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### **EQUIPMENT REVIEW**



### Lyngdorf Audio MP-50 And SDA-2400 Surround Sound Processor And Stereo Amplifiers

#### Doug Blackburn

Lyngdorf Audio is a company in Skive, Denmark located in the north-central part of the Denmark peninsula connected to Germany in the south—the island where Copenhagen, Denmark's capitol city, is located to the east just before you get to Sweden. Norway is to the north across an arm of the North Sea. Lyngdorf can be considered the SL Audio (parent company) luxury-performance brand while Steinway Lyngdorf is the allout, state-of-the-art brand of the two-tier parent company. They liken the relationship to Audi and Bugatti, companies both under the same ownership where Audi is the luxury-performance brand and Bugatti is the all-out, state-of-the-art brand with vehicles currently starting circa US\$2.5 million. Lyngdorf Audio USA provided review samples of the MP-50 (MSRP \$9,999) processor and three SDA-2400 amplifiers (MSRP \$2,399 each).

Peter Lyngdorf founded Lyngdorf Audio in 2005. In 2007, the Steinway Lyngdorf brand was created to make an all-out assault on the highest-performance audio products, with the Steinway part of the moniker coming from an arrangement with Steinway and Sons, the world-class American piano manufacturer. Steinway Lyngdorf sells complete systems, with the highest performance possible, combined with luxury finishes and materials. Lyngdorf makes components that compete with other high-end consumer products, albeit at a level that Lyngdorf believes equals or exceeds the performance and/or features of other high-end products.

MP-50 styling is a contemporary Danish design that follows the clean Scandinavian designs that have been popular here in the United States since the 1950s. It features crisp edges and corners with gloss black glass panels and matte black aluminum. The front panel has an electroluminescent display on the left side, a smaller knob/button in the center, and a larger knob on the right. A very small amount of silk screening includes function labels for the knobs, the Lyngdorf logo, and the model number. The rear panel is loaded with connections. There are: 16 XLR output jacks (no RCA outputs); 8 HDMI inputs; 2 HDMI outputs, 2 USB Type A ports (music playback and software updates), Ethernet port, XLR connector for the measurement microphone; DB25 connector for 16 digital audio input channels is optional; RS-232 control port; 4 optical digital inputs; 3 coaxial digital inputs, 1 coax RCA jack for Zone B output 1 AES/EBU digital audio XLR connection; USB audio input with "square" USB connector; one 12VDC Trigger input and four 12VDC trigger outputs; HDBaseT output (HDMI over Ethernet cable). There is also an SD memory card slot for saving system settings so they can be reloaded in case of a loss of the settings for any reason.

The MP-50 supports Dolby Atmos and Dolby Surround, DTS:X and Neural:X, and Auro-3D and AuroMatic. There are 12 decoded channels with four additional outputs that can be assigned to additional subwoofers, bi-amping, additional height channels, or front width channels supported by some post-processing audio options.

The MP-50 and SDA-2400 amplifiers were used with Hsu

#### Lyngdorf Audio MP-50 And SDA-2400



Research CCB-8 loudspeakers, Vandersteen Model 3A Signature loudspeakers with Vandersteen VCC-5 Signature center and VSM surround loudspeakers. The subwoofer was the Hsu Research VTF-3 Mk5 HP, which is flat down to 10 Hz in this room, though, anything below 14 or 15 Hz results in lots of moving air, like a fan blowing on you, but with nothing to hear. Active and passive power conditioning were used to be consistent with previous reviews.

Media support includes Internet radio via vTuner, Spotify, DLNA, and Airplay.

#### RoomPerfect<sup>™</sup> And Voicing

Lyngdorf designed their own means of integrating the MP-50 into your system, with maximum benefit of all setup options. You may recall that in my current room in northern California, I've had fairly dismal results with Audyssey in any of its incarnations. It's not so much that it sounded bad as it was that I preferred the sound of the system without Audyssey. Dirac Live was better but still disappointing, compared to results I got in my previous room in Colorado, where both it and Audyssey worked better than they work in this room. I approached RoomPerfect with an open mind but half expected another disappointment. Imagine my surprise when RoomPerfect turned out to be the bomb for system tuning in this room. Lyngdorf created RoomPerfect to place more emphasis on power response rather than focusing on frequency response to a target curve, as is typical of Audyssey (along with phase tuning). It was always challenging with Audyssey when a given version allowed you to pick different response targets from flat (usually a very bad choice), to normal (response falls from low frequencies to high, which is correct/normal for real-world rooms), or some alternate option to those two. With RoomPerfect, you get one end result that should be right for your room. Of course, Lyngdorf doesn't hang you out to dry with no other options. They have a feature called Voicing that allows you to use pre-constructed tunings Lyngdorf loads into every MP-50 as well as creating your own custom voicing modes. Voicing in this case involves making tweaks to frequency response in various ranges to produce the sound you find most pleasing. Most owners who aren't deep into the audio end of this hobby may need to rely on an installer/calibrator to do this for them, however, or just stick to the pre-loaded Lyngdorf voicing options. After I got used to "neutral" for Voicing, I switched to Lyngdorf's Music and Music II options and surprised the heck out of myself by preferring the Music setting over "neutral." Music II was a bit over-the-top in this room with either of the loudspeakers used for evaluations, but Music mode was right in the sweet spot for fabulous music listening sessions. It's difficult to describe the effect. The emotion and soul of the music was just more present in the room using Music mode. The spatial characteristics were mildly larger, and decays and other pretty, relaxing, and beautiful sounds were subtly enhanced to be "more" of each of those things without being able to identify exactly why.

The RoomPerfect calibration is done with a much-nicer-than-usual measurement microphone, a good-sized metal mic with XLR connector



on the bottom. A microphone stand is included, but it turned out to be useless for making any of the RoomPerfect measurements in my room. The center post and boom for the mic screw together in sections. The boom was too short to measure response from the main seat, and the legs of the mic stand splayed out so far when fully deployed, they almost always interfered with something else in the room while trying to position this mic stand for measurements. I ended up using electrical tape to hold the measurement microphone on the "stage" of a camera tripod with continuously adjustable legs. This allowed me to position the tip of the microphone right at ear height in the main seat as well as to use pretty much any position in the room for additional measurements. RoomPerfect always begins with measuring the main seat first. Multiple measurements are made in different other locations, and RoomPerfect reports its percentage of "Room Knowledge" with the goal being 90 percent room knowledge or higher before calculating your RoomPerfect corrections. I

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#### MP-50 Features

Power output: 200 per channel 8 Ohms; 400 per channel 4 Ohms (watts)

Inputs always sense input signals and turn amps on and off as needed

Includes 12 VDC trigger cable in box Proprietary Lyngdorf Class D architecture Ultra-low noise floor

Low heat generation while in operation 1-each 12 VDC input and output

Audio inputs: analog stereo (RCA); analog stereo (XLR); digital coax; digital optical

IEC power cord socket Stereo pair of insulated multi-way binding posts for output

**MP-50 Specifications** 

Dimensions (WHD In Inches): 17.7 x 2.9 x 14.2

Weight (In Pounds): 14.3 Power requirement: 115 or 230 VAC 50/60 Hz via slider switch Power consumption: 26 at idle with no input signal; 145 at 50 w/ch; 493 at 200 w/ch; Standby less than 0.4 (watts) Frequency response: 20 – 20,000 Hz 8 Ohms -0/+0.3 dB or -0/+0.1 dB into 4 Ohms Frequency response: -3 dB points at 0.3 Hz and 31,000 Hz Signal to Noise: 117 dB, A-weighted, at 200 watts into 8 Ohms Channel Separation: 96 dB at 1000 Hz and 200 watts into 8 Ohms THD+N: 0.004% at 1 watt into 8 Ohms up to 0.05% at 180 watts into 8 Ohms, A-weighted Warranty: 2 years MSRP: \$2399 per stereo amp Manufactured In Denmark By:

Steinway Lyngdorf 600 Congress Avenue, 14th Floor Austin, Texas 78701 Phone: 212 588 9330 Email: usa@steinwaylyngdorf.com Web site: lyngdorf.com

achieved 90 percent room knowledge after five measurement sequences. The second and subsequent room measurements can be taken from any positions in the room. I performed seven sets of room measurements: main seat; to the left and right of main seat; two measurements low and in front of the main seat; and two measurements high and behind the main seat. Since the main seat is always first, it is referred to as Focus 1. Lyngdorf allows you to select different seats and assign them Focus 2 or Focus 4, or whatever. When you have a "Focus" selected, the sound for that seat is given priority over the sound from other seats. Another standard option for focus is Global, which refers to having good sound at every seat with, usually, some loss of quality at the main seat. I found that to be true, clearly preferring Focus 1 to the Global setting for solo enjoyment of movies or music. For times when I have a full five-person audience for a movie, I would consider using the Global option. It is very convenient to switch between those modes. You can save up to 32 total voicings. The MP-50 arrived with seven voicings already installed. Each of the 32 voicings can have up to eight filters with adjustable gain and Q. Voicings are set using the Web browser interface from a computer to make this setup easier than using a handheld remote.

To give you an idea of what is behind RoomPerfect, here is a quote from Lyngdorf's white paper on the MP-50. "RoomPerfect™ represents one of the largest patent filings in audio history with over 50 claims of new technology. This fully automated system measures a minimum of 2 million reflections, creating a three-dimensional map of the listening environment." Something is definitely working right because I've never heard any room correction system work as well as RoomPerfect. Especially notable is the integration of the subwoofer with each individual channel, even if each pair of loudspeakers and the center channel have different crossover points. There are even more setup flexibility-like options to identify the loudspeakers, as there are more sizes than just large or small. The choices offered are XS, S, M, L, XL, and XXL, and Lyngdorf specifies the crossover point for each loudspeaker size as follows: 120, 100, 80, 40, full range, and full range plus LFE if no subwoofer is in the system. In addition to those options, there is a Custom setting that allows you to pick some other crossover frequency. The MP-50 supports up to four subwoofers, though there are some complexities around whether they are all LFE subs or subs connected to specific channels to extend the bass of specific loudspeakers.

When running RoomPerfect here, I got around 70 percent room knowledge from the first sequence of measurements from the main seat. After a total of five measurement sequences with the microphone in five different positions (main seat is always position 1), I had 90 percent room knowledge. By the seventh measurement, the MP-50 reported 98 percent room knowledge. The seven measurement sequences took between 45 minutes and an hour, but I didn't formally time the measurement process.

#### Using The MP-50

As with most products in this price range, the MP-50 ships with a remote. It can control the MP-50 via RF or IR. The RF control option worked like a charm for me during the review. The USB audio input supports up to 32 bits at 192 kHz sample rate, all other digital audio inputs operate at 24 bits. The digital optical input maxes out at 96 kHz sample rate, but other digital inputs use the maximum 192 kHz maximum sample rate.

One of the first things I noticed was the noticeably quieter-thanusual noise floor. I've experienced a noise floor that low only with a few other products, primarily five-figure processors from Datasat and Trinnov and amplifiers from Datasat. This made music and movie sound even more dramatic than usual because the room was detectably guieter than usual before the entertainment starts. Very few other products have demonstrated a noise floor this low in this room, and I've not experienced anything with a guieter noise floor than the MP-50/SDA-2400 combination.

The MP-50's startup and shutdown take just a little longer than the fastest processors I've used. Inside the MP-50, a small Linux computer "keeps house" and runs the video subsystem, Webserver, and control systems. Audio processing is handled by eight Analog Devices SHARC processors. The MP-50 doesn't produce enough heat to require a cooling fan, so there isn't one. The MP-50 does produce some heat that needs a place to go, but it's not difficult to provide the space the MP-50 needs to operate efficiently. There is a video system onboard, and you do get on-screen displays for the Setup menu, volume, mute, and the audio menu that allows you to select modes, post-processing options, voicing, and a few other settings.

Since introduction, Lyngdorf has added features to the MP-50 via firmware updates without increasing the cost. The most recent major feature added was support for Dolby Vision, something that cannot be done without considerable available programmable processing or without resorting to using Dolby's own Dolby Vision chip set. Because the MP-50 has so much audio and video processing capability, Lyngdorf was able to add Dolby Vision support without having to use Dolby's chip set.

Lyngdorf provides easy and quick access to often-used settings, like the post-processing mode and lip sync delay through the Audio and Trim buttons on the remote that both open the same menu of settings, but at different "tabs," so accessing common settings doesn't even require navigating across the several tabs. As you would expect, the MP-50 supports automation and control systems with an array of connections and protocol support. The line level outputs of the MP-50 are XLR connectors. For short cable runs, using a male-XLR to female-RCA adapter will work if you don't have interconnects

#### Lyngdorf Audio MP-50 And SDA-2400

with XLR connections. However, longer runs of analog audio cables should be terminated with XLR connectors and have three conductors in order to have the lowest signal loss and noise.

#### The SDA-2400 Amplifiers

Before Lyngdorf Audio and Steinway Lyngdorf, Peter Lyngdorf designed a modern digital amplifier called the Millennium for its introduction near the turn of the millennium. The SDA-2400 is an updated digital amplifier with nothing about the sound that would make you think it was "digital." OK, that's not exactly right. The size and weight pretty much guarantee it's a digital amplifier because I've never seen or heard of any non-digital amplifier with 200 watts per channel into 8 Ohms or 400 watts into 4 Ohms that weighs as little as the SDA-2400. If these were class A amplifiers, they'd probably weigh well over 100 pounds, and if class A/B, they would likely weigh 65 to 100 pounds. On top of that, class A or class AB amplifiers of this power rating would be 10 inches tall or thereabouts rather than the actual height and weight: 2.9 inches and 14.3 pounds. Rack mount brackets are available, of course. The front panel has no features except the dim (excellent) power LED, logo and model number. The back panel has analog stereo inputs with both RCA and XLR jacks, digital

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something. I've had a few products here with spectacularly low noise floors, and these Lyngdorf products easily join that elite group. Until this decade, most every product I used seemed to have noise floors that were indistinguishable from one another. Not high enough to be obvious, but when something especially quiet went in the system, it was easy to tell the noise level in the room was lower than usual. With complex video and audio circuitry inside, designing for low noise isn't easy or inexpensive. It takes talent and a fair bit of trial and error based on things the designer(s) think might help. Of course, with a projector sharing the space, the cooling fan is likely to be the loudest noise in the room, but when listening to music with the lights and projector turned off and/or with the projector sound isolated from the room, it is a real treat to hear music emanate effortlessly from absolutely silent loudspeakers. I'm getting increasingly addicted to this quality in audio products, so it's no surprise that I took an early liking to the MP-50/SDA-2400 combo.

RoomPerfect turned out to be a revelation. I have not had a product in this room with Audyssey where I preferred the sound with Audyssey enabled. Dirac room correction has been in two other products reviewed previously, and at least it sounded better than not using it and was definitely an improvement. But RoomPerfect does something no other automated audio calibration product has done

## There Was Something Magic About The Way Sound Would Transition From Various Channels To The Subwoofer...

coax input, and digital optical input. The binding posts are typical clear-plastic clad posts that are best used with bare wire or banana plugs. There is an on/off power switch next to the IEC power cord socket. A 115/230-volt sliding switch makes the amps usable in most areas of the world just by changing the power cord and voltage slider.

A multi-position sliding switch identifies which connection you are using. The SDA-2400 amplifiers have the option of being turned on and off manually, being turned on and off using 12 VDC trigger connections, or being set to Low Power mode, which causes the amplifier to turn on when it "sees" an input signal and to turn itself off if 30 minutes pass without an input signal. All of these power on/off options worked as expected. During the review, I never had any sort of problem with the amplifiers. They produce some heat, but not a lot, so some reasonable air circulation is needed for these amps to operate reliably. The noise floor of these amplifiers was extremely low, on par with the lowest-noise amplifiers I've used. While these are not hot-running amplifies, they do produce a small amount of heat that needs to be moved away if the amplifiers are in a rack or shelf system, so they do need some space around them.

#### Sound

Comments here apply to the combination of MP-50 processor used with six-channels of amplification from the SDA-2400 amplifiers. The seventh channel (center) and height channels used different amplification (AudioControl Savoy G3 amplifier, a class H design, which is also relatively cool-running and modest in weight).

I used the MP-50 with manual setup, manual loudspeaker distance measurements, and hand-held SPL meter for level setting, for two weeks before running RoomPerfect audio calibration for the first time. This two weeks of getting-to-know-you listening was very instructional. The first thing I noticed was the noise floor was as quiet as the quietest products I've had here for review, and that's saying

for me: it made the system sound unified and fully integrated from the lowest frequencies to the highest. In spite of claims of other room measurement and correction products, they don't do for me. At least not in this room. There was always a feeling that the subwoofer wasn't quite "with" the rest of the system and that there were several other frequency ranges where the sound seemed "different" somehow, rather than sounding like it was coming from very well-integrated products. RoomPerfect completely eliminated that feeling on the very first try at using it. There was something magic about the way sound would transition from various channels to the subwoofer... it was so much more... integrated... smooth... seamless... correct... and even seductive. It sounded like there was one full-range (below 16 Hz to 20,000 Hz or more) loudspeaker in the room that could reproduce sound anywhere within the space. I recognized the improvement immediately after RoomPerfect calibration, but it took a while to understand why RoomPerfect was so impressive. That part wasn't obvious since this was the first time I have ever heard performance like this from any home theatre system at any price. And it was happening right in this same room that seems to thumb its nose at Audyssey. I don't want anyone to think I had anything like "bad sound" before this RoomPerfect experience. It was always entertaining and enjoyable, though, there was always something in the back of my head wondering if this was as good as it was ever going to get. RoomPerfect proved that the sound was not as good as it was ever going to get. Without RoomPerfect the sound was good, among the best sound heard in this room, which includes processors selling for more than three times the cost of the MP-50. But with RoomPerfect that feeling of seamless integration across the entire frequency spectrum was intoxicating. That drove the deep dive into the music collection, to hear everything I love at least once before the components have to be returned to Lyngdorf. I wasn't hearing things I hadn't heard before, but it was all better than ever before.

One listening session revolved around the 2017 release of the 50th Anniversary version of *Sgt. Pepper's Lonely Hearts Club Band.* 

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This is a fairly radical remix of the original album, sounding for all the world like it was recorded better than you ever heard it before. I often hate reissues that "redo" favorite music, but this one was sublime, captivating, and glorious. Best of all, the bass went lower than the original mix without getting boomy at all. Hard to believe they truncated that



with DTS:X and Atmos soundtracks continue to sound terrible, with extremely poor placement of sound in the height channels. Anybody telling you differently is simply wrong. All you have to do to hear how poor DTS:X and Atmos soundtracks are (as of August 2017) is turn off the amplifiers or disconnect the loudspeaker cables going to the

much low bass while making the original masters. I would listen to one track on the new release and compare it to the version from the 2009 USB re-issue of all the Beatles' albums in 24 bits with 44.1 kHz sampling rate (released on a USB memory stick). The 2009 versions were re-issues made from original masters that attempted to capture as much information as possible from the original master tapes. This new 2017 release sounds considerably more Technicolor than the original mix, and the MP-50/SDA-2400/RoomPerfect combo revealed all the colors and new details present in the 2017 remix.

The atmospheric track "The Coast of Malabar" from The Chieftains *The Long Black Veil* album with Ry Cooder produced a huge sonic space in my room. This track is often reproduced with a very large-sounding sonic environment, but this time, it was huge, bigger than ever. I'm sure this is a reverb trick, but it works incredibly well on this track with the Lyngdorf gear and the Music voicing option. Some of the space comes across as breathy and soft, while other times the space is black silence, but you can still "sense" a large space in your room. The illusion of that large space was exceptionally complete with the Lyngdorf gear.

The MP-50/SDA-2400 did this same thing with movie sound. This was the first time in a long time that there was an unmistakable improvement in sound quality over similarly priced components while listening to movie sound. That same unified and integrated sound I heard from music was there in spades in every movie soundtrack aside from the least challenging soundtracks that don't demand much from the sound system. Even things you'd think would be simple and consistent, like the sounds of weapons and explosions, were clearly better with the Lyngdorf gear and RoomPerfect. Even the sounds of cars and other vehicles in *Mad Max: Fury Road* had a rightness that wasn't quite there with other gear. Scenes with frantic action in tight spaces, like inside Furiosa's truck cab, were better sorted than I was used to hearing. It's not so much that I could hear more, it was more like I could hear individual elements better, as though the sounds were more distinct and less homogenized.

Another interesting effect happened when changing the three front loudspeakers from Hsu Research CCB-8s to Vandersteen 3A Signatures and VCC-5 center channel. Of course, RoomPerfect had to be run again for the different loudspeakers, as you would have to run Dirac or Audyssey again if you did the same thing with some other system. But RoomPerfect made the different loudspeakers sound freakishly similar. Not identical, but very close tonal matches for each other. Sonic differences remained, but there was much more of a "family resemblance" than I've experienced when changing loudspeakers in systems using different correction methods. That amazing top-to-bottom integration of the sound was easily audible with both groups of loudspeakers in the system.

#### **Immersive Sound Formats**

The MP-50 supports DTS:X, Dolby Atmos, and Auro-3D, plus their respective post-processing options Neural:X, Dolby Surround, and AuroMatic. My experience with movies remains that movies appearing

from the height loudspeakers. It's really bad. I'd even go as far as calling it embarrassingly bad for the studios. These supposedly nextbig-thing immersive soundtracks we are getting are just plain lame. They sound as though no human has any involvement in the process of creating these soundtracks, and the automated software being used to create these soundtracks is not making good choices. There are so few movies with Auro-3D soundtracks on disc so far that it's difficult to say if Auro-3D is producing better results or not. However, Auro-3D's AuroMatic post-processing continues to sound incredibly good. It makes music wonderful and is the only upconverter for stereo music that makes me enjoy the music more than I do with stereo listening. It also does amazingly well at processing DTS-HD Master Audio™ or Dolby TrueHD soundtracks to put ambience in the height channels, producing a more entertaining version of the movie than decoding the DTS:X or Atmos version of the soundtrack.

I always have to add this disclaimer... I am not saying that DTS:X or Atmos are not as good as Auro-3D. I think the things I don't like about DTS:X or Atmos soundtracks (so far) is that they aren't being created by humans moving sounds into the height channels with any intelligence. It sounds to me like everybody is feeding 5.1 or 7.1 soundtracks into Dolby Surround or Neural:X to get more channels, then labeling the final product as DTS:X or Atmos when none of the capabilities of either format are actually being exploited. I am saying that AuroMatic is far better as a post-processing option than Neural:X or Dolby Surround. In fact, if I assign a "10" to AuroMatic's post-processing of stereo music, 5.1 movies, or 7.1 movies, I'd give Neural:X a "5" and Dolby Surround a "2" on that scale.

#### Conclusion

The Lyngdorf MP-50 processor and SDA-2400 amplifiers have performance that matches the best sound quality heard in my room so far. But add RoomPerfect to the equation and the Lyngdorf products move to the top of the pile. The largest benefit heard from RoomPerfect was an amazing top-to-bottom integration of sound. Everything seemed to be coming from a single loudspeaker capable of producing sound from any direction. It opened my eyes to a degree of improvement that I had expected might be possible but never actually experienced before. Whatever RoomPerfect is doing that is different from other room measurement/correction products definitely works very well in my room and is very impressive sound as the end result. These products are now in a class of their own. While these are very expensive products, you can spend far more on products that don't produce as good of an overall result. There may be a reason for picking an alternate high-end processor like Datasat or Trinnov, but those reasons would likely be related to setup capabilities the Lyngdorf processor may not have compared to the other products. But sound quality isn't among the reasons you may choose one of those other processors. The MP-50 and SDA-2400 amplifiers are equal to or better than those other processors when it comes to sound quality with RoomPerfect in use. WSR