

**For decades, the engineers around Peter Qvortrup at the British high-end manufactory Audio Note have been breaking with conventions that are regarded as unalterable dogmas elsewhere. The CD 5.1x CD player is a declaration of war on all those who until now believed that digital source components had long ago reached their audiophile peak.**



## Reduced to the pure sound

When unboxing the brand-new CD player CD 5.1x I feel inevitably reminded of English roadsters of the 1950s and 60s. Those expecting an extraordinary design that will enhance their home stereos also visually, besides being accompanied by good equipment features and operating comfort, quickly find themselves off the track. The CD 5.1x shows up as a no-nonsense device that is hard to beat in its inconspicuousness. Appropriately, an advertising slogan of another, also British manufacturer in the 90s stated: "A reduced surface allows for more content". This is exactly what is happening here: Peter Qvortrup and his ingenious chief designer Andy Grove invest a lot of development talent and brain power in those areas that are decisive for the sound. This is taken to the extent that Audio Note manufactures most of the components in use by themselves or gets them manufactured to their own specifications. Following any fashions and trends would never be part of the company's philosophy. On the other hand, one could denote their very own approach as trend-setting. After all, quite a few manufacturers in the field of digital electronics have meanwhile adopted fragments of what Audio Note (UK) has always regarded as the basis for the best achievable sound. But it's the consistency with which the full-assorted high-end manufactory, located in West Sussex in the south of England, has optimized its portfolio to meet its own sonic expectations, which many competitors are simply lacking when trying to jump on this purist bandwagon.

In case of the CD 5.1x, the thoroughgoingness starts with the drive. Designers of today are set to face a seemingly insoluble problem, as almost everything that had once been dedicatedly conceived to scan CDs is now only available in the form of NOS ("new old stock") products. Anyone who has had the opportunity to take a look at the company's warehouse and the stocks of components that are no longer being manufactured can easily put the mental state of the management into question: Conductor materials made of silver or high-purity copper as well as great numbers of components that have long been considered unlocatable rarities elsewhere are bunkered here in abundance.

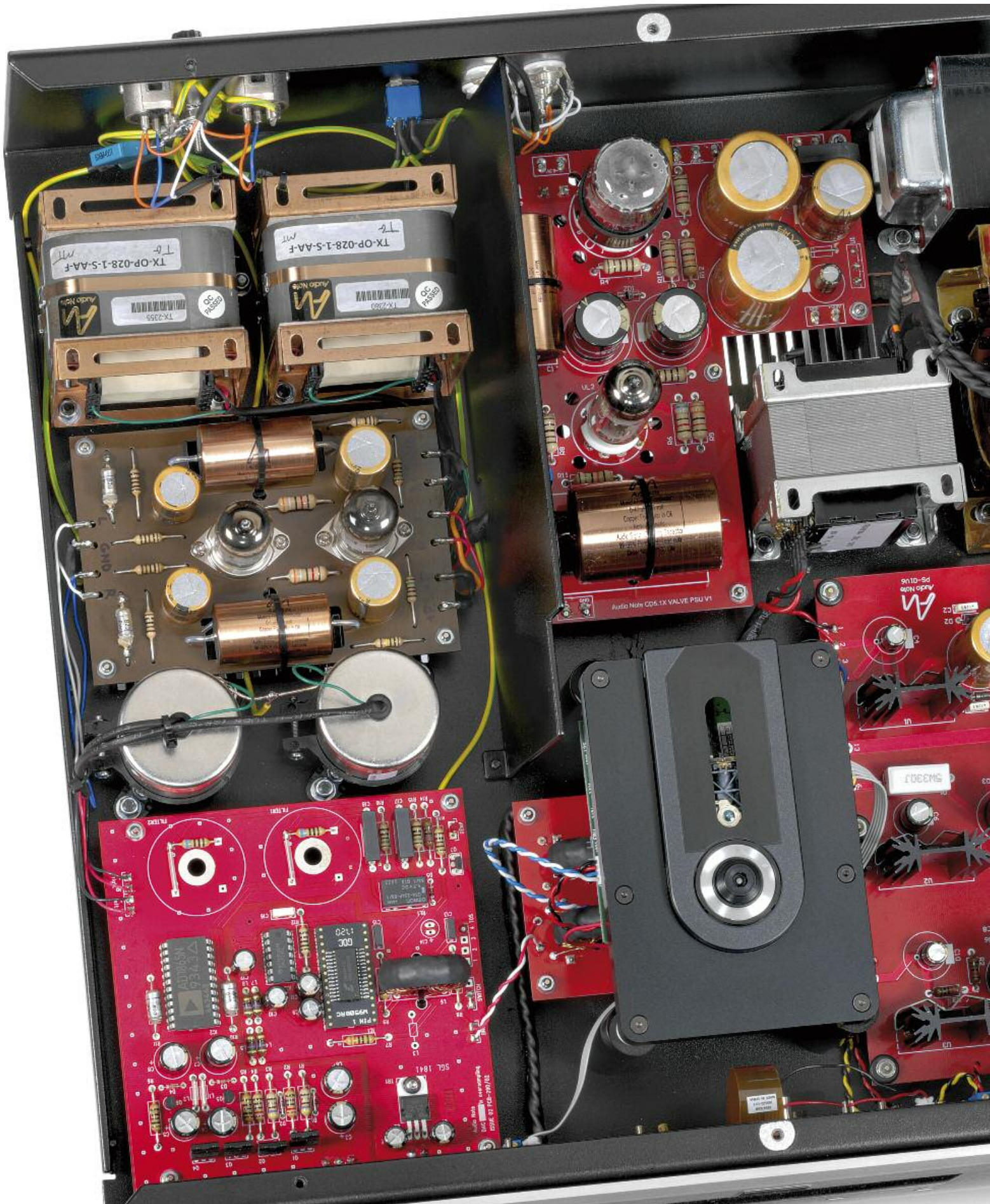




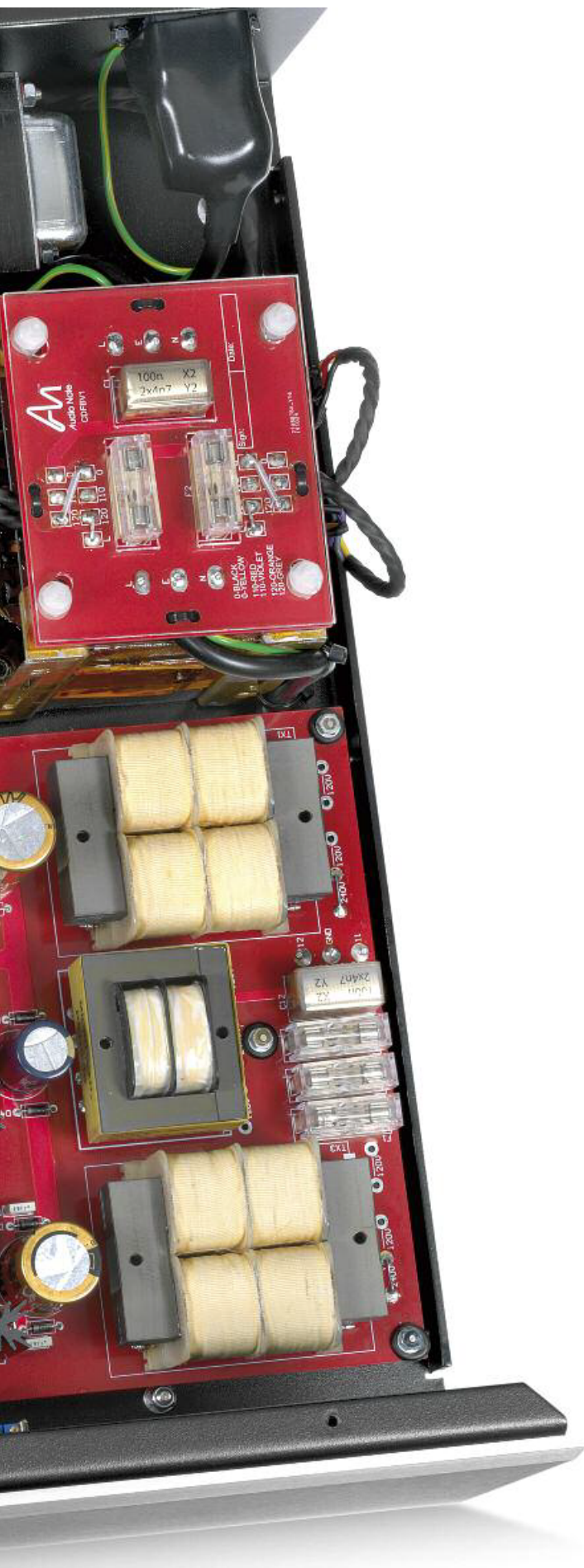
The accompanying capital commitment would be the nightmare of every management consultant. Obviously, the Brits are serious, or better, bloody serious about it: With the Philips CD-Pro2LF, which unfortunately has been discontinued a long time ago, they decided to use one of the finest top-loading CD drives ever invented. If one wants to achieve the highest possible data integrity right from the start, the most error-free readout of the medium is of central importance. Therefore Audio Note (UK) takes the standard top-drive and modifies it in such a way that any electronic or electromagnetic interference caused by the control and the mechanical implementation is minimized during this highly sensitive process. In doing so, one does without many a design gimmick that is taken for granted elsewhere: For example, the clamp required for top loaders, which holds the CD firmly on the rotary plate, happens here to be high-precision machined from ultra-light aluminum and fitted with a very powerful ring magnet, instead of featuring a design that namely puts high-end aficionados in a state of ecstasy when it comes to haptics and weight, but has technically rather questionable properties. Exemplary for the disadvantages associated with some luxuriant CD clampers are the high load for the bearing and the equally high storage of mechanical energy.

Even the maximum eccentricity of a CD, which appears to be negligible due to the specification laid down in the Red Book, leads to considerable forces acting especially in the center area due to the high rotational speeds. If a sub-chassis construction comes into play, which is then set into vibration, it's not hard to imagine how questionable the scanning reliability gets. Thus it is vital to dissipate the released energy as quickly as possible. In this regard, the CD 5.1x sets such high standards that I couldn't detect but only extremely small error rates even with CDs maltreated in hot air in the Koch CD check system, leading me to pay Audio Note (UK) my highest respect!







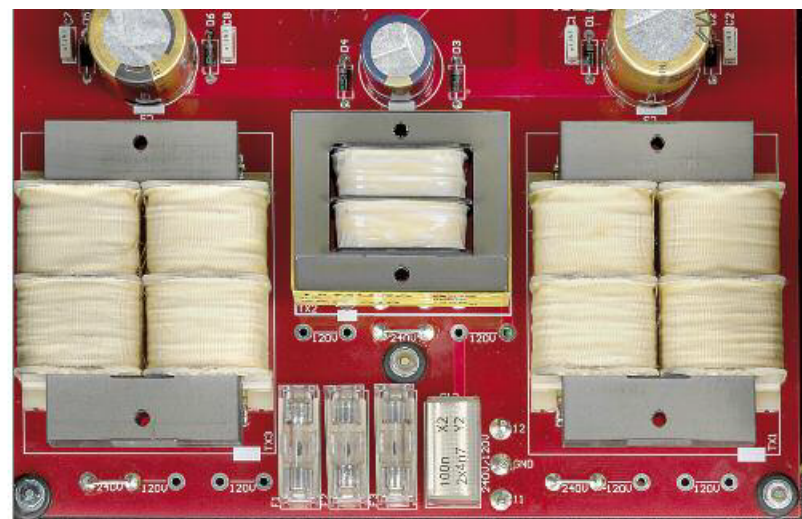
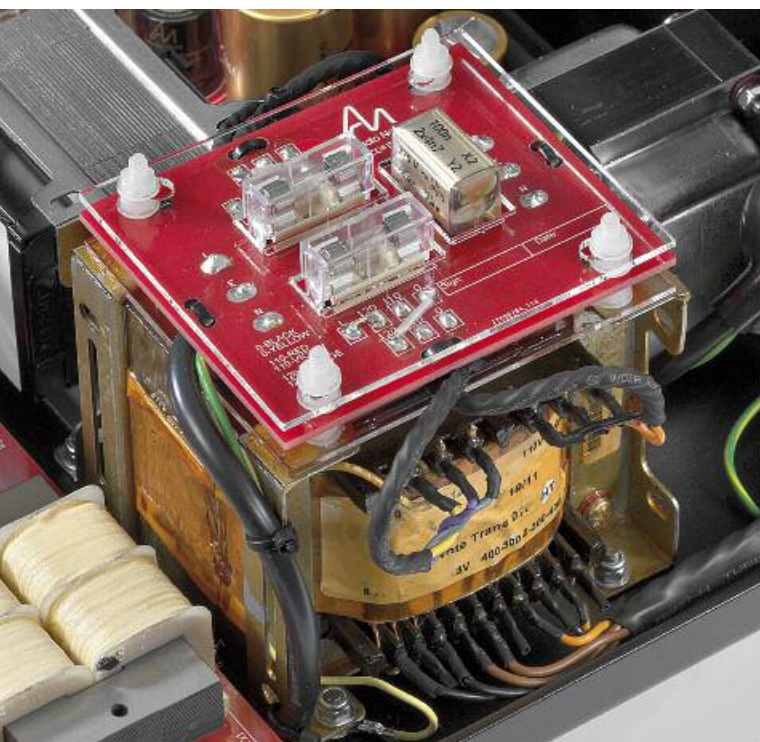


The company's uncompromising approach is in particular evident in the CD scanning process: In order to achieve the purest possible signal flow from data sampling to digital-to-analog conversion up to the analog output section, any kind of digital manipulation, be it reclocking, resampling, oversampling or jitter reduction, is clearly rejected. The phrase "true to the source" is therefore not a fashionable slogan here, but actively implements it. With the converter chips used for this purpose, the British manufacturer does not rely on what is feasible today, as modern 64 or 32-bit components cannot be embedded in such a puristic circuit topology. Instead, multi-bit ladder DACs from ancient days go into action. I refer here to the legendary Analog Devices AD1865 in its highest selection level, which Audio Note stocks just as much as the Philips drives. As a result of extensive listening tests, the 18-bit version was preferred over the more modern 20-bit version when selecting the converter module. Yes, dear readers, you are reading this correctly: Multiple DSD sampling rates or bit widths of 32 and more are not envisaged here - in essence, this is a seemingly long outdated technology. The fact that this converter chip is now enjoying a second life and is being given preference over the most modern designs in quite a few high-end enterprises with a big smile on their faces, is certainly also due to the fine auditory sense of the British, who, as far as I know, have already been using it for a little eternity by making their own path not only in this regard, but commonly avoiding to follow the well-trodden paths of digital reproduction.

Anyone who now expects a sonic outcome of the kind that is often referred to as "vintage" or "analog" in relation to the above-mentioned technical details is utterly off the track. The technical specifications of the Analog Devices AD1865 range still among the best that can be achieved in this field. One of the secrets of this chip lies in its simple implementation, because unlike the Philips TDA1541, the AD1865 doesn't require any complex peripherals. The CD 5.1x consequently uses the chip's allocation of a channel-separated power supply: Two outlets of the separate power supply, which supplies the digital stages of the CD player, are reserved for it.

***What can hardly be surpassed in terms of simplicity on the outside reveals a bulging arsenal of the finest, mostly in-house manufactured components internally***





*Above: the finely handcrafted analog filter with coils ensures high phase linearity and carefully cleans the output signal of high-frequency "dirt" from the player, which does not use oversampling or digital filters*

*Top left: Power transformers that are also finely handcrafted in-house, encapsulated to dampen vibrations and almost artistically wired*



*Bottom left: The actual audio circuit is very purist with only 2 tube stages, symmetrical and asymmetrical outputs are each provided by their own output transformers. Of course, Audio Note (UK) also uses its own*

In the analog section, two power transformers, coiled in-house by Audio Note as well, are used, supplying the entire analog audio circuitry on separate channels, while being equipped with a rectifying stage using a 6X5 tube. Another tube is responsible for stabilizing the supply voltages of the player's analog section, although this tube might be considered rather exotic in high-end circles. It's the low frequency beam power tube ECL82, which is largely identical in construction to the PCL82 once used for TV sets.

The analog output section is based on a classic two-stage preamplifier circuit using two double triodes. The 5814A, the military version of the 12AU7 (ECC82), is used on the one hand, and the very broadband 5687 WB, which was once introduced to the market by the legendary US manufacturer Tung-Sol, on the other.



The analog audio signal is decoupled by means of two output transformers, which are also wound by Audio Note in-house specifically for this application. These transformers reduce the output impedance to an incredible 5 ohms, which makes this player a miracle of compatibility with all thinkable preamps. Withal the developers explicitly set their emphasis on practice-oriented output levels. For example, the transformer provides 1.2 volts (RMS) at full digital level with a step-down ratio of 1:33 via the single-ended RCA sockets located on the rear panel, while this value doubles when using the balanced outputs. This fact deserves highest acclaim - especially we as tube aficionados and even more so those of us who enjoy their music through amplifiers with single-ended triodes (SET) could write a book about how difficult and sometimes even impossible it is to integrate many a digital device into one's home system due to its output level setting. At this point I would like to take a short trip into the analysis of level settings within a standard single-ended triode system: Commonly the power amplifier is already driven to full scale with less than 1 volt. If we now look at the market situation for digital source components with regard to output voltages, we will find out that these frequently lie around 4 volts. This means that a digital source in an SET environment misuses the preamplifier merely as an attenuator. Sometimes the disproportion happens to be so extreme that it's impossible to speak of a reasonable volume control - already just above the leftmost stop of the level control one's hair stands on end in view of the generated volume. Furthermore, analog potentiometers have their worst channel balance within the lower range, which means that any further approach to the topic "high fidelity" can be considered absurd.

The CD 5.1x is completely different, as it provides almost the same output voltage at its RCA sockets as an MC cartridge puts at the line preamp's disposal via transformer and tube preamp - the sudden jump towards the volume control when switching between record and CD is a thing of the past, and both sources can now be set to the listener's sound preferences using the (potentially) adjustable input sensitivity of the power amp!

It should be noted that when comparing the CD 5.1x to a CD player with a significantly higher output level in your favorite Hi-Fi store, a level matching must be carried out, as otherwise it would be impossible to run a meaningful comparison - a circumstance, that leads many a manufacturer to equip their products with the highest possible output voltage, as in a clueless listening comparison the louder component always sets out to win ...

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## Review System

**Turntables:** Bauer dps 3. iT, Immedia RPM-2

**Tonearms:** Schröder Reference SQ, Schröder CB, Schröder DPS, Immedia RPM-2

**Cartridges:** Jan Allaerts MC1 B, EMT JSD 5, Ikeda Sound Lab Ikeda 9TS, Lyra Etna SL, Lyra Skala, Lyra Helikon Mono, Koetsu Urushi Vermilion, Koetsu Rosewood Signature, Kiseki Purpleheart, Ortofon SPU Royal N, Zyx Fuji XH

**Step Up Transformers:** Consolidated Audio 1:20, Air Tight ATH-2A, Air Tight ATH-3, Cotter MK II PP

**Phono preamplifiers:** Air Tight ATE-2, Air Tight ATE-2005, Air Tight ATC-1 HQ, Cello RMM

**Tuner:** Marantz 20B, McIntosh MR 73 CD players/transport: Marantz CD-94 (modified NOS unit with passive I/V conversion and Klangfilm transformer)

**Reel-to-reel tape recorder:** Master machine Studer A 80 1/4" with Cello input and output modules

**Preamplifiers:** Air Tight ATC-2 HQ, Air Tight ATC-1 HQ, Air Tight ATC-3

**Power amplifiers:** Air Tight ATM-2, Air Tight ATM-1S, Air Tight ATM-4

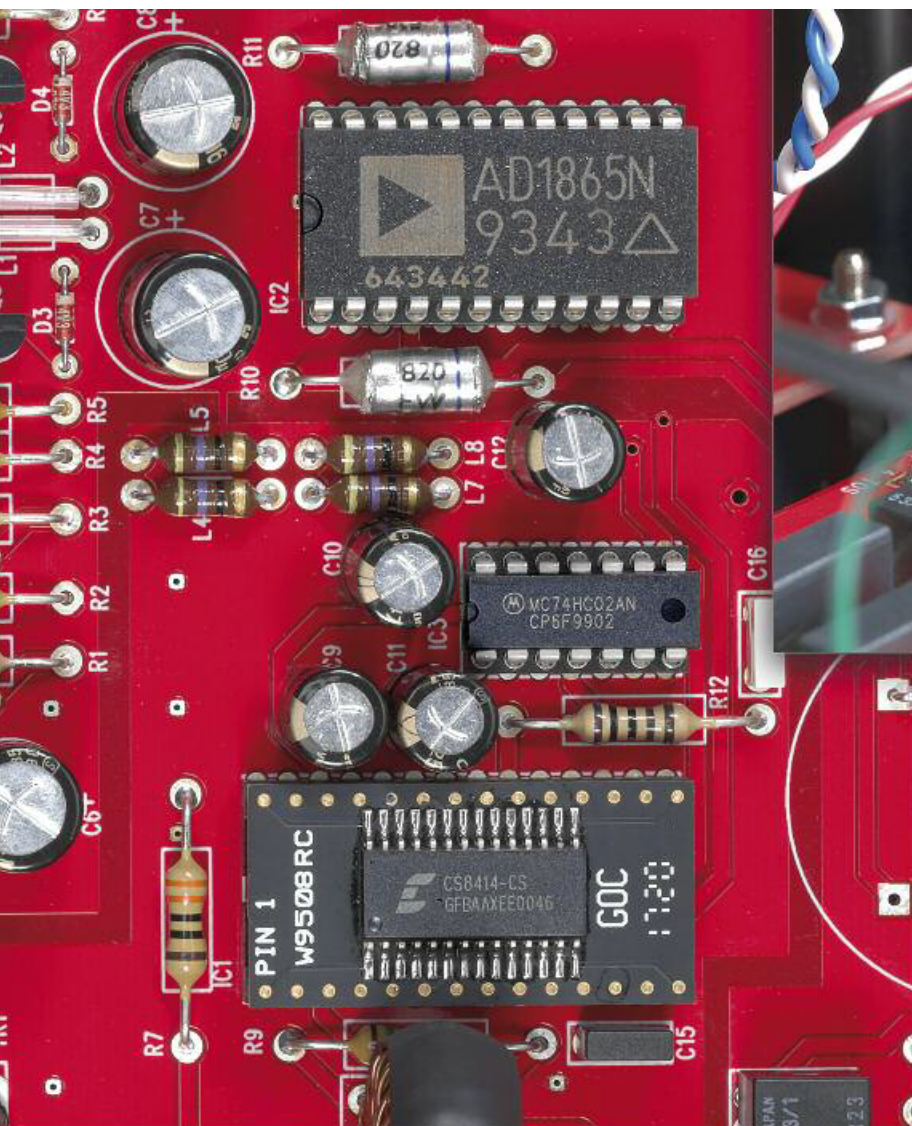
**Headphones:** Sennheiser HD 600, Grado GS1000

**Loudspeakers:** Quad ESL-57 (Quad Musikwiedergabe / Manfred Stein), Chartwell LS3/5A with 15 Ohms (restored originals), studio monitors Westlake BBSM-8 and Geithain RL 912K active

**Cables:** Stereolab Draco and Diabolo, Black Cat Neo Morpheus and Black Cat Reference speaker cables, LYRA PhonoPipe, Black Cat DIGIT 75 S/PDIF cable, Belden 3G2. 8 power cables (assembled with leGo copper fittings)

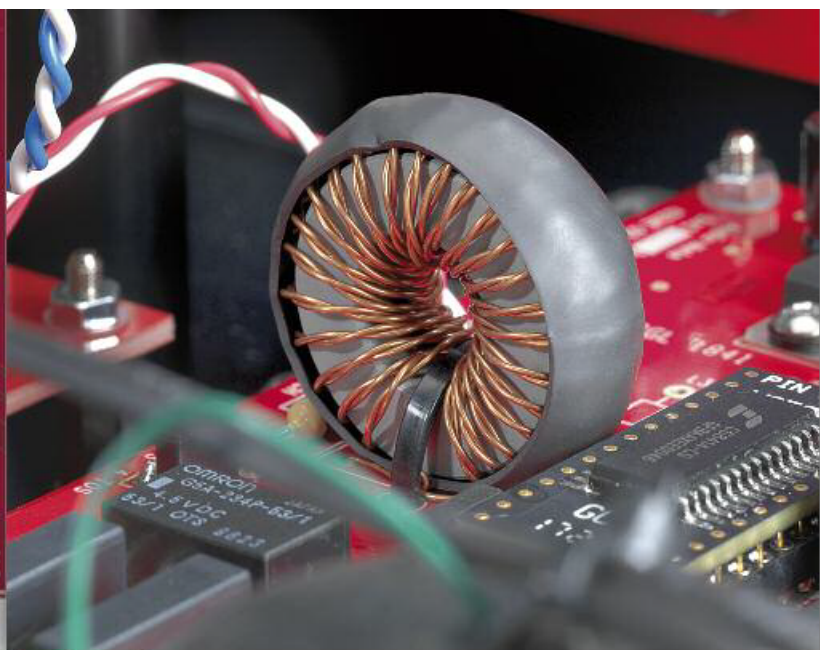
**Accessories:** LS3/5A speaker stands from Music Tools, Celestion SL700 stands





***A legend among converter chips: the AD1865N, whose particular design enables such a CD player concept in the first place***

As already mentioned above, the ultra-puristic circuitry of the D/A converter dispenses completely with oversampling and any kind of digital filtering, even reclocking and resampling are left out. In order to avoid that extremely high frequencies are mirrored into the audible range as described in the sampling theorem of Shannon and Nyquist, Audio Note thus uses analog filters, which implement inductors that naturally are manufactured in-house as well. As with the output transformers, the core material used here is mu-metal with a nickel percentage of 80 percent. This allows for a complete elimination of the dreaded pre-echoes (also known as pre-ringing) that are inherent in every steep-edged digital filter by at the



***Wherever you look, the electrical layout is without doubt lovingly conceived and entirely done by hand!***

same time letting the linearity at the upper end of the frequency range drop by approx. 1.5 decibels at 20 kilohertz (the normal dip would reach more than 3 decibels in a non-oversampling mode) - this is something I have never experienced in such a circuit topology in this form before!

The integration of the Audio Note (UK) player into my all-tube system proved to be exemplary due to the configuration afore described; even with CDs compressed to "death" within the mastering process, there is never too much level fed into the preamplifier. At least as important is the fact that during such digital power lapses, the device itself doesn't show the slightest tendency to sound either rough or dynamically limited. After two days of burning-in time, the sound is so entirely "non-digital" that, quite frankly, it completely blows my mind. The CD 5.1x proves to be a true magician of sound - nothing more and nothing less!





*The low-mass CD clamp uses a strong ring magnet to firmly grip the CD, thus dramatically reducing mass inertia and energy storage*

While listening to the first CD, it turns out to be difficult to find even one single aspect that does not appear aesthetically perfect, whereby the player instinctively combines a beneficial accuracy with an exuberant splendor of sound colors. Hundreds of times I've listened to the Radiohead album *In Rainbows* (XL Recordings, XLCD 324, UK/EU 2007), containing masterfully executed pieces of music that only reveal their entire complexity on the second or third listening. Only the best digital equipment is able to penetrate the microstructures of the sophisticated arrangements that make the songs so haunting and hypnotic. The Audio Note CD 5.1x is entirely in its element here - already after a few seconds the track "Reckoner" clearly straightens it out that something very special is going on here. All the percussion work at the beginning of the song is outlined in detail. Compared to an analog record, the cymbals and the hi-hat are not, as is often the case



*A subchassis as if it has been taken from a picture book: Already at the very beginning of the signal flow the data readout is performed as error-free as possible. The Audio Note (UK) development team has created a masterpiece*

when playing a piece from CD, sort of reduced to sharp plumes of noise - no, here a finely chiselled cymbal can be heard until the very end, defined and with a fabulous realism. The spatial ambience is so remarkably distinct that a perfectly authentic, three-dimensional image is created in the listening room and before the mind's eye. When Thom Yorke starts to sing, an instinctive shiver runs down your spine: There he stands in front of you, large as life and of impressive presence. Effortlessly, you immerse into the finest ramifications of the complex arrangement, just to simply listen the next moment to the wonderful melody of the vocal line - the CD 5.1x lets you listen to the music the way you want, a quality that's only inherent to the best audio components. The dynamic gradations of the music piece are rendered in a simply spectacular manner - and that's exactly what ultimately captivates the listener. It can seize your entire body throughout the coarse dynamic range (given sufficient level and broadband capacity), while it creates realism and authenticity in the very fine gradations. The CD 5.1x allows for both, as if it were one of the easiest tasks to accomplish. It ensures that you get emotionally completely enthralled and lets your intellect at the same time come to its expense with a wealth of details. At all times, this CD player is able to make even the densest passages in all their layers accessible to the ear - and all of this without the slightest touch of strain or even stress.



The CD 5.1x isn't a striking example of versatility - besides two pairs of RCA outputs the player offers a transformer-balanced XLR output, but unfortunately does without a digital input, which has been omitted because of sonic reasons

Who isn't familiar with those annoying moments when, while listening to large orchestral works, the room is flooded by an aggregation of clamor and noise due to the complexity of the sound patterns? In such cases, the CD 5.1x never misses the survey and brings the music closer to the listener in a digestible way without even vaguely sliding into the analytical. Thus, after having played Radiohead's exceptional album, the CD player goes for Bruckner's 8th Symphony, performed by the Frankfurt Radio Symphony Orchestra under Eliahu Inbal (Teldec Classics, 8573-89302-2, EU 2001): a work that is able to tear down your system to its foundations - or bestowing you one barrage of emotions after the other. The latter is the case when rendered through Audio Note (UK)'s player: The nonchalance with which it makes the most intricate passages, the seemingly innumerable layers in Bruckner's music audible, is breathtaking. The abundant tonal colors that this digital masterpiece is capable of unleashing in one go with inherently brute dynamics, are reminiscent of the legendary sound of the best studio master machines.





The CD 5.1x is one of the finest digital components I have heard so far - although the fact that its sonic excellency is built on an audio-CD playback technology, which is considered outdated, cannot be emphasized strongly enough. Most of us will probably own a comprehensive CD collection, and not everyone is interested to busy oneself with streaming (and I'm not talking here about the consequences for those actively involved in the music scene). The natural lightness with which this device interacts with this medium is simply touching. Any thought of listening to a machine is wiped away after the first tone - the player steps completely behind the action and opens the curtain to a truly fabulous musical performance.  
Well done, Audio Note (UK)!!!

### **CD player Audio Note (UK) CD 5.1x**

<b>Principle:</b>	Integrated tube CD player
<b>Outputs:</b>	2x unbalanced (RCA), 1x balanced (XLR)
<b>Output impedance:</b>	approx. 5 Ohms (balanced / unbalanced)
<b>Output voltage:</b>	1.2 V (RMS)/2.4 V (RMS) at full digital level by using the unbalanced/balanced outputs
<b>Maximum power consumption:</b>	48 W
<b>Channel balance:</b>	< 0.2 dB
<b>Valves:</b>	1x 6X5 rectifier tube, 1x ECL82, 2x 5814A, 2x 5687WB
<b>Drive:</b>	Philips CD Pro2LF, 3-beam laser with a wave length of 780 nm
<b>Media compatibility:</b>	CD, CD-RW, CD-R
<b>Converter:</b>	Analog Devices AD1865N with 18 bit accuracy, no oversampling
<b>Weight:</b>	16,8 kg
<b>Dimensions (H/W/D):</b>	14,5/45/42,5 cm Price: 23,376.54 Euros

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