Subject: Ten happy years with the 3pi... Time for the Pi 3 subs!
Posted by porfido1 on Fri, 25 Apr 2025 08:55:30 GMT
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Dear Wayne, as usual sorry for my english...
After almost ten happy years with the 3 pi (the only speaker I had till now that I really don't need to change with "something else" anymore), it's probably time to add two flanking subs...
I'm using a Yamaha P2500s for the mains (very satisfied) and a Crown XLS 1502 for the subs...
I currently use two TH subs with a usable range too low to use as flanking, so I use them mono placed asymmetrically in the room and equalized by a Minidsp Flex and MSO (Multiple Subs Optimizer)...
I'm not totally satisfied by them, I have to say... Maybe two direct radiation subs with a wider usable range used as flanking could give me better results...
So could you please send me the plans for your subs?
Thank you so much again for these amazing speakers!!!!

Subject: Re: Ten happy years with the 3pi... Time for the Pi 3 subs!
Posted by Wayne Parham on Fri, 25 Apr 2025 16:41:23 GMT
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I'll send plans in a separate email.

Sounds to me like you have the right equipment to build an excellent sound system!

I think you are right though - basshorns, when used indoors, are best used as distributed multisubs. So your placing them asymmetrically in the room would be a Geddes multisub configuration. Very good. Send them the LFE channel, or an all-channel summed signal with steep 4th-order low-pass, no higher than 80Hz.

Flanking subs are an excellent way to augment this arrangement, for all the reasons attributed to flanking subs - They provide baffle-step correction for the mains, mitigate SBIR and higher frequency room modes and provide additional extension.

Your basshorns provide more than adequate extension, I expect. But it is probably somewhat detached from the mains. By adding flanking subs, you'll blend them together much better.

Each flanking sub needs a low-passed copy of the signal sent to the main speaker it is flanking. The low-pass slope is generally pretty "gentle" - I find second-order at 100Hz generally works well.

Subject: Re: Ten happy years with the 3pi... Time for the Pi 3 subs!
Posted by porfido1 on Fri, 25 Apr 2025 21:11:11 GMT

THANK YOU SO MUCH, WAYNE!
You're right: I was using the two TH subs like a sort of Geddes style multiple subs...
The problem is that the Minidsp Flex has only 4 balanced outputs, so I will need to keep only two flanking subs and discard the two "Geddes" TH I already have...
I hope that the flanking ones will give me a better result than the other two...
Only one question: is it possible to change the position of the vent, if needed?
Thank you very much again!!!

Subject: Re: Ten happy years with the 3pi... Time for the Pi 3 subs!
Posted by Wayne Parham on Sat, 26 Apr 2025 14:39:02 GMT


Yes, you can change the position of the vent.

You (or others) may have seen me comment about concerns with changing dimensions, port or driver positions.

I am always leery of cabinet modifications to my full-range loudspeaker designs. This is a potential concern for any full-range loudspeakers, particularly those with large cabinets and especially if they have a midwoofer - a driver used for bass and midrange frequencies.

Most two-way loudspeakers have a midwoofer driver - one that generates bass and midrange frequences. So the cabinet is exposed to a fairly wide range of frequencies. In such a cabinet, internal standing waves will develop. If the cabinet is large, those standing waves can fall in the lower midrange, which is not well damped by stuffing along cabinet walls. This makes cabinet dimensions and the positions of the midwoofer and port somewhat important, because you don't want them aligning with an anti-node, which could be audible.

None of this is true in a subwoofer with all dimensions less than about three feet. A cabinet smaller than that is what is sometimes called "acoustically small." No standing waves can develop in a cabinet this size. In fact, many manufacturers don't even include damping material inside.

All that makes positions of the driver and port relatively unimportant. You just don't have any internal standing waves to worry about.

Now then, one caveat: Do remember that flanking subs do "kiss lightly" into the midrange. So while I wouldn't be concerned with positions of the woofer or the port, I would include internal damping material in a flanking sub. I've run 'em both ways, and I don't hear any anomalies without damping material. But it sure doesn't hurt to add.

Subject: Re: Ten happy years with the 3pi... Time for the Pi 3 subs!
Posted by porfido1 on Sun, 27 Apr 2025 14:58:13 GMT
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Thank you so much, Wayne!
Perfect! I'll move the vent to the back to make space for a frame with acoustical cloth like I didi with the mains...
Ok for insulation: I should have some R13 around...
I was wondering if building it in 18mm MDF I could need some bracing... Maybe not, considering I'll use a lot of wooden dowel pins gluing the boards togheter...

Subject: Re: Ten happy years with the 3pi... Time for the Pi 3 subs!
Posted by Wayne Parham on Sun, 27 Apr 2025 16:06:06 GMT
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You won't need any bracing.  The cabinet is small enough that the panels are stiff without bracing.

It won't hurt to add bracing, of course, provided it doesn't displace too much internal volume or you grow the box a little to compensate.

Subject: Re: Ten happy years with the 3pi... Time for the Pi 3 subs!
Posted by porfido1 on Mon, 28 Apr 2025 09:05:39 GMT
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Perfect, Wayne, thank you!
Time to make some MDF dust then! :d

Subject: Re: Ten happy years with the 3pi... Time for the Pi 3 subs!
Posted by porfido1 on Sun, 25 May 2025 13:04:25 GMT
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Dear Wayne, here is the last question:
I was building the frame for the front cloth and I was thinking about placing the port on the back...
I know you told port position is quite irrelevant, but do you think that also a rear port could be suitable here?
Thank you so much!

Subject: Re: Ten happy years with the 3pi... Time for the Pi 3 subs!
Posted by Wayne Parham on Sun, 25 May 2025 15:52:03 GMT

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That's fine.  Port location matters on the three Pi mains but not on the three Pi sub.

Subject: Re: Ten happy years with the 3pi... Time for the Pi 3 subs!
Posted by porfido1 on Sun, 25 May 2025 15:58:08 GMT
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Thank you!!!!