
Subject: FredArray II Nearing Completion
Posted by [FredT](#) on Tue, 23 Aug 2005 18:24:39 GMT
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I sold the FredArrays that were at the GPAF, and soon after began to suffer from separation anxiety syndrome. So I drew up some plans for another pair of FredArrays that address some of the issues I had with the first pair. The new pair uses nine Silver Flute 5.5" midwoofers instead of ten, enabling me to reduce the height from 6' to a more manageable (and a bit more WAF friendly) 64". I also replaced the MCM titanium dome tweeter with the Vifa DX25, which I thought sounded exceptionally good in Wayne's Pi 2 towers. The MCM will not cross over much below 4khz and it requires a complex and expensive third order crossover with a notch filter to tame its resonances. The Vifa will cross over as low as 2khz and sounds fine with a simple first order crossover plus a damping resistor across the terminals. To maintain symmetry with an odd number of woofers I set them in an unbroken array on 6" centers, with the tweeter set alongside the center woofer. This increased the width from 10" for the original FredArray to 12" for the model II. (The 12" side and back panels are economically sized to build each enclosure from one sheet of mdf). Total cost to build them, including enclosure materials, will be about \$400. Pictures at <http://fredt300b.smugmug.com/gallery/753570/1/33234249>
FredArray II Construction Photos

Subject: Re: FredArray II Nearing Completion
Posted by [Wayne Parham](#) on Wed, 24 Aug 2005 01:45:06 GMT
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Wow, Fred, you're a veritable music machine! Those look like they're coming along nicely, and I hope you still have them next summer, so maybe I can hear them at GPAF 2006.

Subject: FredArray II at GPAF 2006
Posted by [FredT](#) on Fri, 26 Aug 2005 11:47:24 GMT
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Can't wait! I'm planning to see if there's any interest in a Lone Star Bottleheads / Dallas Audio Club diy room for 2006, with members of both clubs invited to bring their favorite electronic components (tube, ss, diy, kit, or store bought) for everyone to enjoy. Heck, we might get to hear some really cool things, like the tube dac in a cigar box at this year's GPAF. I'll bring the best sounding speakers I have at the time that are high efficiency, work well with low power tube amps, and will fit into my truck. Unfortunately the last criteria rules out the Selah XT8 arrays. We'll see how the FredArray II sounds, but I already have a pair that meets all three criteria - the 3 Pi Theater speakers, so I know I'll have something there that sounds good. For electronics I'll bring the Audio Mirror "Eargasm Series" 40 watt 6C33C single ended triode amps.

Subject: Done!

Posted by [FredT](#) on Mon, 29 Aug 2005 01:53:11 GMT

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They're completed and playing. The frequency response is quite a bit smoother than the FredArray I, especially through the crossover frequency range. I really do prefer the Vifa DX25 tweeter to the MCM. Initially there was a peak around 5khz which I was able to tame by lowering the woofer crossover frequency and adding a CR impedance equalization network. With this change I was able to integrate the drivers without having to go to a higher order network. The bass is a bit too much for my taste, so I plugged one of the ports in each enclosure (each three-woofer section has its own port and is completely isolated from the other sections, so plugging one port overdamps the woofers in that section without affecting the others). I believe I'll enjoy these for a while before taking them apart for painting and adding bases.

Subject: Crossover Peaking

Posted by [Wayne Parham](#) on Mon, 29 Aug 2005 03:36:22 GMT

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I know what you mean by that 5kHz peak, and taming it with a Zobel. See Exhibits 14 and 15 on pages 48 and 49 of the "Crossover Electronics 101" Handout. The crossover described is a garden variety second-order 1.6kHz Butterworth, having components of 1.0mH and 10uF. Without a Zobel damper, it creates a 14dB peak at 2kHz.

Subject: Re: FredArray II Nearing Completion

Posted by [Gooch](#) on Fri, 09 Sep 2005 12:24:56 GMT

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Hi Fred Do you have box plans and crossover plans so if some one else wanted to build them could?

Subject: Re: FredArray II Nearing Completion

Posted by [FredT](#) on Fri, 09 Sep 2005 18:28:38 GMT

I didn't draw up any plans. The box and port configuration was developed using WinISD, and the crossover was developed with Xover Pro. As usual, the crossover required considerable tweaking to get it right at the crossover frequency. I would be glad to summarize everything and send you an email.

Subject: Budget Line Array Kits
Posted by [FredT](#) on Fri, 09 Sep 2005 18:45:20 GMT
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I forgot to mention, if you're looking for a very inexpensive array the FredArray is just that, but if you're looking for a serious pair of arrays that will serve as your main speakers there are two budget line array kits out there that use higher quality drivers than I used in the FredArray. These were designed by Danny Ritchie and Rick Craig, both of whom have the background and test equipment to produce a first class product that will rival anything on the market, but at a much more attractive price than mainstream products. They are the RAW Acoustics RA8 and the Selah Audio Day Tek. Both use better woofers combined with much higher quality ribbon tweeters, and you get complete detailed enclosure plans and competently designed crossovers with either one. I have either built or auditioned line arrays by both designers and would recommend their products without hesitation. Either kit can be built for less than \$1,000 including the enclosure materials.<http://www.rawacoustics.com/http://www.selahaudio.com/id103.html>

Subject: Raw and Sela actually costs \$2000 - \$4500
Posted by [Eric J](#) on Tue, 13 Sep 2005 18:53:32 GMT
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Raw Acoustics Line array kit is \$4500. Even their really small line array is \$2000. The Selahaudio small kit is \$3700. This is quite a bit different from the under \$1000 that you quoted, Fred. I can probably draw up plans using my PVC tube kit, along with the electronic crossover system for less than \$800(sub woofer would be extra). Maybe when I'm done, I should market my design, pre routed and ready to glue together. for a real \$1000.eric

Subject: Day Tek & RA8 - \$800 & \$799
Posted by [FredT](#) on Tue, 13 Sep 2005 19:53:44 GMT
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The arrays I was referring to are the Selah Day Tek (\$800/pr) and the Raw Acoustics RA8 (\$799 pre RMAF price, increasing to \$899 afterward). These incorporate a woofer array with a single high quality ribbon tweeter. Both companies also offer larger full line array (woofer and tweeter) kits in the \$3,000+ price range. I have the Selah XT-8. If you bought the drivers from Madisound or Parts Express the woofers would cost you \$1,680 and the tweeters would set you back \$1,888. Add the price of the Hovland caps and Alpha Core inductors for the crossover and the total wouldn't be too much less than the \$3,835 price for the kit, even after a volume discount for the drivers. Good luck with your commercial venture:)
