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Subject: 4Pi's and JBL 3678 looking for plans  
Posted by [diskeditor](#) on Mon, 16 May 2011 00:10:18 GMT  
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hello.....Im looking to build a LCR set of speakers that will rival JBL 3678's  
Are the 4Pis these speakers?  
They will be used in a Fllm audio post facility  
I have seen some pictures of differnt designs online that people are building  
Looks like what im looking for.

thanks

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [diskeditor](#) on Mon, 16 May 2011 00:20:28 GMT  
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I neglected to mention that the speakers need to be behind the screen so they cant be more then 12" deep.  
They will also be tuned in the room by Dolby for film printmaster certification

thanks

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [Wayne Parham](#) on Mon, 16 May 2011 15:06:17 GMT  
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You've got mail!

One potential problem though, the speakers are 14" deep and cannot be made any smaller. The port is 10" long, and the wood thickness of the front and rear baffle takes up space too. So the port opening is as close to the rear baffle as it can be.

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [diskeditor](#) on Mon, 16 May 2011 15:17:46 GMT  
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Can the cabinet be made taller with a larger diameter port?

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [Wayne Parham](#) on Mon, 16 May 2011 15:27:50 GMT  
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Well, of course, you can do a lot of things, but the real problem is that once you change dimensions of the box by any significant amount, you'll change where the standing waves line up in the box. You'll have to verify your changes with measurements.

One of the difficulties of designing high efficiency two-way speakers is the boxes are physically large, so standing waves line up in the lower midrange. Those are at a frequency that's tough to damp with insulation. You really have to position the woofer and port where response is best. The goal is to make sure a pressure node doesn't line up on the port or woofer.

Subwoofers are easy to tune because the wavelengths are so long. If there's no midrange presented to the woofer, you don't have to worry about internal standing waves, so modifications of layout and cabinet shape don't matter. But when you're making a high-efficiency speaker that uses a midwoofer, one that reproduces bass and midrange, this is a real consideration.

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [diskeditor](#) on Mon, 16 May 2011 15:36:02 GMT  
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What do you think of JBL 3677 or 3678 If cabinet designs?

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [Wayne Parham](#) on Mon, 16 May 2011 15:41:03 GMT  
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The low end is great, the top end sucks.

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [diskeditor](#) on Mon, 16 May 2011 15:46:36 GMT  
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The cd horn top end or top end of the midwoofer?  
Thanks for all the help btw.

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [Wayne Parham](#) on Mon, 16 May 2011 18:59:45 GMT  
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The horn is the weak link, not the midwoofer. That horn sounds artificial and "spitty". It's fine for prosound, but definitely not hi-fi.

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [diskeditor](#) on Mon, 16 May 2011 19:01:48 GMT  
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i read a post about replacing the horn with a eminence horn and keeping the driver.....

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [Wayne Parham](#) on Mon, 16 May 2011 19:17:27 GMT  
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Yes, I would be inclined to do that. But it does require some testing to dial in the crossover. You can use a generic approach and it will be OK, but I'd want to do some modeling and measurements to position the forward lobe and vertical nulls.

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [diskeditor](#) on Mon, 16 May 2011 19:52:50 GMT  
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position the forward lobe and vertical nulls?  
sounds like it hurts.....i was going to run it bi amp which i figure would help set the crossover point.....

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [Wayne Parham](#) on Tue, 17 May 2011 04:13:29 GMT  
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Crossover optimization for DI-matched two-way speakers

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [bagofbass](#) on Fri, 03 Jun 2011 00:42:27 GMT  
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Wayne,

I am glad this was posted because I am thinking of swapping the horn in my JBL 3677 cabinet along with the CD to a B&C 250. Do you foresee any issues with this combo and the 3677 cabinet? I know CDY asked you this before in a post and you said to retain the JBL CD but isn't the B&C 250 a better CD overall?

Thanks for all your help!

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [Wayne Parham](#) on Fri, 03 Jun 2011 01:26:56 GMT  
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Yes, the DE250 is a better driver. The JBL 2426 is a nice driver too, but if you don't already have them, I think it makes a lot more sense to buy DE250s.

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [bagofbass](#) on Fri, 03 Jun 2011 01:38:07 GMT  
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Wayne Parham wrote on Thu, 02 June 2011 20:26

Yes, the DE250 is a better driver. The JBL 2426 is a nice driver too, but if you don't already have them, I think it makes a lot more sense to buy DE250s.

Thanks Wayne. I already have the JBL 2426's as I own 3 JBL3677's. I am looking to get rid of the spitty sound and maybe improve dynamics across the upper frequency ranges. I was thinking of swapping the Horn out with the Eminence H290 based on your previous recommendations and while I am doing it go ahead and swap out the CD with the B&C. I know it will be pricey to do the upgrades to all 3 but I want to squeeze every last drop of performance and I think this is the best bet if I have read your recommendations correctly.

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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [Wayne Parham](#) on Fri, 03 Jun 2011 13:06:07 GMT  
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Subject: Re: 4Pi's and JBL 3678 looking for plans  
Posted by [skywave-rider](#) on Fri, 03 Jun 2011 16:36:39 GMT  
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diskeditor,

I am using 4Pi monitors, built by Wayne, in a control room used for post and music work. Not a Dolby room. Sub is a Genelec 7070A.

Excellent for both editing and determining frequency balance for EQ. I rarely use nearfields with these. I paid careful attention to placement for optimizing where the forward lobe meets the engineer. Though it's pretty straightforward, when the speakers are soffit mounted, it's not easy to change later.

It's a WSDG room, who usually specify Augspurger monitors. The 4Pi s are in the same league.

My only regret is that I did not purchase the wood horn option for cosmetic reasons. We do not hide the monitors behind a screen as you will. : ) Though if you raise the screen, you might want to consider it.