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Subject: Another Sub woofer Q&A

Posted by [Norbert](#) on Sun, 29 Jan 2012 04:15:40 GMT

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While reading other posters questions around complementing a sub woofer with 4 Pi it kind of got me curious so I did a quick and dirty test using an existing JBL sub woofer that I have connected to my Home theater and tapped it into my current 2 channel setup with a Y- RCA cable off one of the channels between my DAC and SET amp.

My JBL sub woofer have a variable cross-over and variable gain so it allowed me to adjust its output to blend with the 4 Pi...

Overall, the sound from the sub was difficult to blend with 4 Pi and in some cases, I noticed the sound from the sub was a little out of sync from 4 Pi.

Question, will the issues mentioned above still be there if I build 3 Pi sub woofer and use Pyle crone cross-over mentioned by Wayne? I'm thinking of re-using one of my decommissioned Eminence Omega speakers when I build the 3 Pi sub.

Thanks

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Subject: Re: Another Sub woofer Q&A

Posted by [Wayne Parham](#) on Sun, 29 Jan 2012 06:16:44 GMT

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Honestly, as long as the subwoofers you use are of good quality, it doesn't matter as much what brands and models you use. What matters more is their positions and low-pass slopes. The main thing is you shouldn't expect any single subwoofer to integrate well. It won't. If you fiddle with it enough you might get it to sound OK for one listener in one spot, but even then, it won't be nearly as good as using at least two flanking subs.

I suggest starting off with two flanking subs, setup as described in the links below. That will give good bass extension and will sound great. It will smooth the modal range down to about 80Hz, and this is sometimes all that is needed. If you find you still have a room mode below that point, add one or two subs placed further away. This is also discussed in the links below.

Room modes, multisubs and flanking subs

High-Fidelity Uniform-Directivity Loudspeakers

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Subject: Re: Another Sub woofer Q&A

Posted by [feket663](#) on Sun, 29 Jan 2012 21:48:00 GMT

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Dear Wayne! I'd like build a pair of subwoofers for my 4PI speakers. You recommend the LAB12, but here in Europe the price is very-very high( \$180 vs. 245 Euro(approxx 320 usd) ) Can you

recommend me similar, but cheaper subwoofer drivers for music listening?

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Subject: Re: Another Sub woofer Q&A

Posted by [Wayne Parham](#) on Sun, 29 Jan 2012 23:22:15 GMT

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There are lots of good subwoofer drivers on the market. I use an OEM driver that is very similar to the LAB12, machined to fit my cooling plug. So naturally that's the best driver for me to use. But it could almost be considered a commodity part. Direct radiating subs aren't nearly as tricky to design as constant directivity mains are.

Find a woofer that is in your price range and use a T/S modeling program to find the box and port size. You can pretty much just hit the "align" button to optimize. For subs, that's pretty much all there is to it. I generally like to tune slightly lower in frequency than an auto-optimized max-flat alignment, but that's easy to do. Just make the port slightly longer than it says; Adjust the parameters to tune the box 10% lower, e.g. 27Hz if auto-align suggests 30Hz. That will make the system slightly overdamped, which is more tolerant of parameter shifts and a little more "room friendly" too. Subs made this way won't get peaky when pushed too hard or when used in rooms with unusually bad acoustics.

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Subject: Re: Another Sub woofer Q&A

Posted by [Norbert](#) on Mon, 30 Jan 2012 05:14:42 GMT

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Wayne,

thanks for the links... So starting with two flanking subs it is.

Due to room space constraint, is there a big difference in sound quality between 8, 10, and 12 inch woofers if the the boxes are tuned for the same frequency range?

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Subject: Re: Another Sub woofer Q&A

Posted by [feket663](#) on Mon, 30 Jan 2012 13:54:56 GMT

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Wayne Parham wrote on Mon, 30 January 2012 00:22

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Thanks Wayne! I think I found my driver:

[http://www.stx.pl/product/attachment/99b5b71954ed6694014cbedd15658d25/pl\\_PL/SW-STX-15-4-1200-8-F-S-MC.pdf](http://www.stx.pl/product/attachment/99b5b71954ed6694014cbedd15658d25/pl_PL/SW-STX-15-4-1200-8-F-S-MC.pdf)

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Subject: Re: Another Sub woofer Q&A  
Posted by [Wayne Parham](#) on Mon, 30 Jan 2012 14:02:12 GMT  
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Norbert wrote on Sun, 29 January 2012 23:14Wayne,

thanks for the links... So starting with two flanking subs it is.  
Due to room space constraint, is there a big difference in sound quality between 8, 10, and 12 inch woofers if the the boxes are tuned for the same frequency range?  
Where subs are concerned, woofer size shouldn't be considered a qualitative difference, but rather a quantitative difference. Subs are pretty simple systems, and the biggest differences where cone size is concerned are mass and radiator area. Increased mass tends to tune the system for lower frequency and larger radiating area tends to make the system more efficient. But the larger cones also tend to make the box requirement larger too. If you need a physically small box size, and bass extension is desired too, then the cone size will need to be smaller to allow the proper box alignment for a sub.

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Subject: Re: Another Sub woofer Q&A  
Posted by [Wayne Parham](#) on Mon, 30 Jan 2012 16:07:51 GMT  
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feket663 wrote on Mon, 30 January 2012 07:54Thanks Wayne! I think I found my driver:

[http://www.stx.pl/product/attachment/99b5b71954ed6694014cbedd15658d25/pl\\_PL/SW-STX-15-](http://www.stx.pl/product/attachment/99b5b71954ed6694014cbedd15658d25/pl_PL/SW-STX-15-4-1200-8-F-S-MC.pdf)

4-1200-8-F-S-MC.pdf

I couldn't open the attachment from that link, but I did find the driver here:

<http://www.stx.pl/wm-stx-15-2-500-8-f-s-mc-duplikat-1.html>

387 Zloty = 120 USD, not a bad price. Should do nicely, I think. Couldn't see the T/S parameters because the PDF file wasn't there. But hopefully you can tune it low enough for your needs without making the box too big.

As an aside, I was in Warsaw a few times and when I left, I never exchanged my money. So I have some Zloty and Grosz coins. I kind of like having a little collection of interesting coins.

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Subject: Re: Another Sub woofer Q&A  
Posted by [feket663](#) on Mon, 30 Jan 2012 19:16:13 GMT  
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Wayne Parham wrote on Mon, 30 January 2012 17:07

feket663 wrote on Mon, 30 January 2012 07:54 Thanks Wayne! I think I found my driver:

[http://www.stx.pl/product/attachment/99b5b71954ed6694014cbedd15658d25/pl\\_PL/SW-STX-15-4-1200-8-F-S-MC.pdf](http://www.stx.pl/product/attachment/99b5b71954ed6694014cbedd15658d25/pl_PL/SW-STX-15-4-1200-8-F-S-MC.pdf)

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As an aside, I was in Warsaw a few times and when I left, I never exchanged my money. So I have some Zloty and Grosz coins. I kind of like having a little collection of interesting coins.

here it is!

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### File Attachments

1) [stx.JPG](#), downloaded 4731 times

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Subject: Re: Another Sub woofer Q&A  
Posted by [Wayne Parham](#) on Mon, 30 Jan 2012 20:09:57 GMT  
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I must level with you. That woofer isn't a sub. It might be a fine midwoofer, because it is tuned like so many others that have been designed to run in 75-150 liter boxes tuned to 35-40Hz. This has become a defacto standard tuning for prosound midwoofers, and it works great for mains where the woofer will be used down to 40Hz or 60Hz or so. But it's really not the best choice for use as a dedicated subwoofer.

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Subject: Re: Another Sub woofer Q&A  
Posted by [feket663](#) on Mon, 30 Jan 2012 20:29:54 GMT  
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Wayne Parham wrote on Mon, 30 January 2012 21:09  
I must level with you. That woofer isn't a sub. It might be a fine midwoofer, because it is tuned like so many others that have been designed to run in 75-150 liter boxes tuned to 35-40Hz. This has become a defacto standard tuning for prosound midwoofers, and it works great for mains where the woofer will be used down to 40Hz or 60Hz or so. But it's really not the best choice for use as a dedicated subwoofer.

I understand. I think I need collect some money for LAB12-s...

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Subject: Re: Another Sub woofer Q&A  
Posted by [Wayne Parham](#) on Mon, 30 Jan 2012 21:59:37 GMT  
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The LAB12 is a competent driver. And in North America, it is inexpensive too, so it's a good option. But if it is expensive where you are, don't hesitate to look for other options. Look at subs from Peerless or SEAS, for example.

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Subject: Re: Another Sub woofer Q&A  
Posted by [feket663](#) on Tue, 31 Jan 2012 08:08:18 GMT  
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Thanks for help! Finally I have a newbie question: Isn't problem, if I choose car subwoofer driver, like this:

<http://www.jbl.com/resources/Brands/jbl/Products/ProductRelatedDocuments/en-US/BoxesandParameters/GTO1214TD.pdf>

Thx!

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Subject: Re: Another Sub woofer Q&A  
Posted by [Wayne Parham](#) on Tue, 31 Jan 2012 14:02:24 GMT  
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That's fine. A lot of the small sub drivers are used in cars.

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Subject: Re: Another Sub woofer Q&A  
Posted by [feket663](#) on Tue, 31 Jan 2012 20:32:09 GMT  
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Thanks Wayne!

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