

2019 Midwest Audiofest Speaker Design Competition

By
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(United States)

Photos courtesy of Parts Express

Photo 1: Parts Express provided a new listening room for the Midwest Audiofest Design Competition.

One of the most important audio events every year is the Midwest Audiofest (MWF) held in Springboro, OH, in July. Sponsored by a group of vendors who are listed on the website for MWF 2019 and hosted by Parts Express, this event combines several activities including a huge tent sale at Parts Express. That sale is essentially a walkthrough of a special part of the company's warehouse plus tents full of hugely discounted merchandise. In addition, there are tables set up where participants can sell their "gently used" equipment, but Thomas Perazella says for him, the highlight of the event is the Speaker Design Competition. In the past, he has reported on the entire MWF so this year he concentrates on the Speaker Design Competition.

I often get asked why people build their own speakers when there are so many very fine commercially available choices in all price ranges. This goes to the heart of the do it yourself (DIY) philosophy, where several factors are very important.

First is the learning experience where every time you build something new you learn new materials and techniques. Second is the ability to tailor the project to get the outcome you want, not what some product development person thought you should have. Third is the bragging rights you have when you show your new speaker to admiring friends. Fourth is the camaraderie that results from collaborating with other like-minded DIYers.

All of this combined talent and energy comes together every year at the MWF. When you are there and listen to the interactions of both the new and also very experienced builders you realize the power of this event to generate enthusiasm at a very high level. This not only relates to good sound but often exceptional artistic and construction skills. I

have been auditioning very high quality commercial speakers and also building my own speakers for many years yet am really amazed by what I see and hear every year at the MWF.

What is the Speaker Design Competition?

The purpose of this event is to provide builders with a chance to show their speakers in a forum that is controlled and also tailored to allow for different levels of speakers. There are four categories that contain all the entries. Since complete details are available on the MWF site, I will summarize.

Open Unlimited Category: This is a no-holds-barred category where any design is allowed. There is no limit on the number or types of drivers used, the housing design, or the cost, and it is the only category that allows active crossovers, any type of EQ, limiters, and time alignment. In theory, this should be the highest performing category sonically.

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Photo 2: The judges for the 2019 Midwest Audiofest were Tom Perazella, Vance Dickason, and Jerry McNutt.



Photo 3: For the most striking form and finish I think the entry Troy—Maple Notes from Barrett Niekamp takes the honor.

About the Author

Thomas Perazella is a retired Director of IT. He received a BS from the University of California, Berkeley campus. He is a Past President of the Rockville Chapter of the Izaak Walton League of America, one of the oldest national conservation organizations in the US and currently is the Treasurer. Audio has been his passion for more than 50 years and he is a member of the Audio Engineering Society, the Boston Audio Society, the Philadelphia Area Audio Group, the DC HiFi Group, and the DC Audio DIY Group. He has written for *audioXpress* magazine and prior to that for its predecessor, *Speaker Builder*. In addition to audio, his interests include photography, cooking and competition pistol shooting. He has authored several articles in professional audio journals and taught commercial lighting at the Winona School of Photography. Recently, he received a patent on a cost-effective high-efficiency LED lighting system for commercial and residential buildings.

Dayton Audio Category: This category allows any number or types of drivers, any cabinet design, any cost, but the crossovers if used must be passive with no EQ or other modifications allowed. In addition, the drivers must be of the Dayton Audio brand.

Over \$200 Category: Like the Dayton Audio category, the choice of drivers is unlimited but allows any brand. The only caveat is that the total cost of drivers is greater than \$200. Again, strictly passive crossovers are required. You might ask why this category forces the cost of drivers to be over \$200. The answer is to separate the entries from the last category which follows.

Under \$200 Category: I am always reminded of “The Little Engine That Could” when I think about this category. The overriding criteria in this section is that the cost of all drivers used for the stereo pair must retail for under \$200. Again, although any housing design can be used, the crossovers must be passive with no EQ or other electronic modifications.

When I first learned of the Under \$200 category, what immediately popped into my mind was “you must be kidding me.” On the surface it seemed like a nearly impossible task to produce a good sounding speaker with that restriction. As I auditioned some of the entries in this category while judging my first MWAFF, I realized that there are some very talented DIY speaker designers out there. What is also critical are the tools now available to model the various choices to be made and the tremendous gains in driver performance as a result of new materials and designs. It is very possible to be successful with that price restriction.

How the Competition Works

An entrant can submit speakers to as many categories as desired. The competition is divided up into four time slots, one for each category. This year the competition was held in a new venue that was much larger, which helped minimize early ceiling and wall reflections. It also allowed for more exhibitors, guests, and other interested people to listen critically (see **Photo 1**).

Ranking of the entries is done by a panel of three judges. This year the panel consisted of Jerry McNutt, Vance Dickason, and myself (see **Photo 2**). Background information on the judges is available on the MWAFF site. Personally, being able to work with Jerry and Vance who both have huge amounts of experience and also are great guys is a definite plus for me. As part of the process, each judge provides three 1-minute music selections for each category to the event coordinator at Parts Express. From those, one selection from each judge is used

for each category during the judging. Therefore, each judge has one familiar selection for reference in each category. The list is made public before the event and I make sure I listen to all the final selections many times before the judging. The goal is to become familiar with the music so that you can listen for clues that match the selection criteria used. Those criteria are listed on the MWAF site.

The competition begins on a Friday evening right after a meet-and-greet period where the participants can rub elbows and talk about their projects. The first session for Open Unlimited is always run by itself because of the extra time that may be needed in the setups of the speakers often with their own amplification and processing.

The next morning starts the first of the three remaining categories. The speakers are all set up on the same spot in the room with locating tape strips on the floor for reference. The table with the three judges is centered on the speaker positions and about 12' back. Spectators are seated in rows that begin about 6' behind the judges. The entire listening area for the speakers, judges, and spectators is surrounded by heavy curtains to minimize visual and auditory distractions. Source equipment used is listed on the MWAF site.

Designs of Note

As with any speaker designs, there are varying opinions on which look and sound the best. People are also impressed with uniqueness of design and types of finishes used. Before getting to the final ratings I would like to mention a few speakers I considered noteworthy.

For the most striking form and finish I think the entry Troy—Maple Notes from Barrett Niekamp takes the honor (see **Photo 3**). Made from recycled maple wood planks, the final result was uniquely shaped and finely finished. Unfortunately, it was entered into the wrong category so the separate subwoofer could not be used, adversely affecting the sound.

What at first appeared to be a sophisticated computer power supply turned out to be the entry Nebulous Snails from Clay Allison (see **Photo 4**). These are portable battery-operated speakers with internal amplification and DSP. The side panels are acrylic with artistic patterns and backlighting. Quite a visual impression.

The Defiants from Keith Etheredge are a conventional two-way in a rectangular housing. What sets them apart is the tapered front panel finished in faux blue snake skin. The tapered grille nicely accents the front panel (see **Photo 5**).

The Side Towers from Bill Schwefel take a standard rectangular housing and use it in a non-conventional way (see **Photo 6**). Instead of the longest dimension being vertical it is horizontal with the drivers mounted on the small end. This minimizes the size impact of the speaker when viewed from the front. The driver mounting surface is curved and absorptive material is mounted around the drivers to minimize diffraction.

A striking combination of shape, wood choice, and driver color was presented by The Safaris from Chris Biese (see **Photo 7**). Basically, a rectangle but with tapered sides, a Zebrawood veneer



Photo 4: What at first appeared to be a sophisticated computer power supply turned out to be the entry Nebulous Snails from Clay Allison.



Photo 5: The Defiants from Keith Etheredge are a conventional two-way in a rectangular housing.



Photo 6: The Side Towers from Bill Schwefel take a standard rectangular housing and use it in a non-conventional way.

front panel, and white driver cones and domes, the visual effect was very appealing.

The Cornettas from Paul Kittinger were medium-sized towers that took advantage of several shapes and woods to break the tower mold (see **Photo 8**).

Photo 7: A striking combination of shape, wood choice, and driver color was presented by The Safaris from Chris Biese.



Photo 9: These are the Moon Drops, a winning design from Nick Santorineos.

The main body was constructed of a glossy red wood with a rounded top that followed the lines of the drivers. Accenting the center section were two blonde wood panels with the final touch being a brass name plate on the front.

What appeared at first glance to be white columnar-shaped speakers with a flat front and tapered sides turned out to be a speaker with a PVC pipe section and wood mounting surfaces finished not in white but a metallic pearl type of automotive paint (see **Photo 9**). Lots of clear coat and sanding. They were called Moon Drops and were from Nick Santorineos.

Representing a totally different approach with a very high degree of originality and tongue in cheek humor was the Easter Eggs with Big Woofer



Photo 8: The Cornettas from Paul Kittinger were medium-sized towers that took advantage of several shapes and woods to break the tower mold.

from Meredith Cargill. The photo says it all (see **Photo 10**). This entry came complete with two trees and branches with nests holding the eggs with drivers. The tweeters were mounted on the left side in a chick and on the right in a duck. If you look carefully you can see the “time aligning unit” on the top of the woofer. The supplemental graphs for the left and right side were appropriately labeled not L and R but chick and duck. Meredith always supplies a much needed break in the middle of hours of testing. He received a round of applause for his detailed and very humorous presentation of the philosophy involved.

There are lots of other speakers that deserve mention but to get the entire picture you really have to be at the competition.

And the Winners are . . .

In the Open Unlimited category, first prize was taken by Clay Allison with his entry Nebulous Snails. In second place was Cherry Bomb by Jack Putti. Third place was the Reference Mini by Brian Zheng (see **Photo 11**).

In the Dayton Audio category, Chris Biese took

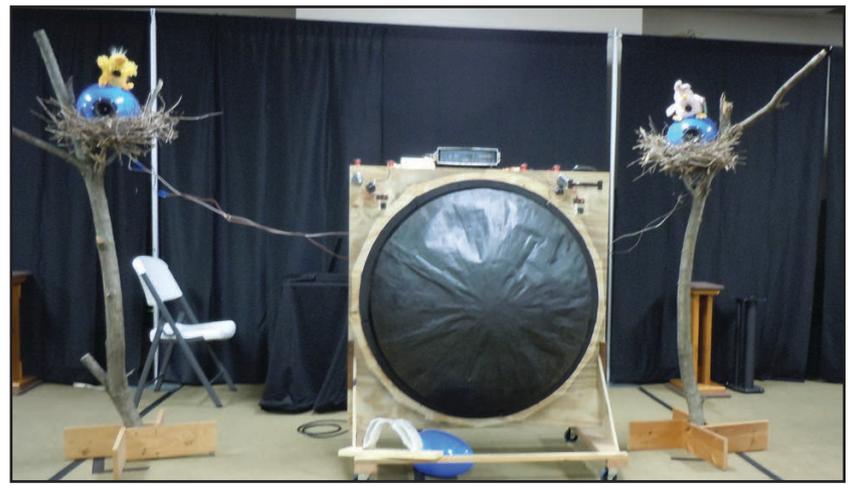


Photo 10: Check out the Easter Eggs with Big Woofer from Meredith Cargill. (Thomas Perazella photo)

first place with his entry RSX. John Hollander took second honors with C-Cake. Third was Troy—Maple Notes by Barrett Niekamp who as previously mentioned was hampered by being entered in the wrong category (see **Photo 12**).

The Over \$200 category has historically had some of the best performing entries and is also difficult to judge. The first three positions were very close together in total points. The Mystiques by Dan Neubecker took top awards. Second was Javad Shadzi



Photo 11: Open Unlimited winners, L to R—Brian Zheng, Clay Allison, and Jack Putti



Photo 12: Dayton Audio winners, L to R—John Hollander, Chris Biese, and Barrett Niekamp



Photo 13: Over \$200 winners, L to R—Javad Shadzi, Dan Neubecker, and Adam Malito



Photo 14: Under \$200 winners, L to R—Javad Shadzi, Nick Santorineos, and Bill Schewfel



Photo 15: Chris Biese took first place in the Dayton Audio category with his entry RSX.



Photo 16: The number two overall winner came from the Over \$200 category and was Mystiques by Dan Neubecker, with a total score of 166.

with the Enthraals. In third was Provare by Adam Malito (see **Photo 13**).

Again, the Under \$200 category not only had a large number of entrants, but also some of the best performers even at the low price. First place was Moon Drops by Nick Santorineos. In second place was Javad Shadzi with Rivalries. In third was The Side Towers by Bill Schewefel (see **Photo 14**).

A Look at Some Numbers

Numbers will never tell you how a speaker will sound or if you will like it. They will give you an indication about how the judges felt about the entries and perhaps provide some surprises. So here goes. As far as number of entrants in each category, Under \$200 had 13, Over \$200 had 13, Dayton had 6, and Open Unlimited had 5, for a total of 37 that were evaluated. There were several more that originally registered but did not show. Let me tell you that evaluating 37 speakers in a little over a day with three pieces of music each is a very demanding task.

I decided to count the number of scores of 10 and 9 to give a sense of the performance of each category. Remember to look at the number of entries in each category when evaluating the high scores. The Over \$200 category had 29 10s and 78 9s for a total of 97 or divided by entries (which in reality was not evenly divided between the entries) yielded 7.5 high scores per entry. The Under \$200 category had 26

10s and 81 9s for a total of 106 or 8.2 high scores average per entry. The Dayton Audio category, where Chris Biese took first place with his entry RSX (see **Photo 15**), had 5 10s and 21 9s for a total of 26 or 4.3 high scores average per entry.

The Open Unlimited had 5 10s and 10 9s for a total of 15 or an average of 3 high scores per entry. Beware of averages because some entries had very high scores across all characteristics where some had the opposite. On average, it gives you an idea of the performance of the categories.

Just going by the total scores for each speaker regardless of the category produced the top three of the competition. Number one came from the Under \$200 category and was Moon Drops by Nick Santorineos with a total score of 167.5 out of a possible total of 180 points. Number two came from the Over \$200 category and was Mystiques (see **Photo 16**) by Dan Neubecker, with a total score of 166. In third, also from the Over \$200 category was Enthraals by Nick Santorineos with a score of 163.5. All were quite close and on a given day with different judges the results could change dramatically.

Conclusions

The most important thing to know about this competition is that there are a lot of dedicated and skilled speaker builders out there who devote a ton of time conceptualizing, designing, modifying, and then building some outstanding speakers. In addition, the time, money, and sweat equity of Parts Express and the vendors to make this event possible is outstanding and a tribute to the industry. So huge thanks to the participants and vendors.

My overall take on all the speakers is that some of them have styles and finishes that would give some of the finest commercial speakers a run for their money. Some of these speakers get an unbelievable amount of performance for the size and money. As I have stated in past years what continues to be a limitation in most of the entries is the lack of adequate linear volume displacement to handle high levels of bass with low distortion and good transient response. Although box design and DSP can help in maximizing the amount of bass available from smaller drivers, at some point you run out of sufficient volume displacement. Once you exceed Xmax things go downhill very quickly. That said, some of the entries, if coupled with a good subwoofer, would be no-holds-barred systems. I could live with many of them forever just the way they are. Kudos to all for the outstanding work.

For more information visit: Midwest Audiofest (www.midwestaudiofest.com) or Parts Express (www.parts-express.com). 

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