
Subject: 2Pi's completed - now I want a center channel

Posted by [willis66](#) on Wed, 07 Nov 2012 20:13:07 GMT

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Here is my first build, a pair of 2Pi speakers. I love the sound, but plan on rebuilding them as towers and focusing on a bit more pleasing woodworking. I have good skills in woodworking, but not so much in electronics and crossovers, etc. I have read most everything on this board, but still am not sure how to proceed in adding a center channel.

I need some help with center speaker idea that I read about on this forum by boblaz, over 10 years ago in this thread.

http://audioroundtable.com/forum/index.php?t=msg&goto=38376&&srch=1pi+build#msg_38376

He mentions using a modified 1 Pi with good results, would the 1 Pi work with the 2 Pi's in my room. My thinking is a double 1 pi with a single tweeter in the center. Is this a stupid idea.

My other thought is an additional 2 Pi speaker, but since our screen is so large it would come to just about the bottom of the screen. The benefit of an additional 2 Pi, is the cabinet is already made.

My current set-up has the two subwoofers wired with a y connector off of the subwoofer channel. I have tried to wire has flanking but not sure I did it correctly. Do I just run two set's of wire from the left/right channel to each subwoofer and 2 Pi? My receiver is a Pioneer Elite VSX-01-TXH.

The main uses for the room is movies and some TV, and some music listening if we are playing pool in the other half of the room.

To summarize, I love the 2 Pi's and now need a center that can keep up.

1. I plan on building 2 Pi towers, so can I please have plans for towers Wayne?
2. Would a modified 1 Pi center be to disrespectful to Wayne's hard work? Would it sound good? Surely a lot better than what I have now, that most people think is great. If so I will order a kit for a single 1 Pi and will of course need plans.
3. What is best way to wire flanking subs from one home theater receiver?
4. Does the 4 Pi idea of phantom center channels apply at all to the 2 Pi's?

File Attachments

1) [Theater 1.jpg](#), downloaded 7489 times

2) [Theater 2.jpg](#), downloaded 7840 times

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [Wayne Parham](#) on Wed, 07 Nov 2012 20:33:56 GMT

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Those are great looking speakers, congratulations!

mains. There is enough spectral match between the three. However, do not lay it on its side or use any sort of horizontal array (drivers side-by-side).

Flanking subs are driven with a low-passed signal of the main speaker they're flanking. Second-order seems best, with crossover around 100Hz. Third-order or fourth-order can be used with a slightly higher crossover, e.g. ~125Hz third-order to ~150Hz fourth-order. But I find the latter approaches are more "localizable", which is not what we want. A flanking sub run second-order blends seamlessly.

Phantom centers work well when the mains generate constant directivity and are setup with the crossed-axes method. They can't be too far apart either; It works best when the physical separation between left and right mains is less than about 15 feet. Part of the cross-axes method is that the listeners must be just behind the point where the axes cross, so if all these conditions are met, phantom centers work very well, providing a believable image. Centers are always preferred, but if the setup is right, a phantom center gives a very satisfying illusion and doesn't lack much.

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [willis66](#) on Wed, 07 Nov 2012 21:46:43 GMT

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Thanks for the quick reply and the compliments. I quickly threw the boxes together using MDF and vinyl self stick laminate.

Thanks for the crossover reminder, I need one of those Pyle electronic crossovers you posted about some time ago, which are hard to find it seems. I am trying to be value oriented. Even the receiver is second hand.

Once I have the crossover are the wires run in parallel from the amp to the crossover and to the speakers? Will this hurt the amp?

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [JCDC](#) on Wed, 07 Nov 2012 21:59:14 GMT

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Ideally you want the same speakers for R C L ... But a Tower 2Pi won't fit under the screen.

Next best would be to use the same drivers. 2Pi Towers on the sides and a regular 2Pi as center.

And it looks like it'll juuuuuuuust fit!

Cheers,
Jeff

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [willis66](#) on Thu, 08 Nov 2012 01:53:45 GMT

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That makes the most sense to have all three the same as much as possible. It will just fit, I wonder if the size of the 2 Pi can be shortened a bit and expanded in depth or width, mainly to allow a slight angle to the speaker towards the listener it this is recommended.

In reality most movies we watch are shot wider than 16:9, which is why the screen is so big, I may willing to make the screen smaller in order to get better sound quality.

Thanks for your input.

Regards,

William

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [Wayne Parham](#) on Thu, 08 Nov 2012 03:37:19 GMT

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willis66 wrote on Wed, 07 November 2012 15:46 Once I have the crossover are the wires run in parallel from the amp to the crossover and to the speakers? Will this hurt the amp? The preamp levels are paralleled out. If nothing else, just use an RCA Y-splitter. Preamp level inputs are relatively high impedance (usually 50k) and the output driving it is usually on the order of a few tens of ohms, so splitting it won't hurt a thing.

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [JCDC](#) on Thu, 08 Nov 2012 22:35:35 GMT

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Hey Wayne,

How far out from the walls do the rear-ported 2Pi Towers need to be?

If far out, they will be sort of in the way of the doorway ...

Cheers,
Jeff

Subject: Re: 2Pi's completed - now I want a center channel
Posted by [Wayne Parham](#) on Fri, 09 Nov 2012 02:40:47 GMT
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They don't have to be far from the wall at all, just a few inches. The port is huge and doesn't need much breathing room.

Subject: Re: 2Pi's completed - now I want a center channel
Posted by [willis66](#) on Fri, 09 Nov 2012 12:49:17 GMT
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Here is the current plan, build 2 Pi Towers for left and right. Reuse one of the current cabinets for the center channel. Shrink the screen size slightly, and make the screen frame 3" instead of 4". This will allow for a better looking soundstage. I will run the subs as flanking with 100 Hz active crossover.

It may be necessary to remove the corner mineral wool for the best sound from the left speaker, this will require testing.

As for the doorway that is actually a 100" opening to the kitchen area in the basement, so the speaker on that side does not really interfere with the doorway.

Next year, I will build two 3 Pi subwoofers for the front and move the two that I have to the rear of the room.

Subject: Re: 2Pi's completed - now I want a center channel
Posted by [JCDC](#) on Fri, 09 Nov 2012 14:07:20 GMT
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Only a few inches wuhahahaha! Here is my crazy plan!

Build 3 Tower 2Pis.

Lay a Tower 2Pi sideways underneath the screen (put the tweeter on the right of the woofer when

standing up). So, you have a Tower laying sideways under the screen with the woofer and tweet aligned vertically with the center of the screen.

The sideways tower covers more to the right than to the left but you could put components in the space on the left. Its tweeter is above the woofer with the same spacing as a regular tower. If the tweeter needs more baffle around it, put a little arch around the tweet. Tip the speaker back a bit so the tweet is pointing at the head of the center seat. Angle in the side speakers so they point at the head of the center seat (Wayne prefers to cross them in front of the center)

Now you have 3 'matching' front channels. Set your amp so the L C R are 'large' and you'll have serious bass. The center will be getting its proper bass which I think is extremely important. Now you can move your other subs around the room to smooth the bass.

I know, it's crazy....

Cheers,
Jeff

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [willis66](#) on Tue, 19 Feb 2013 21:11:56 GMT

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Well the towers are complete. They are built with 3/4" MDF with bracing and insulation per plans. The veneer is cherry that I applied via the glue/iron method. It was very frustrating and they still do not look good, lots of bubbles. It was probably due to the weather and humidity. After a lot of effort they were flat, then after the first coat of laquer, sprayed with an HVLP sprayer, more bubbles appeared. I decided to listen to the for a few months and try again this spring. They do sound great and having the center channel match is great. Running the fronts with a 150HZ filter. Overall I love the sound, just got to work out the veneer issues. Next time I might just build with Baltic Birch and stain the birch.

The new flexi racks are stained in the same color has the towers, I like the overall look.

Still trying to decide if I should make the screen smaller, or just ignore, since when watching 2.35:1 movies it is goes unnoticed.

The pics..

File Attachments

1) [P1060150.jpg](#), downloaded 3018 times

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [Wayne Parham](#) on Tue, 19 Feb 2013 22:48:57 GMT

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Sweeeet!

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [JCDC](#) on Wed, 20 Feb 2013 18:15:27 GMT

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Awesome! They look great from back here!

Panning effects (L-C-R) must sound good with matched mains from ... what Wayne, 100Hz and up?

If you could just raise the screen by a bit so you could see some wall above the 2Pi center and then lower the equipment stands to match the height of the back of the 2Pi ... This would give a uniform strip of wall colour across your components and around the screen and visually 'frame' the screen from a standing position. I think it would look great!

PS No I'm not gay (not that it should matter)... my wife is a decorator and all my stuff has to be HIGH WAF!!!

I hope you're running bass to those 2Pi Towers! They can take it (up to a point) With all this talk about multiple bass sources smoothing out the response it's a bit like having 2 extra subs in a multi-sub arrangement! You could place your other subs anywhere else in the room (higher WAF!). Plus, if you have any way to eq the bass you send around the system, you could really get fancy and analyse and actively smooth nodes "Geddes" style.

Cheers,
Jeff

PS I'm totally, totally jealous!!! What you have is my like 5-10 year dream plan!

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [Wayne Parham](#) on Wed, 20 Feb 2013 18:24:16 GMT

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Yes, all three sources are matched from about 80Hz up.

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [JCDC](#) on Wed, 20 Feb 2013 18:32:11 GMT

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80Hz and up! That almost all your important frequency response. Free Kin Sweeeeet!

Oh and here's that crazy all 2 Pi tower mains idea I was talking about.

Crazy, I know!

But such bass!

File Attachments

1) [LCR 2Pi towers.jpg](#), downloaded 2966 times

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [willis66](#) on Wed, 20 Feb 2013 18:43:17 GMT

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That is a crazy idea for a center, and won't be happening here.

As for WAF and the screen size, my wife likes the big screen and would rather me spend time on other projects rather than taking a day to make a smaller screen.

The bass is nice and smooth. I am thinking about building a folded horn sub for the back of the room to kick in the low end a bit more.

The current set-up blends a lot better with the bass shakers in the seats, which cut-off at 50Hz.

Overall everyone that has seen a movie comments on how much clearer the voices are in the movies. One of my goals with this project.

Wayne, what is you opinion on the corner treatments, they are filled with mineral wool, I also have two panels on the wall and on the ceiling?

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [Wayne Parham](#) on Wed, 20 Feb 2013 20:32:15 GMT

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You would have to measure to know what the treatments were doing, so if you have measurement gear, try a sweep or burst with the treatments and another one without and compare the difference.

My gut feel is the treatments may help in the midrange and higher frequencies but probably don't do much at low frequencies. Room modes are probably just the same with or without those treatments. But they may really help you in the midrange.

Bass damping really requires large panel absorbers. The rooms that are most troublesome have hard walls, like concrete, brick or stucco. Sometimes, the walls made with framed drywall construction damp the bass fairly well even without treatments. Multiple bass sound sources help smooth modes beyond that.

Subject: Re: 2Pi's completed - now I want a center channel

Posted by [willis66](#) on Thu, 21 Feb 2013 13:06:48 GMT

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Thanks for the reply Wayne. I am not planning on adding anything else, and honestly what we have now actually looks good in the room.

My main concern is that the existing treatments might somehow be hurting performance, especially in the left front corner. From your response it sounds like leaving everything as is will be fine.

I do not have test equipment, just a SPL meter from Radio Shack.

Going to enjoy what I have for a year or two, then consider building a 4Pi L-C-R setup and reusing the 2Pi's elsewhere in the house.

Thanks again, Wayne for all you give to the community.
