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Subject: 3pi 4pi?

Posted by [my0x](#) on Mon, 24 Dec 2012 14:44:11 GMT

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What are some of the more subtle differences between the 3pi and 4pi when built with the AE 12s or JBL 2226, respectively? It seems the 3pi may have a little more frequency extension, and the 4pi a bit smaller cabinet and higher efficiency. I am also looking to know what might work best with my existing Hagtech Cymbal 8w p/p monoblocks. I know that all of the Pi's will reach ear bleeding levels in my house, but have read that the 4pi's can take a little more juice to come 'alive'. These are for music only, at reasonable levels...Jazz, symphonic, quartets, classic rock.

Initially, I was considering building the 6pi because I have good corners available, but when I showed my wife a 3d mockup in our 13 x 24 x 9 living / dining room, it didn't really fly to well...mainly because of the size of the midrange horn and whole vertical stack. I read that Wayne had experimented with a 2-way version of the corner speaker in the evolution of the and 7pi, and that might also sound interesting to pursue.

Speakers will be at the 13' width of our combination living / dining room...and run without subs.

Looking to hear some opinions / comparisons!

Thanks,

m@

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Subject: Re: 3pi 4pi?

Posted by [Wayne Parham](#) on Mon, 24 Dec 2012 15:19:18 GMT

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Here are a few links that may be helpful:

Options in a nutshell

Upgrades

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Subject: Re: 3pi 4pi?

Posted by [rkeman](#) on Mon, 24 Dec 2012 20:13:37 GMT

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If you have the corners, the 6Pi or 7Pi is definitely the best option. The midrange horn controls dispersion into the upper bass and really smooths the room response. The 3i is excellent, but the 6Pi is better still. Finish the speaker in a color or veneer to blend into the decor and perhaps your

significant other will be more amenable to the unique design. Bribery and begging can also be effective in some cases. Good luck!

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Subject: Re: 3pi 4pi?

Posted by [my0x](#) on Tue, 01 Jan 2013 19:42:48 GMT

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Happy New Year!

Thanks both for your replies and encouragement...very helpful. I recently came across a pair of good JBL 2226h's measuring 5.0 and 5.1 respectively across their voice coils that were hard to refuse, so I will begin this journey with the 4pi's.

Wayne, would you be so kind as to send me the 4pi plan? Although I want to see first what I might have in my parts bin compatible to build the crossovers, would you consider selling a 4pi kit minus woofers?

Since I'm not going to run high power (<10 W) through the crossover, is there any benefit to using smaller high quality resistors where you typically show multiple resistors for high power dissipation?

Thank you,

Matt

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Subject: Re: 3pi 4pi?

Posted by [Wayne Parham](#) on Tue, 01 Jan 2013 22:39:13 GMT

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You've got mail!

We don't sell partial kits, but we do sell crossovers and waveguides by themselves for people that want to source their own drivers.

You can use resistors with lower dissipation capacity, but I would discourage you against it. They're just not that expensive. Get Mills resistors if you want, but don't skimp, they don't cost that much.

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Subject: Re: 3pi 4pi?

Posted by [myOx](#) on Mon, 21 Jan 2013 16:45:23 GMT

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The JBLs came in and seem really nice. This project will be a HUGE departure from the fostex fe206e based full rangers ... Each woofer has 3.5x the surface area of any woofer I've used in the past! Slowly unloading some other gear, then will not skimp on other parts.

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Subject: Re: 3pi 4pi?

Posted by [Wayne Parham](#) on Mon, 21 Jan 2013 17:29:54 GMT

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Keep us posted on your progress! And don't skimp on the pics!

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Subject: Re: 3pi 4pi?-->4pi w JBL+B&C

Posted by [myOx](#) on Fri, 05 Jul 2013 13:57:36 GMT

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I've eagerly been following some other recent build threads while I've been getting my 4 pi project together. Here is a progress report so far:

Keeping costs down: 3 or 4 months ago I was on the fence about 3pi or 4pi. I decided to go the 4pi route when I came across a pair of used JBL 2226's on ebay for around 250, shipped to my door. I figured that even if they were toast, I could re-cone them with JBL cones and I would still be way ahead of the impressive price tag they carry when new. Since this seller had 8 2226's he was selling, I had him send me the closest matching pair of the lot. I was pleased when they arrived. Despite being dusty and slightly faded from more on one side than the other, they measured 5.3 and 5.4 ohms impedance, and test tones played through each didn't raise any alarms.

For a little bit, I chased after a pair of JBL 4725's for \$600 from a local craigslist as it not only has the JBL 2226h woofer but the famed 2426h compression driver as well. I was wary when the seller who was eager to unload them took a while to inform me that one of the woofers had been rebuilt and didn't know if it was OEM. If you can get them at a good price and they aren't thrashed, you have sourced all 4 drivers needed for your 4 pi's if you want to go the all JBL route.

Building the cabinets: I built the cabinets with fully biscuited 3/4" mdf panels. The biscuits ensure panel alignment when gluing up and add strength to the final cabinet. Someone gave me a cheapo 10" ryobi table saw a while ago- don't even bother with anything like this. While it is fine for ripping things down for some house projects, it is not a precision tool, even with the crosscut jig I built for it. On top of that, it is light and has to be supported from falling over when mounted to

it's legs. I ended up using my buddy's saw with a 4' wide plinth, good runoff table, and a long fence that actually squares. All of the panels were accurately cut within 45 minutes. Use lots of clamps and excessive glue - the glue that squeezes out is easily scraped and sanded down when dry. It also ensures a sealed cabinet when building flush panels. After getting rid of the assembly glue, I squeezed a bead on the inside seams of both cabinets to make sure it's doubly sealed. Use a vacuum attachment to the biscuit joiner and the router - usually a cheap adapter piece for any shop vac will do. This helps keep the tool's cutting area clear, your shop area clean, and your lungs and eyes happy. 80 some biscuits = 160 cuts = lots of nasty mdf dust.

The r-13 insulation wasn't as bad as I thought it might be to work with. Just make sure to be covered head to toe and use long gloves. It cuts easily and staples into the cabinet and your done.

I cut gaskets from pvc shower pan liner, and t-nuts for attaching the drivers to the cabinets. I don't have the compression drivers or crossover bits yet, but I will in a couple of weeks. I intend to cover the MDF panels fully with KD-Panels veneer panel which is a 1/8" veneered plywood, and make full grills with speaker cloth ala the late 1960's AR-5's and AR-7's I used to have. Kind of old school, but I really enjoyed that look and will protect the drivers from dust, cat hair, and curious visiting tiny hands. I'll also make an overlay panel for the front to have a flush finish at the face of the drivers.

Managing expectations and budget: My hobbies are supported in our house, but with a new rule: find a new home for my old project or gear before I start on three new ones and leave two on the workbench. It's a lifestyle change for the better. I'm more apt to do more research and take my time working on something through completion, and the workbench or living room isn't so crowded. Despite the 'wall of speaker' in my living room at the moment, the Decware HDT's I built some years ago have a new home waiting for them, and their proceeds will fund the B&C compression drivers and high quality crossover components.

At the moment, I've clamped a panel into the hole for the high frequency driver so I can test the cabinet so far---far more even and constant bass response than the HDT...and just so much more below 80 hz! Looking forward to the completion of this project!

## File Attachments

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- 1) [photo.JPG](#), downloaded 8609 times
  - 2) [image.jpeg](#), downloaded 8469 times
  - 3) [image \(1\).jpeg](#), downloaded 8671 times
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Subject: Re: 3pi 4pi?-->4pi w JBL+B&C

Posted by [Wayne Parham](#) on Fri, 05 Jul 2013 14:57:52 GMT

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Just wait 'til you get those waveguides mounted!

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Subject: Re: 3pi 4pi?-->4pi w JBL+B&C

Posted by [Nelson Bass](#) on Thu, 11 Jul 2013 21:45:09 GMT

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I second that as a former owner of HDT & ZOB...

The 4pi built to the specifications using JBL 2226H and B&C drivers is second to none IME.

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Subject: Re: 3pi 4pi?-->4pi w JBL+B&C

Posted by [my0x](#) on Sat, 03 Aug 2013 22:06:50 GMT

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Yes - I've been veneering my cabinets this week- two panels per night with a homemade press setup involving plywood plates, 2x reinforcements, a gallon of wood glue, and clamps and straps. I also received packages from Sonicraft (where Alpha Core ribbon inductors were on sale) and Parts Express for the B^C drivers and large caps. I hope to get the veneer finished this weekend, but I think final assembly will go into next week or week after depending on other things. Getting excited! I'll try to put more pics up on the forum sometime.

## File Attachments

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- 1) [image.jpg](#), downloaded 6064 times
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Subject: Re: 3pi 4pi?-->4pi w JBL+B&C

Posted by [Wayne Parham](#) on Sat, 03 Aug 2013 23:42:28 GMT

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Getting closer!

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Subject: Re: 3pi 4pi?

Posted by [my0x](#) on Tue, 13 Aug 2013 05:02:57 GMT

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Progress...

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- 1) [image.jpg](#), downloaded 6015 times
  - 2) [image.jpg](#), downloaded 5997 times
  - 3) [image.jpg](#), downloaded 5891 times
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Subject: Re: 3pi 4pi?

Posted by [my0x](#) on Thu, 22 Aug 2013 02:32:31 GMT

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So I finished my 4pi's last week. I have about 3hrs of burn in time so far, and I am enjoying them despite how 'young' they are! Will post an update after more time with them and after I get placement sorted. These are smooth...voices just float!

About the zobel 8ohm 100w resistor - I had ordered the inexpensive 'dummy load' resistors from parts express, however I have seen folks using other heatsinked resistors here on the site. How important is the quality here before I fully button things down? My crossovers are otherwise built with decent components: Mills resistors, alpha-core 16ga ribbon inductors, Sonicap 6.8 and Solens for the large caps, and drivers are the JBL 2226 and B&C 250.

More pics later and listening impressions as they mature.

Thanks Wayne!

PS. If you have another set of silver pi decals, I think a set would look great on these cabinets.

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Subject: Re: 3pi 4pi?

Posted by [Wayne Parham](#) on Thu, 22 Aug 2013 05:11:01 GMT

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The dummy load resistor is a good part, non-inductive and plenty of thermal capacity. You've got good Mills resistors elsewhere, so stick with the dummy load you're using. It's a good part.

Send me your mailing address by private message or email and I'll mail you a couple silver logo decals.

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Subject: Re: 3pi 4pi?

Posted by [my0x](#) on Fri, 23 Aug 2013 01:13:05 GMT

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Now comes the enjoyment!

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1) [fourPi.jpg](#), downloaded 5614 times

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Subject: Re: 3pi 4pi?

Posted by [Wayne Parham](#) on Fri, 23 Aug 2013 01:58:07 GMT

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Nice!

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Subject: Re: 3pi 4pi?

Posted by [my0x](#) on Thu, 05 Sep 2013 02:25:10 GMT

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PS...really enjoying the 4pi speakers. Still breaking in , and not in their final locations due to house repairs, but these are good! I can't wait to get my Oracle Alexandria functional again.

m@

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Subject: Re: 3pi 4pi?

Posted by [my0x](#) on Sun, 29 Dec 2013 16:55:38 GMT

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OK - finally ran an spl sweep. This was taken with REW 5.0, using the internal mic on my mac. Magenta is the left channel, teal is the right channel. Like Lucasmateo's test, there is less spl below the crossover point. There are other anomalies too, but perhaps some of this is from the low quality test equipment and procedure. What is good is that both channels measure similarly!  
Matthew

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### File Attachments

1) [pi4 combined graph.jpg](#), downloaded 4569 times

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Subject: Re: 3pi 4pi?

Posted by [Wayne Parham](#) on Sun, 29 Dec 2013 17:32:22 GMT

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That's very odd. It's like your tweeter attenuation isn't there. Then again, in one recent case, we saw woofers that were defective give this kind of response. Once the woofers were reconed, their output rose to normal levels.

I'm betting the dip at 6kHz is your microphone. I suppose it could be the compression driver, but that's unlikely since both do it. So I'm thinking it's probably the mic.

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Subject: Re: 3pi 4pi?

Posted by [my0x](#) on Sun, 29 Dec 2013 23:20:32 GMT

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I'm thinking its the woofers. When I bought them, I was pretty sure they came out of a club speaker, but at the used price, even if I had to recone, it would still be a deal. The resistors are Mills, per spec, and I checked locations twice before soldering. Was thinking something was up as the bass wasn't much more than my old single driver speakers.

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Subject: Re: 3pi 4pi?

Posted by [Wayne Parham](#) on Mon, 30 Dec 2013 04:17:14 GMT

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I agree with you about recones. I've bought used speakers at a price I was comfortable with, just for the baskets. Then get 'em reconed and they're 100% good as new. Just make sure the recone kit is genuine JBL and get the work done at a shop that you trust.

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Subject: Re: 3pi 4pi?

Posted by [my0x](#) on Wed, 01 Jan 2014 20:24:02 GMT

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I checked the crossovers again - all arranged per the specification for the 250/2226 requirements. so, the drivers are off to be reconed at local JBL service center...

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Subject: Re: 3pi 4pi?

Posted by [lucasmateo](#) on Mon, 13 Jan 2014 14:51:06 GMT

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My speakers had this kind of f response at first, it was night and day after reconing. And after breaking in they sound even better. My speakers had a very shy bass, almost not present and were quite fatiguing after some hours of listening. With the new woofers it's a different story, 4pi worth much more than its cost.

Recone them and give them some time to break in. Good luck!

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