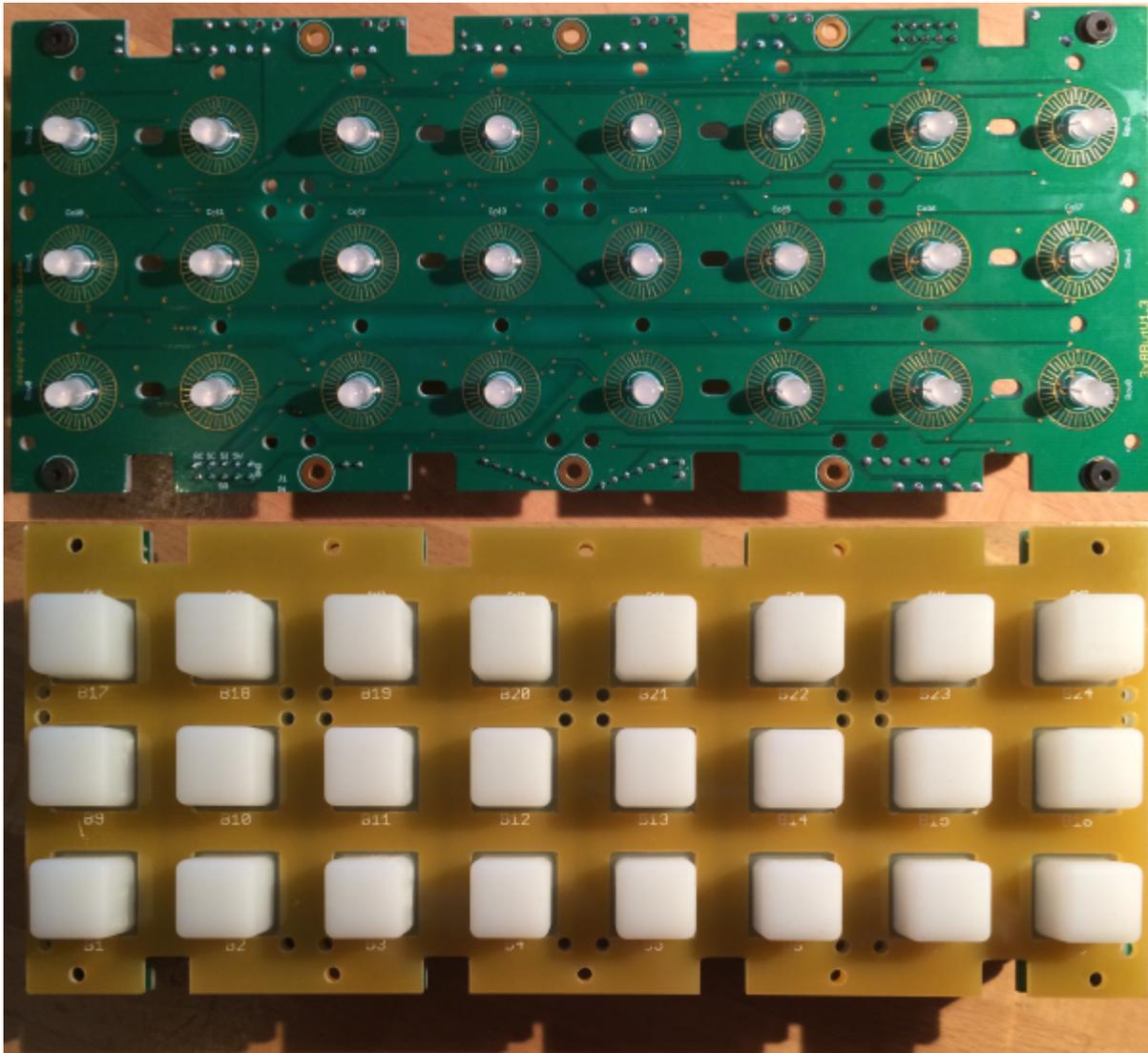


Fadercore

Standard 220mm wide modules

## VLR-3x8But

A PCB to add 24 Buttons with RGB LEDs for each.



Eagle Files: <https://github.com/novski/Midibox/tree/master/VLR-3x8but>



I thought a long time about how to make a Button PCB that does not explode in material cost. The best solution was to buy rubberbuttons from Sparkfun and cut them because the width of Fadercore is fixed by the minimal width of 8 LEDs side by side... 220mm in width / 8 makes a 27.5mm grid. What a pity that the Sparkfun pads are premade with a 25mm grid...

you will need two of them: <https://www.sparkfun.com/products/7835>

### The other Materials: Mouser

- 2x10pin Header, 517-30310-6002
- 5x100nF, 594-K104K15X7RF53K2
- 2x10k Network, 774-77061103P
- 3x220R Array, 652-4816P-T1LF-220
- 1x74HC165D, 771-HC165D652
- 4x74HC595D, 771-74HC595D
- 24xLED RGB, 604-WP154A4SUREQBFZW
- 24x1N4148, 512-1N4148TR

Project Order Basket on Mouser:

<http://www.mouser.com/ProjectManager/ProjectDetail.aspx?AccessID=1f42b04e6d>

The PCB is available under: [fadercore\\_-\\_vlr-3x8but](#)

## How to get Started

If it's your first SMD soldering you can follow this on t1:58 :

<http://www.youtube.com/watch?v=5uiroWBkdfY> I recommend to not buy solder paste, instead buy some flux-paste like this on Mouser: 590-8341-10ML

## Prepare the PCB

Start with the SMD parts and then go on the conventional parts also on the Bottom side. Then go on with the Topside and the LEDs. Check the Connections with a Lens.

## Prepare the Connection

Connect the core on J8/9 to J1 of the VLR-3x8But board.

## Test it in MIOS

To make it work with MIOS .NGC File we need to know how the shift-registers are connected.

### Inputs:

1# Encoder 1-4

2# Encoder 5-8

### 3# Encoder Button 1-8

#### Outputs:

- 1# RED Shaft LED 1-8
- 2# GREEN shaft LED 1-8
- 3# BLUE shaft LED 1-8
- 4# LED Ring Row 1-8
- 5# LED Ring Selct 1-8
- 6# LED Ring Select 9-11

Assuming that the VLR-8Enc is the first device on the chain of J8/9 we need to configure it like this:  
RESET\_HW

```
LCD "%C"
```

```
LCD "@(1:1:1)OLED1"
```

```
LCD "@(2:1:1)OLED2"
```

```
LCD "@(3:1:1)OLED3"
```

```
LCD "@(4:1:1)OLED4"
```

```
LCD "@(5:1:1)OLED5"
```

```
LCD "@(6:1:1)OLED6"
```

```
LCD "@(7:1:1)OLED7"
```

```
LCD "@(8:1:1)OLED8"
```

# In this demo we configure individual brightness levels for the LEDs from EVENT\_BUTTON events

```
LCD "@(1:10:1)RGB Demo #2"
```

```
DIN_MATRIX n=1 rows=4 sr_dout_sel1=1 sr_din1=1 button_emu_id_offset=1001
```

```
DOUT_MATRIX n=1 rows=4 sr_dout_r1=2 sr_dout_g1=3 sr_dout_b1=4 led_emu_id_offset=1025
```

# These button functions forward their value also to LEDs

# it's possible to set the rgb levels in the button event, it will be forwarded as well!

```
EVENT_BUTTON id=1001 fwd_id=LED:1025 type=NoteOn key=36 chn=1 rgb=15:0:0 lcd_pos=1:1:2  
label="^std_btn"
```

```
EVENT_BUTTON id=1002 fwd_id=LED:1026 type=NoteOn key=37 chn=1 rgb=15:0:0 lcd_pos=2:1:2  
label="^std_btn"
```

```
EVENT_BUTTON id=1003 fwd_id=LED:1027 type=NoteOn key=38 chn=1 rgb=15:0:0 lcd_pos=3:1:2  
label="^std_btn"
```

```
EVENT_BUTTON id=1004 fwd_id=LED:1028 type=NoteOn key=39 chn=1 rgb=15:0:0 lcd_pos=4:1:2  
label="^std_btn"
```

```
EVENT_BUTTON id=1005 fwd_id=LED:1029 type=NoteOn key=40 chn=1 rgb=15:0:0 lcd_pos=5:1:2  
label="^std_btn"
```

```
EVENT_BUTTON id=1006 fwd_id=LED:1030 type=NoteOn key=41 chn=1 rgb=15:0:0 lcd_pos=6:1:2  
label="^std_btn"
```

```
EVENT_BUTTON id=1007 fwd_id=LED:1031 type=NoteOn key=42 chn=1 rgb=15:0:0 lcd_pos=7:1:2  
label="^std_btn"
```

```
EVENT_BUTTON id=1008 fwd_id=LED:1032 type=NoteOn key=43 chn=1 rgb=15:0:0 lcd_pos=8:1:2  
label="^std_btn"
```

EVENT\_BUTTON id=1009 fwd\_id=LED:1033 type=NoteOn key=52 chn=1 rgb=0:15:0 lcd\_pos=1:1:3  
label="^std\_btn"  
EVENT\_BUTTON id=1010 fwd\_id=LED:1034 type=NoteOn key=53 chn=1 rgb=0:15:0 lcd\_pos=2:1:3  
label="^std\_btn"  
EVENT\_BUTTON id=1011 fwd\_id=LED:1035 type=NoteOn key=54 chn=1 rgb=0:15:0 lcd\_pos=3:1:3  
label="^std\_btn"  
EVENT\_BUTTON id=1012 fwd\_id=LED:1036 type=NoteOn key=55 chn=1 rgb=0:15:0 lcd\_pos=4:1:3  
label="^std\_btn"  
EVENT\_BUTTON id=1013 fwd\_id=LED:1037 type=NoteOn key=56 chn=1 rgb=0:15:0 lcd\_pos=5:1:3  
label="^std\_btn"  
EVENT\_BUTTON id=1014 fwd\_id=LED:1038 type=NoteOn key=57 chn=1 rgb=0:15:0 lcd\_pos=6:1:3  
label="^std\_btn"  
EVENT\_BUTTON id=1015 fwd\_id=LED:1039 type=NoteOn key=58 chn=1 rgb=0:15:0 lcd\_pos=7:1:3  
label="^std\_btn"  
EVENT\_BUTTON id=1016 fwd\_id=LED:1040 type=NoteOn key=59 chn=1 rgb=0:15:0 lcd\_pos=8:1:3  
label="^std\_btn"

EVENT\_BUTTON id=1017 fwd\_id=LED:1041 type=NoteOn key=68 chn=1 rgb=0:0:15 lcd\_pos=1:1:4  
label="^std\_btn"  
EVENT\_BUTTON id=1018 fwd\_id=LED:1042 type=NoteOn key=69 chn=1 rgb=0:0:15 lcd\_pos=2:1:4  
label="^std\_btn"  
EVENT\_BUTTON id=1019 fwd\_id=LED:1043 type=NoteOn key=70 chn=1 rgb=0:0:15 lcd\_pos=3:1:4  
label="^std\_btn"  
EVENT\_BUTTON id=1020 fwd\_id=LED:1044 type=NoteOn key=71 chn=1 rgb=0:0:15 lcd\_pos=4:1:4  
label="^std\_btn"  
EVENT\_BUTTON id=1021 fwd\_id=LED:1045 type=NoteOn key=72 chn=1 rgb=0:0:15 lcd\_pos=5:1:4  
label="^std\_btn"  
EVENT\_BUTTON id=1022 fwd\_id=LED:1046 type=NoteOn key=73 chn=1 rgb=0:0:15 lcd\_pos=6:1:4  
label="^std\_btn"  
EVENT\_BUTTON id=1023 fwd\_id=LED:1047 type=NoteOn key=74 chn=1 rgb=0:0:15 lcd\_pos=7:1:4  
label="^std\_btn"  
EVENT\_BUTTON id=1024 fwd\_id=LED:1048 type=NoteOn key=75 chn=1 rgb=0:0:15 lcd\_pos=8:1:4  
label="^std\_btn"

Im using my VLR-8oDisp board to show the Values of every item. You can change it to any other type of Display-setting... lcd\_pos=6:1:5 {6=Display number : 1= X-axis : 5= Y-Axis (row)}

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