Subject: more on (or moron on) crossovers
Posted by EZ_Angus on Sun, 18 Aug 2002 21:32:11 GMT
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I have a couple questions about recent threads on this forum. first is active v. passive x-over. In my mind there are three possibilities here (besides the no x-over fr driver like i use now): passive after the amp, passive before the amps, active before the amps. It seems like everyone is saying before the amps is better than after the amps, but Bill/Till (are you the same person? why does wayne always call Till Bill?) are you saying active before the amps is better than passive before the amps? if so, why? also does the quality of the active x-over matter? I worry about having a tube amp and preamp hand built from boutique parts then running the signal through an $150 ss active cross (I am not trying to disparage SS directly, just am a tube guy) I have bought a couple circuit boards to build steve benches tube active x-over, which he describes as "The Tube (valve) crossover shown here is a 3 pole lowpass and highpass used for a 2 way crossover design. The circuit needs +150VDC and 6.3V filament power for its operation. The circuit is a modification of a unity gain non-inverting Sallen-Key circuit that provides 18 dB per octave rolloff characteristics."the schematic is here: http://members.aol.com/sbench101/Crossover/xover.gifthe circuit boards here:http://www.the-planet.org/active.htmdoes anyone have an opinion on this x-over and/or can anyone explain the pros and cons of active before the amps vs. passive before the amps?thanks, Kevin

my whacky no x-over speakers

Subject: Sallen-Key filters and crossovers
Posted by Wayne Parham on Sun, 18 Aug 2002 23:23:36 GMT
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We put labels on things, really just to discuss them. But the fact is that, from an engineering perspective, there are a lot of different circuit topologies. They are formed from capacitors, inductors, resistors and from active components of various types. So there is a lot of detail we could look at in addition to the groupings of "active or "passive."Generally speaking, what reactive components do is to act as filters. Capacitance passes current before developing voltage across itself. This also has the characteristic of presenting less impedance to high frequencies than to low frequencies. Inductance is the opposite, developing voltage across itself before allowing current to pass, and posing less impedance for low frequencies than to high. Resistance is neutral, having current and voltage rise at the same rate, and having the same impedance regardless of frequency.Amplifiers are essentially just signal multipliers. You can put them in front of a filter or behind one, and the situation is basically the same. Of course, in the case of loudspeakers, the load is reactive too so the reactive components in the crossover interact with it. This is a situation that merits some investigation, and it is one of the main reasons that having the crossover before the amp is attractive.There is also several cases where reactive components are used within signal multiplier circuits, and more complicated response curves can be formed. A passive filter can only form a fairly simple response curve, but using feedback within an active circuit allows for more variations. This is why there are a lot of configurations that are possible, all of which are grouped together as "active filters."The Sallen-key filter is very versatile, and is worth

studying:

Discussions about Sallen-Key filters and crossovers

Subject: Re: Sallen-Key filters and crossovers
Posted by EZ_Angus on Mon, 19 Aug 2002 18:18:28 GMT
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Hi Wayne: thanks for your response. I've gotten a line on some 802's and 511b's so the altec 416 pi's are a go. my goal is to build the x-over from my previous post and bi-amp the speakers, crossing somewhere between 500 to 800 hz.kevin

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Subject: Re: Sallen-Key filters and crossovers
Posted by Wayne Parham on Tue, 20 Aug 2002 05:14:59 GMT
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So your cabinet will be about 9 cubic feet and have a 6" x 10.5" port that's 14" long. Is that what you decided on? Will your 511's be baffle mounted or will your mount them externally, on top?About your crossover, maybe we'll look at your crossover with a signal generator and scope and set it up with that. I think there's lots of people here that would be thrilled to have an active crossover using tubes, and to know the component values that should be used to provide the appropriate response curve for their horns.By the way, Mitch left for Norman this weekend,

are tuned similarly too. The port isn't as long or have as much cross-section area, but the

interchangeable in either cabinet.I don't know if Mitch will be one of your students this semester, but we'll all get together sometime soon, in any event.
