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Posted by [Wayne Parham](#) on Mon, 22 Aug 2022 23:33:47 GMT

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I like symmetrical multisubs, which is a Welti arrangement. You can use such an arrangement and also include flanking subs.

Place the mains with flanking subs outboard. They are just a little behind, beside and below the mains. They are stereo subs - as you say - with a gentle 2nd-order slope low-pass slope. With that slope, the crossover frequency is usually best around 100Hz, which then still has significant energy up into the lower midrange around 150Hz.

If you get very close to a flanking sub, you can hear muffled vocals. That's fine because it's very close to the main speaker it's flanking. It's a few feet away in all three dimensions, with your three Pi mains on 12" to 15" tall stands and your subs on the floor.

Then the distant subs are on the other side of the room. They get a traditional LFE signal, which tends to be fourth-order at 50Hz or 60Hz, something like that. It's an all-channel summed bass signal with steep slope and low crossover frequency. Place them symmetrically with the flanking subs.

You can also experiment with an asymmetrical arrangement, like Geddes prefers. Simply place the distant multisubs in a random location distant from the mains. Geddes tends to like one in a corner, and the other in a random location that isn't symmetrical or coincident with any of the other subs.

Both Welti and Geddes agree that once you get to four subs, location begins to matter less and less, provided they are all in different locations. So you have some "wiggle room" on the placement of the distant multisubs.

The distributed multisubs combined with the flanking subs and mains form a woofer array that can be arranged like what Welti or Geddes describes. Either way, the distant subs blend with the flanking subs and mains to smooth deep bass modes.

The ~60Hz crossover on the distant multisubs prevents them from smoothing modes above that point, but you really can't crossover higher without localization problems. Their main purpose is deep bass extension and low frequency modal smoothing.

The flanking subs also run down that low, so they blend as additional low frequency sound sources. But since they run much higher, they blend with the mains in the higher-frequency modal range. They provide smoothing above 100Hz, and they also provide baffle-step compensation.

It's a synergistic system approach.

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