

**Stackable, tool free cases for HiFiBerry boards with Raspberry Pi 3 and
Raspberry Pi 4 boards with additional rackmount**

Design Contest

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Content

1	Vision.....	1
2	The basic design of the case	2
3	Variations of the case.....	3
4	Rack installation.....	5
5	Printer settings	6
6	The result after printing	7
6.1	Single case for raspberry pi with AMP	7
6.2	Rackmount for two raspberry pi with AMP.....	8

1 Vision

The initial idea was it, to create a simple, tool free case for the raspberry pi. I have more than one raspberry pi at home. Therefore, I created a case, which can be stacked on each other. To add some nice features, I designed it to be completely tool free. This means you do not need any screws to fix the raspberry pi in the case. If you don't use the cover plate of the case. You can easily put another case on the initial one and you get a simple stackable case.

This case for the raspberry pi 3 B and raspberry pi 3 B models is available on Thingiverse for more than a year now.

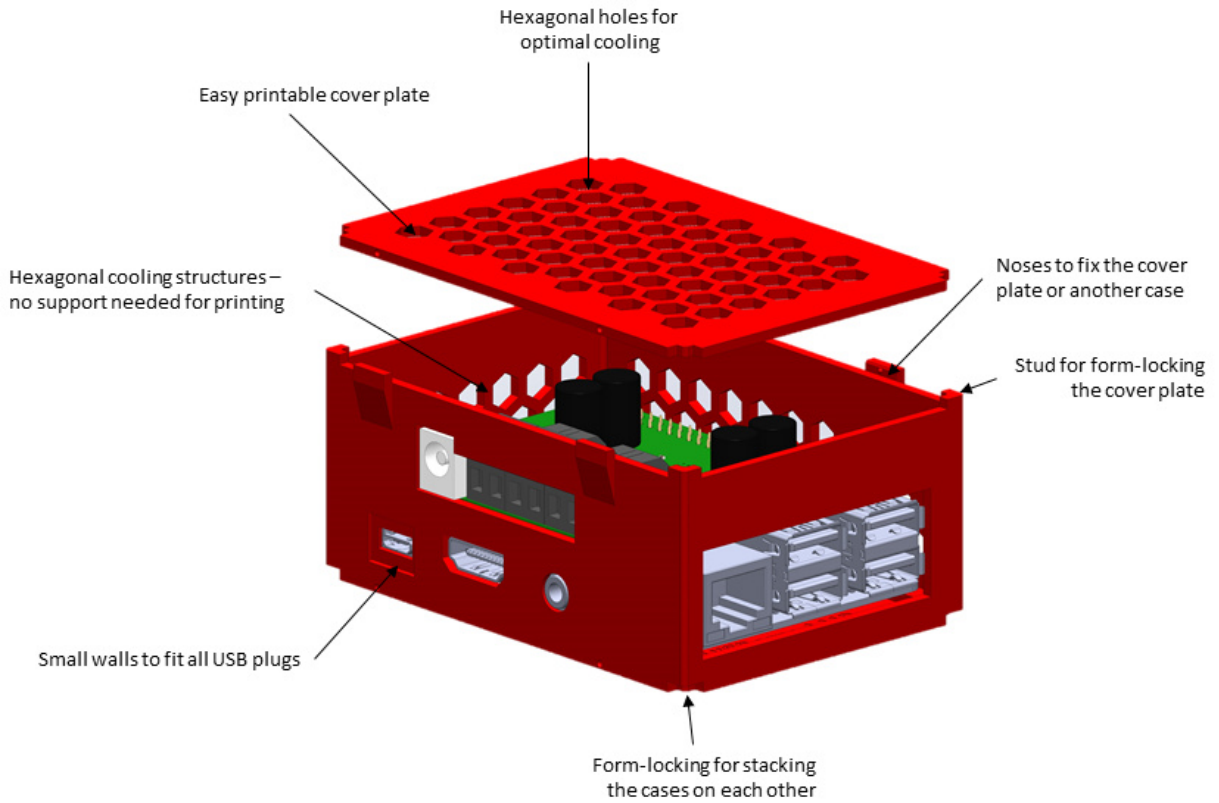


<https://www.thingiverse.com/thing:2830582>

Sometimes ago, I also bought an hifiberry AMP for one of my raspberry pi. This was the time to redesign the case to fit with the hifiberry board. With this redesign, I improved the cooling system of the case, because the AMP produces some more heat than just a raspberry pi. Of course, I kept the advantages of the case like tool free mounting of the pi. I designed this case to be used with the distance screws and bolts which keep the hifiberry board and the pi together.

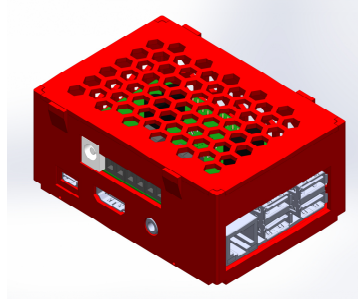
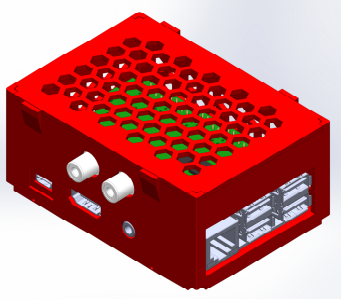
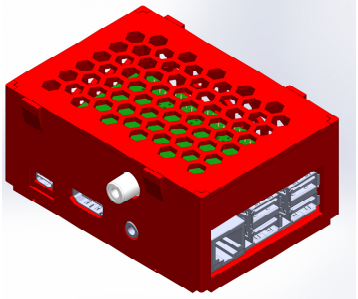
2 The basic design of the case

The following graphic shows the basic design ideas of the case:



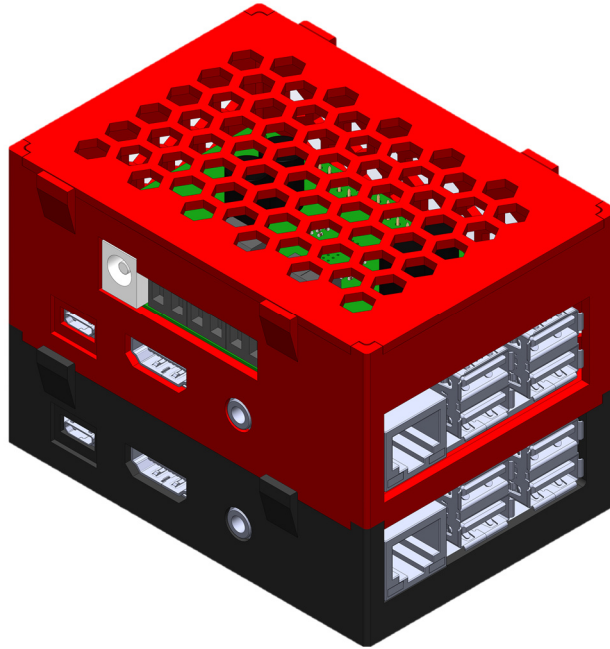
3 Variations of the case

I designed the case for the hifiberry AMP board and tested it with this board. For the AMP board everything worked fine, and I could put the assembled raspberry with the hifiberry board into the case. The design of the DAC and Digi version is based on the hifiberry 3D models. But I couldn't test the assembly of the board into the case because I do not have these boards. It may be necessary to assemble the hifiberry boards after putting the raspberry pi into the case because of the chinch connectors.

AMP	DAC+	DIGI+
		
Files: "RPI3-AMP-case" "Coverplate-universal"	Files: "RPI3-DAC-case" "Coverplate-universal"	Files: "RPI3-Digi-case" "Coverplate-universal"

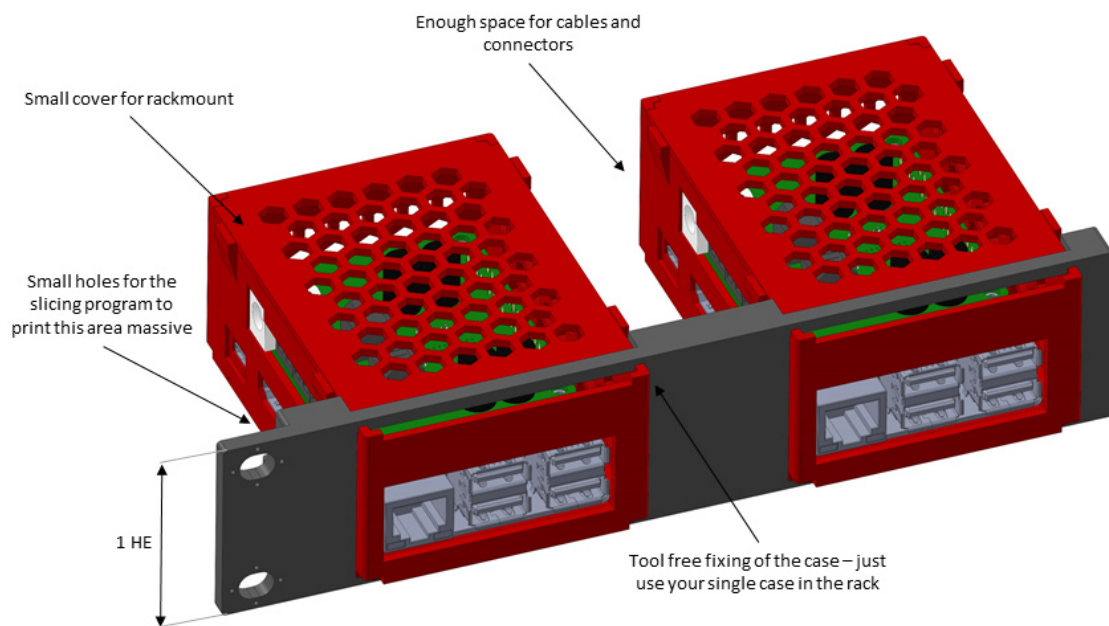
Every file is available in the format ".stl" to slice it for 3D printing. To modify the files, there is a .step file of each part.

Of course, you can also stack different cases. For example, an AMP case on the standard case for the raspberry pi on Thingiverse:



4 Rack installation

Especially for the installation of in-ceiling speakers, it is reasonable to install the raspberry pi with the AMP in a rack. Therefore, I designed a rackmount for the case. As basis, you can use the standard case for the AMP and the other boards. The case can be clipped into the rackmount without any tools. Additionally, you need a special cover, which is smaller than the standard cover. Just see the pictures below.



The rackmount is designed to print it in a printer like the Anycubic i3 mega with a printing area of 210 mm x 210 mm. Of course, you can also use the rackmount with only one raspberry pi.

Files:

“rack-basis-hifiberry”

“coverplate-rack-hifiberry”

5 Printer settings

To print the case, the cover and the rackmount, I used a standard Anycubic i3 mega and standard PLA filament. The slicing was done with Cura 4.

Here my settings:

Layer Height	0.2 mm
Wall thickness	1 mm
Top Layers	5
Bottom Layers	5
Infill Density	30%
Retraction	3 mm
Print Speed	60 mm/s
Support	Yes
Support Overhang Angle	65°

6 The result after printing

6.1 Single case for raspberry pi with AMP



6.2 Rackmount for two raspberry pi with AMP

