

Addictive: Professional home cinema from AIA with 50-inch subwoofer

Ascendo-Immersive- Audio-Referenzkino

Stefan Köpf, managing director and developer at AIA, has invited us to Ansbach in Bavaria to view his in-house reference cinema. Since our last visit a few years ago, this has changed significantly in technical terms. We present the current demonstration and development cinema in detail on the following pages.

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Filmbilder:
„Aladdin“
Blu-ray von Disney,
Rezension auf Seite 56



Equipment

- Projektor: Sony VPL HW55ES
- Blu-ray Player: OPPO UDP-205
- Screen: Screen Research Fixed Supreme2 FS3, 400x170 cm, ClearPix4K White +BB 2 x
- AVB-Switch: Extreme Summit X440-24t
- Analogue to AVB: Motu 24 AI
- AV-Prozessor: Trinno#

- Speaker configuration:
 - Speakers Front: 3 x Black Swan Beryllium Single or 3 x CCRM12 (never play together)
 - Speakers Surround: 8 x CCRM6 Mk II
 - Speakers Ceiling: 6 x CCRM6 Mk II
 - Auro-Layer additional: 3 x CCRM12 Mk II (High Front), 4 x CCRM6 MKII (High Surround)
 - Subwoofer LFE: 6 x SMSG15, 2 x SMS15 und 1 x SMSG50 oder 1 x SMSG32 oder 1 x SMSG24 (SMSG24 / G32 / G50 never play together)

- Acoustic measures: Each monitor and subwoofer has a very high-quality integrated room acoustics correction (AIA Speaker Management) and is individually calibrated.

- Side walls: 7x plate resonator (30-100 Hz), ceiling: 8 cm Bastotec S004 (filled to approx. 60 %), Floor: high pile heavy industrial carpet

AIA stands for Ascendo Immersive Audio and in order to watch and listen to the current installation of the cinema professionals, we dropped by again with great pleasure - what we experienced here three years ago has well remained in our memories. The AIA reference cinema is intended to show all interested parties what the proprietary loudspeakers and software technology can do and to which sonic pinnacles the cinema sound is capable of thanks to immersive sound formats such as Auro-3D, Dolby Atmos and DTS:X. The AIA reference cinema is a great place to experience the new sound quality of the cinema. AIA has been based in an old court building in Ansbach for about seven years. The company was founded in 1998 by Jürgen Scheuring and Stefan Köpf, who are both heavily involved in the development of their own loudspeakers and also take care of digital technology and network systems. Ten employees work in Ansbach to develop, test and manufacture Ascendo's fine products on site. For the current demo cinema, AIA has come up with a few special features and significantly changed the setup compared to the old system from 2016. Now several configurations can be operated side by side to compare the in-house developed loudspeakers. Visually, a bit has changed as well: AIA has recently abandoned the acoustically optimized room with the "double curtain" and the active monitors installed in between. In addition, the ceiling has been raised slightly to provide more height for the ceiling speakers, resulting in better 3D performance. And the actual loudspeaker setup has been fundamentally changed, as can be seen, for example, from the higher number of ceiling loudspeakers used.

Ascendo Immersive Audio

Subwoofer specialist, staff member and shareholder Geoffrey Heinzel took a lot of time on this occasion to set up the demo cinema and above all to calibrate it correctly. Particularly with the large number of loudspeakers used here, it is extremely important to ensure that all the loudspeakers involved reproduce the audio signals in a timely and phase-optimised manner. Since

the current setup requires 24 monitors around and above the listening position to be ready for use, and eight subwoofers and one infrasonic woofer are in operation as well, the calibration must be carried out very accurately. In the end, more than three days passed before all the speakers in the reference cinema were perfectly aligned in phase - an effort that was absolutely worth it in retrospect, as the listening impressively proves. By the way, all settings are made in the fully active loudspeakers themselves,

Stefan Köpf serves as a size comparison of the infrasonic woofer SMSG50: this is the only way to capture the gigantic dimensions of the 50-inch woofer.



Behind the four meter wide and 1.70 m high screen three CCRM 12 Mk II are installed, underneath the three midwoofers of the Black Swans are to be seen.



which is quite convenient for the professional with the AIA software and the DSPs. Finally, the luxurious Trinnov processor was again used to finalize the adjustments and served to adapt the system to the frequency response target curve specified by AIA.

Black in black ...

The large cinema has an area of about 50 square meters and is equipped with black walls, black ceiling, black carpet, black traverses and black loudspeakers. Of course, there is also a black couch for watching and listening to movies. Only a little colour on the back wall brightens up the cinema a bit.

Subwoofer tower: The subwoofer SMSG32 at the bottom you surely know from our test review in issue 12/1-2019. The woofer in the middle is the 24-inch SMSG24, while at the top the "small" 15-inch subwoofer SMSG15 is placed.



AIA setzt auf eine koaxiale Bauweise der zur Anwendung kommenden Lautsprecher, das heißt, dass im Zentrum des Tiefmitteltöners ein Hochtöner seinen Dienst verrichtet. Mit dieser Bauweise kommt man dem Ideal einer Punktschallquelle schon sehr nahe. Im Demokino sind hauptsächlich Monitore mit 12-Zoll- und 6-Zoll-Koaxialtreiber im Einsatz. Sechs CCRM6 Mk II hängen als Höhenlautsprecher unter der Decke. Weitere acht Monitore des gleichen Typs sind an den Seiten- und Rückwänden als Surroundspeaker zu hören. Ein zusätzliches Auro-3D-Layer besteht aus drei CCRM12 Mk II (High Front) und vier CCRM6 Mk II, die als Voice Of God verschaltet sind. Ein besonderes Highlight sind die drei Frontlautsprecher Black Swan Beryllium Single, die versteckt hinter der schalltransparenten Leinwand agieren. Von ihnen sind allerdings nur die Tiefmitteltöner im 15-Zoll-Format zu sehen. Die riesigen Hörner werden von der vier Meter breiten 21:9 Leinwand verdeckt. Wir haben sie noch besonders gut in Erinnerung aus unserem Test in der HEIMKINO-Redaktion, gemeinsam mit dem 32-Zoll-Subwoofer SMSG32 von Ascendo. Der steht auch vorführbereit im AIA-Kino, genau wie der SMSG24 und der ultimative Infrasonic-Woofer SMSG50, der natürlich der absolute Blickfang dieses Kinos ist. Da die großen Woofermonster nur den Infraschall von 5 bis 40 Hertz abbilden, sind für höhere Frequenzen sechs SMSG15 und noch mal zwei SMS15 im Einsatz.

Info: Timing is everything

The coaxial drivers used play like a point source, so they in themselves already perform time-correct and therefore generate a homogeneous wavefront. The imaging is symmetrical, i.e. they radiate evenly in all directions - in contrast to multi-way systems with separate drivers. This, combined with the integrated DSP and active amplifier, makes it easy for the AIA developers to let the systems play absolutely in phase. This is all the more important because the AIA system can control any number of channels. All loudspeakers are connected by network cables. Up to eight loudspeakers can be connected in series from one loudspeaker. It is extremely important that there are no latency problems as with conventional streaming technologies (best effort method). AIA relies on AVB, the next-generation network standard, so to speak. Thanks to the AVB system's secure channels, high-resolution audio and video signals can also be sent synchronously and lossless through the Ethernet.

Infrasonic-Woofer

For the AIA infrawoofers, special drivers have been developed with extremely low resonance frequencies and huge voice coils. The drivers are capable of extreme excursion and, thanks to the potent active amplifier modules, produce enormously high sound levels, even in the lowest bass range below 20 Hertz. For each maximum stroke, a SMSG50 moves as much air as 40 standard 18-inch subwoofers. If required, the SMSG50 delivers peak levels of up to 140 decibels and can also deliver 105 decibels of sound pressure at 5(!) Hertz. This colossal woofer is 185 centimetres high, almost as wide and 60 centimetres deep. The gigantic 50-inch driver (127 cm), which is equipped with a 345 mm voice coil and is capable of 35 millimetres linear excursion, sits in a black

lacquered cabinet finished with robust textured paint. The infrasonic woofer's built-in professional amplifier module, which is equipped with AIA's Speaker Management technology, delivers up to 9,000 watts. On request, the SMSG50, which weighs over 200 kilograms, is available either in other colours or in a twelve-coat piano lacquer.



In full splendour: Three of these Black Swan Beryllium Single are used as front speakers in the reference cinema.



Alternatively to the Black Swans three of these 12-inch monitors named CCRM 12 Mk II can be heard as front systems



The CCRM6 Mk II surround loudspeakers are visually a bit understated in the rest of the lineup.



The flat CCRM 6 Mk II with 6.5-inch coax drivers are mounted as flying units, i.e. they hang from steel cables and eyelets on the ceiling and walls.

The AIA cinema in action

Stefan Köpf, our host today, leads us through the demo program and first shows us the sound qualities and efficiency of this cinema with selected pieces of music. Lady Gaga is allowed to enter for a solo performance, singing only with accompaniment on the grand piano. Wow, that gets under your skin and that, although I can hardly bear this interpreter otherwise. Here she demonstrates that she's an excellent performer, with a voice that is as distinctive and expressive as it is sensitive. The AIA ensemble creates a wonderfully intimate atmosphere, depicts the singer clearly and precisely in the room and inspires with an excellent fine dynamic. The final chapter from the music film "Bourlesque" starts to play in the UHD player. With this piece, the sound quickly can get too fat and fuzzy if the system is badly tuned. With the AIA system, however, everything is in balance and the many loudspeakers play to the exact point - the timing is really excellent. We are thrilled by Christina Aguilera's powerful voice and are surprised by the vehemently deploying drums. The pressure and precision delivered here in the low bass range is enormous. Volume levels to the point, and that with excellent speech intelligibility. The seamless bass is almost overwhelming, seeming to attack us, to then disappear quietly. But only until it returns to burn down another low bass storm. After a few demos with more musical content, we switch to some film sequences. Right at the beginning we are thrown into the raging hurricane of "Into the Storm" and get shaken to and fro on the listening couch. It's hard to believe which dynamics were eternalized on this Blu-ray and how powerful a cinema system can reproduce these storm scenes. exact point - the timing is really excellent. We are thrilled by Christina Aguilera's powerful voice and



rest of the evening in this absolutely exceptional cinema.

Conclusion

Once again, the AIA demo and development cinema in Ansbach has completely captivated us. As a home cinema and film fan, you simply have to experience such a performance - no home cinema I know sounds as natural, effortless and good as this one. That's cinema at its best!

Six 15-inch subwoofers left and right of the seating position provide the ultimate "kick" for film and music.