
Subject: Build my own subs

Posted by [mr16track](#) on Thu, 29 Apr 2010 15:42:01 GMT

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I want to build my own horn subs. It's something I have wanted to do for a long time. I want to add them to my PA system.

My system is 2 SoundBridge 3215's and 2 Community 415XLT cabs. They are being driven by a Crown XTi 4000 & XTi6000 respectively.

I think the SoundBridge cabs go low enough to replace my Community's with Horn Subs. I have looked at building LABhorns, but happen onto this site, and these look like more what I'm looking for.

I play mostly Country/Rock in small (200-350 capacity) clubs. I want the bass to rock every where we play. I think I have the power, I just need the cabs.

Sometimes we play outside at festivals with our own system: horns would be even better for that!

Any thoughts?

Subject: Re: Build my own subs

Posted by [Wayne Parham](#) on Thu, 29 Apr 2010 16:18:50 GMT

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I don't know if plans for the Soundbridge subs are available or not but we measured them the 2006 Prosound Shootout and I was able to see them in action. They're nice subs, but they aren't horns, they're vented boxes. If hornsubs are what you're after, there are lots of other options, some as kits and others with plans available online.

Subject: Re: Build my own subs

Posted by [mr16track](#) on Thu, 29 Apr 2010 16:43:29 GMT

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I saw that post, actually. I think I would like to build the pi horns. I'm a SoundBridge fan, but I'm not sure I could afford SoundBridge subs.

I'm no sound tech fanatic... What I mean is this: I don't understand all of the charts and graphs laid out for each of those cabs. I want to build something that is going to sound fantastic, and I need to find something that has a proven track record. I wish I knew how to design a box, but wishing

is as much as I want to devote to that area. My wife will KILL me if I get into another hobby that carves every second of my waking existence!

The PI horns look like they do exactly what I need. I want a cabinet that will rattle your guts, and sound fantastic. I want to build them rather than buy, because of two reasons: 1. I would take great satisfaction from an experience like that, & 2. I don't have \$6400.00!!!

Do you think a pair of the PI horns will do what I need? I am also considering building a set of the Selenium Dual 18" subs...

The SoundBridge tops have dual 15" drivers... They "kick" enough. What I want is a lot of "meat" to back them up. I can set my crowns to X-over at 80Hz with a 24db per octave setting, so that would be good, clean, and efficient, I think...

Subject: Re: Build my own subs
Posted by [Wayne Parham](#) on Thu, 29 Apr 2010 18:06:48 GMT
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Subject: Re: Build my own subs
Posted by [mr16track](#) on Thu, 29 Apr 2010 19:46:01 GMT
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Wayne,

Thank you... It looks like I've got a major undertaking. Do you think they'll do what I need them to do? For all intents and purposes, it sure looks like a perfect fit to me.

I wish I could build two pair, instead of just one...

AND It looks like the Crown XTi 6000 going to drive it perfectly:

Per channel, both channels driven
Stereo, 4 ohms (per ch.)2100 watts / Damping Factor >500

Subject: Re: Build my own subs
Posted by [Wayne Parham](#) on Thu, 29 Apr 2010 21:26:53 GMT
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I think that the number of subs required really depends on the environment and application, but

Usually, I see at least two mains flown for each sub. Some outdoors events require eight or sixteen subs, but then they usually have at least twice that many mains hung in an array on each side of the stage.

One place I'm real familiar with is a fairly large indoor venue, large enough that the Schroeder frequency is well below the audible band - so it acts pretty much the same as an outdoor event.

are sixteen mains hung as vertical arrays, eight per side. The subs have no problem keeping up with the mains. Typical seating is about 5000 people.

Direct radiating subs are just the opposite; They often require more subs than mains. Little systems in indoors clubs are good candidates for this approach, with a couple of mains and maybe four or six subs. Sometimes you'll use a pair of mains per side, and then maybe eight subs scattered around. In this case, the number of subs helps break up room modes just like in a home hifi multisub setup. Indoors in small venues is a totally different deal than outdoor or arena setups where you want to group the subs together.

Subject: Re: Build my own subs

Posted by [Live Sound Audio](#) on Thu, 06 May 2010 18:35:00 GMT

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I thought so much of the trick these days was the DSP and how it controls the speakers. While you can't build a bad cabinet and fix it with DSP ... DSP seems to figure into everything...?

Subject: Re: Build my own subs

Posted by [Wayne Parham](#) on Thu, 06 May 2010 20:18:30 GMT

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In some cases, I think that makes sense. But you can't fix everything with signal processing. Setting a delay or making a filter is easy, but some acoustics problems can't be solved that way. Two examples that come to mind are cone breakup and destructive summing. Regarding destructive summing, if you can delay one source to match another, that will prevent it but once it has already occurred, you can't correct it with a filter. Even if you boost power to the notch, you're just throwing power into a black hole.

Where I think this really shows up is self-interference from a boundary reflection. That's where multisubs work best, because they actually increase interference to smooth the modes. You can't correct the modes with processing, but you can mitigate the nulls with multiple sound sources. Naturally, it's best to get everything to sum properly but in some cases, that's not possible. So if you can't avoid interference, then the next best thing is to make the interference so dense,

individual nodes can't be detected. It at least smooths the average sound field. This is an example of something that can't be accomplished with DSP. It requires an acoustic solution.

Subject: Re: Build my own subs

Posted by [mr16track](#) on Fri, 07 May 2010 02:18:21 GMT

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Unfortunately, what you guys are saying is completely over my head...

Here's the thing: my system is nice. It is far from stellar, but I play in typically small rooms. It just doesn't have that "holy crap, that bass is thunder, but so clean and tight" sound.

My stereo at home is better, and it is just a set of Bose 901's and a JBL sub... It is ridiculous!!!

I would hate to build a set of subs for another grand and two weeks of nothing but weekends and up til midnights if they are not going to be the bomb!

The other thing that concerns me is the need for another \$2000 amp. I was thinking that my Crown XTi 6000 would run both subs; but if I read the wiring diagram right, I need two amps...

Subject: Re: Build my own subs

Posted by [Live Sound Audio](#) on Thu, 20 May 2010 23:41:04 GMT

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Wayne Parham wrote on Thu, 06 May 2010 12:18

This is an example of something that can't be accomplished with DSP. It requires an acoustic solution.

Agreed. I meant that the performance of a box itself, not the acoustic space, is super-tweaked by DSP. For example, I've got some QSC ISIS double 15". They've been around for a while. QSC kept tweaking the software DSP settings with respect to EQ curves, phase, delay, etc. They finally got them sounding substantially better. It would have been extremely difficult for me to arrive at these kinds of settings on my own.

Now for placing them in an acoustic space - that's a different story!

Subject: Re: Build my own subs

Posted by [Wayne Parham](#) on Fri, 21 May 2010 00:27:48 GMT

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Gotcha. Yeah, Bag End does something like that too. In my experience, it isn't tooo hard to get sub cabinet (anechoic) response to be good, but the environment is sometimes tricky.
