MegaDRUM

Tricks & Tweaks

MegaDRUM.info

MegaDrum is a simple and easy to build yet very powerful MIDI drum trigger.

It can be used with many varieties of Edrum kits/pads/cymbals and outputs MIDI signals which can be fed to a computer with drum sampling software,e.g. BFD, Toontrack, Addictive Drums, to produce wide variety of drum sounds or it can be connected to a drum machine.

MD is extremely flexible in terms of what you can do with a drum trigger and if you deal with different kind of triggers there are several of hundreds parameters to deal with – which takes some time to learn and handle.

megaDRUM

About MegaDRUM

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See the MegaDRUM.info forums for latest news/develpment/discussion.

About the writer

After been using my Roland TD-6 as a trigger-to-midi system together with the Roland triggers RT-10/K/S, I got tired to move the TD-6 box between my home and several rehearsal locations, I desperately needed a second box! I was tempted to buy an Alesis Trigger IO or even a complete sound box like the Alesis DM-10. But I talked to someone about the Trigger IO who recommend me instead to buy a Roland TMC-6 box…but looking on the design it is from 2002, equipped with only 6 trigger inputs…no USB… and a high price…No, It did not feel right for me! (Even if Roland has great stuff!)

So one night (truly), I had a dream that I was using Google to search if anybody else had solved the same issues. The next morning. I had to give a shot – And yes…I found the MegaDrum project in the UK.

First I was tempted to build a complete box…but the time was limited and the price would be more less the same as buying a complete box. So I talked to the guy behind the project, Dmitri (He seems to be a great engineer, software developer, salesguy etc spending all his free time in this project!)

Dmitri had no problem to build me a 32-channelbox…and place it into a 19 rack. (The 56 channel version comes in a 19 rack format) I was convinced that this box would suite me better for the road(!)

Best Regards

Anders Gronlund / ANGR77 / Zourman

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Contents

1 Suggested steps for configuring a mesh pad for best triggering.

After that I would suggest the following for a mesh pad which produces long half waves and slowly subsiding signal.

Prerequisites

♦ AltFalseTrSupp must be set to No (default) and HighLevel must be set correctly for the pad and the pad must not be too "hot' or it must be "cooled".

♦ Set MinScan to ~40 (4 ms)

♦ Set Curve to Linear.

♦ Set Threshold to 80 (yes 80, it will be lowered later).

♦ Set Retrigger to 1.

♦ Set DynLevel to 15 and DynTime to 60
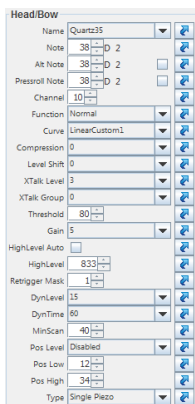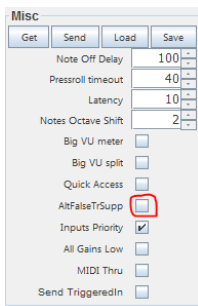
Process

Once it is set like this you should not get any "after hit" false notes. Obviously fast rolls will be missing hits with these settings.

DynLevel

After that, making a single strong hit at a time, start to reduce DynLevel and monitor MIDI Log.

Reduce DynLevel until false notes start to appear.

At this step raise DynLevel by 1 or 2.

DynTime

Now start reducing DynTime until false notes start to appear.

At this step raise DynTime by 1 or 2 steps.

Now start reducing Threshold until false notes start to appear. Every time false notes start to appear increase DynTime. Don't reduce Threshold too much otherwise you won't be able to get rid of low velocity false notes.

Conclusion

At the end you should get the best balance between false notes suppression and good fast rolls. Of course you will want to change the Curve to your liking after that.

2 Configuration instruction for Roland VH-11/VH-12

Prerequisites

♦ Set AltIn according to a selected pedal input Switch. For the low impedance input using the frontpanel switch, AltIn must be set to No and for the high impedance input AltIn must be set to Yes. Note: Using a resistor my recommendation is to use low impedance input and AltIn set to No.

♦ Set LevelsAuto to No.

♦ Set LowLevel to a minimum (11).

♦ Set HiLevel to a maximum (1023).

Process

1. Go to LowLevel and press the pedal to within 5%-10% of fully closed (almost closed). In the top row of the LCD you will read current "raw level" reading. Set LowLevel just below the current "raw level" reading.

2. Go to HiLevel and press the pedal to within 5%-10% of fully open (almost open). In the top row of the LCD you will read current "raw level" reading. Set HiLevel just above the current "raw level" reading.

3. Using Big VU meter make sure MegaDrum properly detects fully closed/fully open positions. If the pedal's Big VU Meter doesn't go all the way left when the pedal is fully closed -

raise LowLevel slightly. If the pedal's Big VU Meter doesn't go all the way right when the pedal is fully open - lower HiLevel slightly.

4. If with the rock solid pressure on the pedal somewhere in between fully closed and fully open the pedal's Big VU Meter is not stable you may want to increase RdcLvl.

Conclusion

Adding a 10k-20k resistor between tip and ring may increase the range (smoothness) of the pedal. Using the high impedance input may also increase the pedal's range. After adding a resistor or changing pedal's input you must repeat the steps from this instruction.
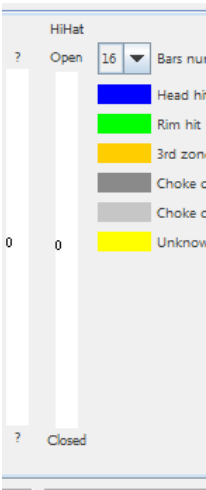
3 Suggested steps for configuring zones separation of a Roland style 3way cymbal.

Roland 3 zone cymbals use 2 consecutive stereo inputs. For this example say Aux1/Aux2.

Prerequisites

♦ Plug the Bow/Bell cable into Aux1

♦ Plug the Bow/Edge cable into Aux2

♦ For Aux1 Head set DualHead to 3way

♦ For Aux1 Rim set Type to Switch

♦ For Aux2 Rim set Type to Switch

Process

From http://www.megadrum.info/content/miscellaneous-settings use 'Set All EdgeSw' option to auto-set Threshold on Aux1 Rim and Aux2 Rim.

```
<Set All EdgeSw>
<                No>
```

After completing this procedure you will have Threshold on Aux1 Rim and Aux2 Rim set between 1 and 50. You may still adjust these Threholds slightly so that when you press/release either the

edge or the bell switch you get MIDI Aftertouch On/Off messages. You can use either MegaDrum Manager to monitor for MIDI Aftertouch messages.

At this step you should have zone separation for all 3 zones and you will need to configure all other parameters (don't change Gain setting otherwise will need to start from step 6 again). Bow settings are in Aux1 Head, Edge settings - in Aux2 Rim, Bell settings - in Aux1 Rim.

Conclusion

When I find my Roland 3 way mock up (lost somewhere) I'll check this steps again.
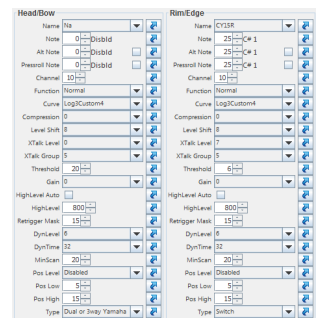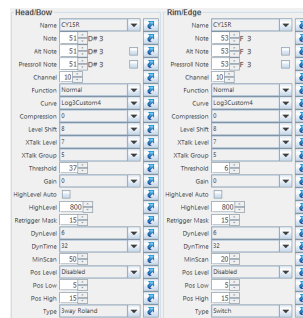
4 Suggestions for Positional Sensing

Posistional sensing(PS) is an interesting technique supported by most DAW audio softwares like Superior Drums and Addictive Drums. The idea with PS to measure where you hit on the e.g. snare drum/Ride cymbal - from center to edge in certain steps and then let the DAW to determine the right sample based on the cc value. The MegaDRUM do support PS on all inputs but requests that the first waveform from the PAD/Meshhead are positive. (could be a bit hard to determine) The solution to handle this issue is to use the MegaDRUM PS Board. With this small board installed - the following 5 inputs are covered 4 ,6, 8, 10, and 12 and automatically forced to produce a positive waveform. Please note that all PS information for all channels is sent to the DAW thru CC:16 (Midi control channel)

Prerequisites

You need to have one centrally mounted piezo. The PS function is totally dependent on this.

The MegaDRUM has 3 different PS fields with selections/options added for each drum:

5. Positional. (Default is No).

6. PositionalLow. (Default is 5).

7. PositionalHigh. (Default is 15).

These can be set directly on the MD or in MDM.

Process

To enable positional sensing on the snare input set


```
<PositionalIn     >
<          SnareH 4 >
```

PositionalLV to 1, 2 or 3 (corresponding to three variations of the positional sensing).

PositionalLow and PositionalHigh are adjusted so that to get a full range of detected positions (and MIDI CC messages) from a rim (PositionalLow) to a centre (PositionalHigh). The default Positional-Low and PositionalHigh are good starting values for Roland PD-125X with Positional set to 1.

When Positional set to 2 the good starting values for Roland PD-125x are 16 and 30. With Positional set to 2, MinScan must be set so that to cover a full half wave which is 40 (4ms) for Roland PD-125X.

Positional set to 3 is almost the same as 2 but with slightly different algorithm so you may need to set PositionalLow and PositionalHigh slightly higher.

For the Drumtec snare the good starting values for PositionalLow and PositionalHigh are 5-10 higher than for Roland PD-125X.

For a 14" snare with Quartz on hareness triggers a good start value seems to be Position set to 2, PSLow set to 14 and PSHigh set to 28 and minscan set to 56.

You can also enable some debugging if you set Latency to an odd value (...,37,39,41,...) .

In the top row of the LCD it will show relative position of the hit as calculated by MegaDrum: ^ symbol shown more to the left for centre hits and

more to the right for close to rim hits.

In the bottom row it will show 3 values with every hit: the first is used for calculating position when Positional is set to 1, second - when Positional is set to 2 and third - when Positional set to 3. Use these values to adjust PositionalLow and PositionHigh.

With PS enabled and LCD showing one of the PS settings, when hitting the snare you can see in the botom left of the LCD the relative position of the hit as calculated by MegaDrum: ^ symbol shown more to the left for centre hits and more to the right for close to rim hits. You will also see the calculated PS value of the hit for currently selected PS algorithm (1, 2 or 3) which you should use for setting PositionalLow and PositionalHi properly.

There are a few requirements:

♦ it may work only with mesh type pads with a centrally positioned piezo.

♦ the pad must not be too hot. If it is too hot it must be "cooled" with a voltage divider.

♦ the first half wave of a signal from a pad should be positive, e.g my Pintech mesh snare is such a pad. Most of other mesh pads out there, like Roland, Drumtec and etc, produce a negative first half wave. In this case you will have to use a full wave precision rectifier.

When doing the callibration, please relax about your DAW & Manager and instead go in to your MD menus.. Locate the PS settings in the beginning. I am using 1ply's mesh heads, 35 mm piezo triggers from Quartz. So my best values seems to 2. Go in

on actual drums PS settings on the MD (could be a bit confusing...but the drums are located in a kind of array in MD/PS menus) and select the high and low PS level and trim the values so you can see the < > carrier move between the LCD edges when hit the drum on the center and on the edge.

If you can't get the carrier to move, something is wrong. The minscan value for that drum needs to be above 50...giving the ps function time to read the position and then the velocity.

If you succeed to make it to move...the you are ready to configure the last step and turn the PS function "on" in your DAW. The midi cc channel is always 16 on MD...you can type it in youw DAW or use the "learn" function. The PS function needs in some cases to be reversed, like in AD to get the right sound to map.

You will now see in DAW how the midi monitor vill move the midi value for position from closed to open.

Conclusion

The positional function adds real articulations to your drumming. The function is mostly used on snare drums and on ride cymbals.

5 Common working tasks when upgrading firmware

Suggested steps that I always do before/after updating the firmware on MegaDRUM when it is already configured.

MD= MegaDRUM Device

MDM=MegaDRUM Manager Software for PC/MAC – Always load the latest version online from the Megadrum.info!

Backup the MD Data

8. Backup the current MD settings using MegaDRUM Manager.

9. Goto "Option" in MDM: Open midiport "MegaDrum 1   and enable the check the box "same in and out". (Note: Use the MegaDRUM 2 Midiport for the sound software's like VST Hosts to receive midi trigger input – Port 1 and 2 are equal and sends the same information. The two ports are great if you want to tweak your MD using MDM and also would like to hear the sound at the same time without using midi pass thru…) Note: If you don't see two MegaDRUM ports…you have probably too old USB firmware.

10. Press the "Open MIDI" button on the main screen in MDM

11. Press "Get All" button – All values in MD will now be read int to MDM.

12. Press "Save All" button to save the data to a *.MDS file on the computer.

Updating the firmware

♦   Go to the MDM menu and select the "Firmware Upgrade" – follow the instructions in the dialog. You need to know which speed your Atmega chip operates at and also which model you are using. ATmega 1284 or 644 etc. It could be tricky to guess this… Download and unpack the firmware to an known directory. To select the right speed for the CPU you will press the "UP" button until your CPU speed will show up. When ready press the "down" button…MD will now be ready for receiving the firmware. Click on the "Upgrade" button in the MDM dialog.

Note: If using an external powered USB hub between the computer and the MD…you will probably get "modem error" when trying to update. Connect the MD directly to your computers USB port instead. (This could be for Windows PCs with poor USB implementations – I don't know how this works for MAC.)

♦   After successfully updating the firmware…MD will go back to default state and show the new current firmware version.

6

The basics of MegaDRUM Manager

The idea with MD is to in a easier way administrate
the MegaDRUM device.
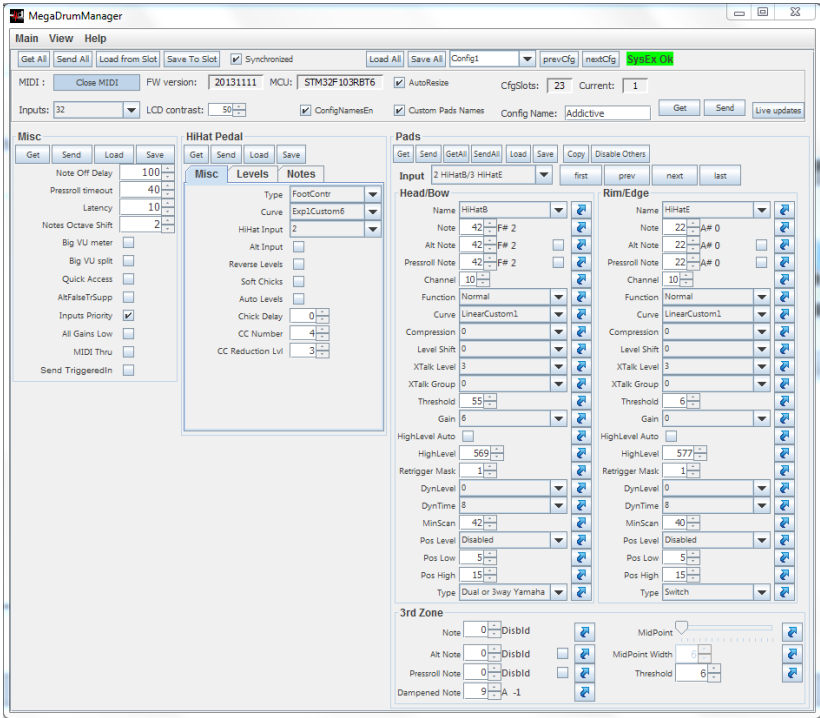
Company Name, 123 Everywhere Ave. ¤ City, ST 00000 ¤ 555 555•5555, fax 555 555•5555 ¤ www.adobe.com

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