP with almost all SMD Parts (except 10pF µSD and 4x100nF) presoldered

now waiting for Presoldered PCBs  - for 15€ a Piece!



Frontpanel

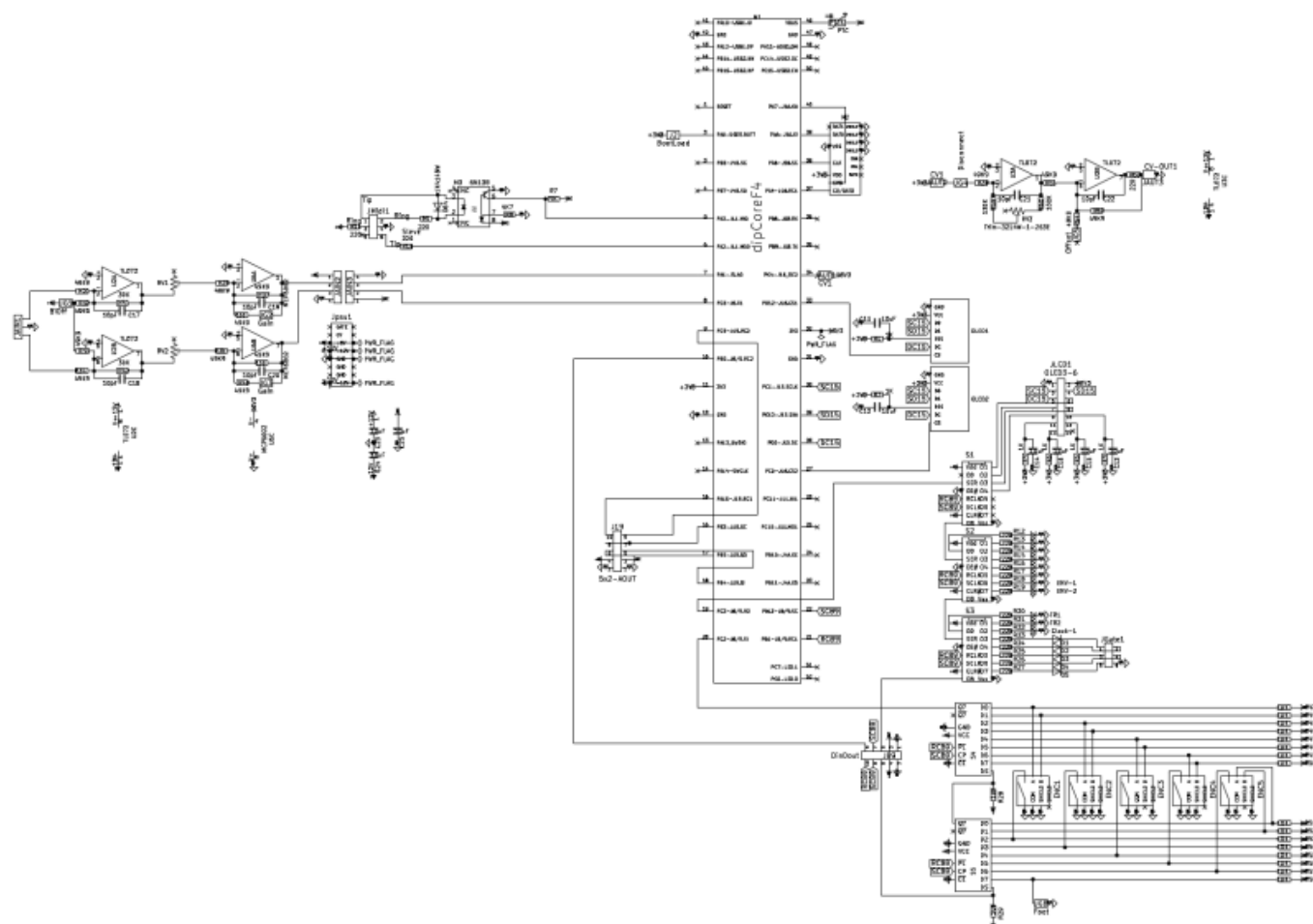


Case

BOM

| Value               | Designator                                                                  | Footprint                             | LCSC Part Number | Library-Type | Mouser               |
|---------------------|-----------------------------------------------------------------------------|---------------------------------------|------------------|--------------|----------------------|
| 100nF               | C110                                                                        | 1206                                  | C24497           | basic        |                      |
| 10uF                | C1116,C2325                                                                 | 1206                                  | C13585           | basic        |                      |
| 10pF                | C17,C18,C19,C20,C21,C22                                                     | 1206                                  | not available    |              |                      |
| 1N4148W             | D1,D2,D3,D4,D5,D64                                                          | SOD123                                | C81598           | basic        |                      |
| ENC                 | ENC1-ENC5                                                                   | ENC-PEC11R                            |                  |              | 652-PEC11R-4015F-S24 |
| 5x2-AOUT            | J19                                                                         | Header-2x5                            |                  |              |                      |
| BootLoad            | J2                                                                          | Header-1x2                            |                  |              |                      |
| DinDout             | J89                                                                         | Header-2x5                            |                  |              |                      |
| HEADER_3            | JAIN1                                                                       | Header-1x3                            |                  |              |                      |
| Header-1x4          | JAIN2                                                                       | Header-1x4-female                     |                  |              |                      |
| Header-1x4          | JAIN3                                                                       | Header-1x4                            |                  |              |                      |
| CV1                 | JAUT1,JAUT2                                                                 | Header-1x2                            |                  |              |                      |
| CV-OUT1             | JAUT3                                                                       | Header-1x2                            |                  |              |                      |
| BiOff               | JG1                                                                         | Header-1x2                            |                  |              |                      |
| Gain                | JG2,JG3                                                                     | Header-1x2                            |                  |              |                      |
| Disconnect          | JG4                                                                         | Header-1x2                            |                  |              |                      |
| Offset              | JG5                                                                         | Header-1x2                            |                  |              |                      |
| Foot                | JG6                                                                         | Header-1x2                            |                  |              |                      |
| Gates               | JGate1                                                                      | Header-2x3                            |                  |              |                      |
| OLED3-6             | JLCD1                                                                       | Header-2x7                            |                  |              |                      |
| Midi                | JMidi1                                                                      | Header-2x3                            |                  |              |                      |
| Header-2x8-eurorack | Jpsu1                                                                       | Header-2x8                            |                  |              |                      |
| DIPCOREF4_52P       | M1                                                                          | dipCoreF4_v2c-52p-DIP-40MPNT_CORE_52P |                  |              | Antichambre          |
| uSD_DM3ATDM3AT      | M2                                                                          | uSD-DM3AT-SF-PEJM5                    |                  |              | 798-DM3AT-SF-PEJM5   |
| 6N138               | M3                                                                          | DIP-8                                 |                  |              | 512-6N138M           |
| LED-Green           | Menue-1,TR1,Clock-1,ENV-1,Menue-2,TR2,ENV-2,Menue-3,Menue-4,Menue-5,Menue-6 | 1206-LED                              | C559120          | extended     |                      |
| OLED                | OLED1,OLED2                                                                 | SSD1306:OLED-SSD1306-128x64           |                  |              |                      |
| PTC                 | PTC1                                                                        | 1206                                  | C126818          | extended     |                      |
| 10K                 | R28,R29,R43-R58                                                             | 1206                                  | C17902           | basic        |                      |
| 49K9                | R30-R40,R61-R64                                                             | 1206                                  | C18017           | extended     |                      |
| 30K                 | R41,R42                                                                     | 1206                                  | C17999           | extended     |                      |
| 130K                | R59                                                                         | 1206                                  | C17893           | extended     |                      |
| 100K                | R60                                                                         | 1206                                  | C17900           | basic        |                      |
| 1K                  | R1-R7                                                                       | 1206                                  | C4410            | basic        |                      |
| 4K7                 | R8                                                                          | 1206                                  | C17936           | basic        |                      |
| 220                 | R9-R27,R63                                                                  | 1206                                  | C17958           | basic        |                      |
| Trim-3224W-1-104E   | RV1,RV2                                                                     | Trimmer-3224W-1                       | C53229           | extended     |                      |
| Trim-3214W-1-253E   | RV3                                                                         | Trimmer-3214W_Vertical                |                  |              | 652-3214W-1-253E     |
| 74HC595             | S1-S3                                                                       | SOP-16_SOIC-16                        | C5947            | basic        |                      |
| 74HC165             | S4,S5                                                                       | SOP-16_SOIC-16                        | C5613            | basic        |                      |
| TL072               | U2,U3                                                                       | SOP-8_SOIC-8                          | C6961            | basic        |                      |
| MCP6002             | U6                                                                          | SOP-8_SOIC-8                          | C7377            | basic        |                      |

Shematic



## To Do

a housing/case or frontplate

## Resources

# Community users working on it

- **Phatline** = Programming, Documentation...

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

I have ProtoBoards here - i test one, and if it works, i can share them for Beta Testing-if you pay the postage

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