Subject: Request for Four Pi plan
Posted by amigo on Tue, 03 Mar 2026 12:43:13 GMT
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Hi, Wayne,

Thank you for your kind arrangement. I wish to build a four Pi speaker here in Korea based on your kit. Could you please send me the plan for four Pi and three Pi Sub?

Best regards, Chang-Hee

Subject: Re: Request for Four Pi plan
Posted by Wayne Parham on Tue, 03 Mar 2026 14:55:20 GMT
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You've got mail!

Subject: Re: Request for Four Pi plan
Posted by amigo on Tue, 03 Mar 2026 16:44:35 GMT
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Thank you very much for your warm hospitality.

In your Pi speaker, the compression driver and horn, corresponding to the tweeter, are mounted flush with the woofer in the enclosure. A large slotted port is located next to this location. Recently, many two-way speakers have the compression driver and horn assembly mounted independently outside the enclosure. Schematically, if the woofer and horn are properly spaced apart and the enclosure volume for the woofer is appropriate, what are the acoustic or structural differences compared to the Pi speakers?

Best, Chang-Hee

Subject: Re: Request for Four Pi plan
Posted by Wayne Parham on Tue, 03 Mar 2026 22:58:32 GMT
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That's a really attractive look.  We do that on the constant-directivity cornerhorns.

But I can't recommend that on our three Pi or four Pi model loudspeakers for a variety of reasons.  The main one is the possibility of shifting standing wave mode positions within the cabinet.  If you move the woofer or the port for aesthetics or to maintain the close distance between woofer

and tweeter, then the standing waves inside the cabinet line-up differently.

That can be a problem, because in a cabinet this large, standing waves occur in the lower midrange. That's a frequency that is tough to damp. So we tackle that problem in two ways - by placing the sound sources carefully and by positioning damping material in the middle of the cabinet as well as along the walls.

I designed these cabinets with transmission line modeling tools in addition to more traditional Helmholtz modeling tools and I did the final alignments and verification with acoustic measurements.

So if you modify the layout, be sure to measure response and pay attention to the lower midrange. You may want to build a test box so that it can be adjusted if it has some midrange ripple.

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Subject: Re: Request for Four Pi plan
Posted by amigo on Wed, 04 Mar 2026 00:08:10 GMT
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Great thankls for your explanation. The speaker is really subtly sensitive!

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Subject: Re: Request for Four Pi plan
Posted by amigo on Thu, 05 Mar 2026 10:46:19 GMT
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Hi, Wayne,

I could find the drivers, B&C DE250 and JBL2226HPL, here locally, and then I may just place the order only for the horn and the XO from your Parts and Options page. How can I ask Pi logo decal and Is the XO of fully assembled or as discrete components way?

Another question is the local distributor told me that JBL 2226H is not available but 2226HPL is OK and both are 'almost(?)' same drivers. But I am afraid whether thery are exactly same models. Would you mind giving me some hints on this?

One more question; When planning to attach a grille to the front of the four Pi speaker enclosures, it seems like the speaker box will have a slightly more bordered area than the front plate for shape reasons, and there will also be a frame for attaching the grille cloth, so I wonder if these will interfere with sound radiation from the front of the speakers. What precautions should I take?

Regards, Chang-Hee

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Subject: Re: Request for Four Pi plan

Posted by Wayne Parham on Thu, 05 Mar 2026 15:21:05 GMT
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We sell crossovers fully assembled and we also sell just the blank board. When buying fully assembled, you'll notice there are options for component selections. When buying the unpopulated raw printed circuit board, you obtain your own passive components and assemble it yourself.

The entry-level assembled crossover is very good. It includes 18gu pure-copper air-core coils, polypropylene film capacitors and non-inductive resistors. All brands are of high quality.

Upgrades available include larger 15gu coils, which is worthwhile, especially if you consider running a tube amp. Various brands of capacitors can be selected, and Mills resistors can be selected as well. Choosing any of those is largely buyer-specific, as they are all good brands making high quality components.

DE250-8. The JBL 2226HPL is a fine substitute for the 2226H, as the only difference is cosmetic. The 2226H is packaged and sold as a raw driver, whereas the 2226HPL is intended to be installed in a cabinet.

About grilles, they are often a "necessary evil" - often made more important because of pets, young children or other "hazards." Then again, sometimes they are an aesthetic decision. Some speakers with grilles look fantastic. But even the most acoustically transparent material isn't truly transparent. Most don't color the sound too bad, but they do have a slight effect.

My suggestion is to make grilles removable so you can have "the best of both worlds." The traditional way to do that was with mounting posts or Velcro. Another way to do it that I really like is with magnets. Small cylindrical neodymium magnets can be embedded in the baffle with mates embedded in the grille frame. Simply drill a hole and press in the magnet, adding a dab of glue. Do this step ahead of veneering and when the grilles are removed, the main cabinet has no visible grille mounts.

Subject: Re: Request for Four Pi plan
Posted by amigo on Fri, 06 Mar 2026 02:17:53 GMT
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Thank you for your pin-point explanation. :)

Subject: Re: Request for Four Pi plan
Posted by amigo on Sat, 23 May 2026 16:15:14 GMT
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Dear Wayne,

Now I am going to cut the birch plywood out into parts in meter scale. Just before doing that, one of my friend commented me that I may better to increase the depth a little bit of 10~15mm to compensate the internal volume reduction with introduction of the bracings and stiffners. And Of course there is some increasing effect by the glass wool loading inside. His comment is to ask you whether your plan dimension is already designed and given under all those consideration or slight adjustment should or may be made due to maintain the net internal volume. Would you mind giving me tips for this question?

Regards, LEE

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Subject: Re: Request for Four Pi plan
Posted by Wayne Parham on Sun, 24 May 2026 04:01:11 GMT
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Use 19mm panels and maintain the dimensions in the plans.

A cross-brace should be installed between the woofer and tweeter, spanning front-to-back and side-to-side. It stiffens the panels and also serves as a place to put a sheet of R13 damping material.

This sheet of damping material is very important. It spans the entire width and depth of the cabinet, essentially splitting the interior of the cabinet into two sections. It effectively traps midrange while allowing bass to pass right through.

Also place sheets of R13 to cover the interior top, side nearest the port and the rear.

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Subject: Re: Request for Four Pi plan
Posted by amigo on Sun, 24 May 2026 13:59:27 GMT
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Great thanks for your clear advice!

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Subject: Re: Request for Four Pi plan
Posted by amigo on Mon, 25 May 2026 13:20:15 GMT
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Dear Wayne,

As you advised, I fixed the dimensions according to the plan. However, since we use the metric system here, 3/4"T (~19mmT) is unavailable, and only 18mmT plywood is possible. Therefore, I aligned the outer dimensions of the enclosure with the plan. And, taking this opportunity to

reconsider, I am considering joining two 18mmT plywood panels together for the front baffle. As you have mentioned several times, this has the disadvantage of being heavier, but I think it will be easier for me to work with given my limited woodworking skills. So, the plan is to align the rear panel of the two baffle panels with the plan dimensions and attach the front panel to the front of the box. Is aligning the dimensions in this way the correct method to comply with the plan?

Regards, Chang-Hee

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Subject: Re: Request for Four Pi plan
Posted by Wayne Parham on Tue, 26 May 2026 02:41:49 GMT
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Is there any way you can attach a thinner front to your 18mm baffle? Maybe a small 9mm thick panel? If you do that, you can essentially build the cabinet with exact dimensions shown in the designs, and simply glue an extra 9mm panel in front. That will also allow you to route the midwoofer and waveguide/horn mounting surfaces to provide flush mounting. It's extra work, but it's attractive and it's not too hard - watch some videos showing the process.

Also, be careful that the port duct is 25.4cm from the front edge of the baffle to the edge on the inside of the box. The total path length is 25.4cm.

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