



## The Birth of a New Species

### Why life can still be good in the “post-SACD” age...

Nature keeps showing us the way: Revolution is rarely a recipe for success. Success stories are, virtually without exception, a product of evolution. Only consistent refinement and development, and ceaseless adaptation to changing circumstances, will guarantee the survival of the species. Sometimes over the course of this slowly-unfolding process an entirely new species does actually emerge which outshines each and every one of its predecessors. So much for my digression into evolutionary theory.

The time was finally nigh in 1999: a new data format was ready to be launched, poised to succeed – or even supersede – the good old CD, and to set a new benchmark in premium-quality sound reproduction. The Super Audio Compact Disc, or SACD for short, had arrived. With the choicest of genes, and each individual aspect carefully considered, only one winner was ever going to emerge. Really, with hindsight we are now the wiser. The SACD format seems to have veered off down a one-way street too narrow for a U-turn, and with little hope of finding an exit ramp. What happened? Everything started with the highest of hopes. Its dynamic range of over 120 dB, and a 50 kHz upper limiting frequency which eclipsed anything a CD could offer, promised an unprecedented high-frequency resolution, and a much higher sam-

pling rate which would resolve the problem of filter ringing and its associated acoustic irritations.

Even in the sometimes sobering reality of the high-end sector, the SACD, properly made, was really good, and at the time actually had that decisive edge over the CD. Yet time did not stand still in the CD sector either. The event which was bound to occur, and which we had all secretly feared, finally became an unavoidable fact: the fine tarmac of the one-way SACD street unfortunately turned out to be a dead end, while the once unswerving CD thruway was being upgraded to a smoothly-polished racing circuit, so to speak.

The decisive reasons for the SACD's loss of momentum are hard to fathom. While some seem clear, others are opaque, and are most likely to be found in the political and strategic decisions made by multinationals. The complex copy protection mechanism is one of the more obvious reasons, as it only allowed the player to emit an analog signal. The fact that this, ten years on and thanks to HDMI 1.2, no longer applies only gets a passing mention. Nor could it always follow up on its promise of premium quality. The failure to realize – and ultimately the forfeit of – the potential of the DSD (Direct Stream Digital) format of the SACD was just one more contributing factor.

This means that virtually all SACD releases (and not just the back catalog!) are based on recordings in the PCM format, and not

their native DSD format. Quality has obviously played second fiddle here to cutting back on investment costs. The catalog of SACD releases was, in comparison to the CD, positively minute. A slightly more detailed examination of the story of SACD would be sure to reveal yet another “imbalance” preventing it from ever really running smoothly, but that's quite enough side notes on the subject of revolution.

Why I am putting so much emphasis on the SACD? Because Norbert Lindemann has delivered a CD player which he claims has the potential to be an acoustic equal to the SACD format, and even overshadow it. Norbert Lindemann would know better than anyone, as he is the one who, having delighted us with both the 822 and 820S SACD models, personally oversaw the creation of two SACD players of an absolutely “sacrosanct” class. The man knows exactly what he is talking about.

The Lindemann 825 makes the first positive impressions with its solid metal drawer. Even in the highest of price categories, a feature like this is becoming increasingly rare. Admittedly, this is not necessarily a decisive feature for audio quality, it is nevertheless, a lasting source of pleasure when inserting any CD, and along with its CD drive, which incidentally fulfills its task extraordinarily quietly, if not inaudibly – definitely tips the scales when making the decision to purchase one. The out-of-phase power cord, that is optionally avail-

lable, also exhibits an impressive high quality. Overall, the 825, as all Lindemann units do, gives its owner the assurance of absolute solidity, right from the very start.

The 825 conveniently provides three digital inputs: two SPDIF via RCA connectors, and one Toslink (optical cable). The real tidbit, however, is the USB interface. It processes USB data with a resolution of 24 bit/192 kHz and is currently the measure of all things.

The 825 is every bit as opulent on the output side. Along with the symmetrical and asymmetrical analog outputs, there are two more digital ports: each with one SPDIF via RCA and Toslink, eager to give your data streams a free run. A special feature is an additional digital input (SPDIF via RCA) which is referred to as “slope”. Slope is used to loop in external digital equipment,

such as sound processors. This allows such a high level of flexibility to be achieved that, apart from being fundamentally awe-inspiring, it elevates the 825 to a level far beyond a simple CD player.

This is exactly Norbert Lindemann’s point. His favorite way to describe the 825 is as a “DAC with an integrated drive”. A closer inspection of the interior of the device reveals that this perspective is by no means unfounded. The sheer time and effort devoted to the 825 to turn saved bits back into music is immense. I also immediately noticed that the Lindemann boss decided to use the current chip sets made by Wolfson – a choice which could be a further indication of a change of platform among manufacturers. This may also be a key to the prodigal audio splendor of the 825... Of course, it is not just opting

for Wolfson chips, but rather the way the performance requirements have been realized. There are a veritable number of features to discover.

Regardless of whether coming from a CD or an external source, all music data seeking admission into the 825 initially pass through a module which comprehensively cleans the jitter from the incoming data. After being “dressed to impress” by this, the so-called word “jitter” now barely even approaches a maximum of 50 ps (picoseconds) – nothing other than a fantastically low value, and significantly below any audible threshold. Attaining this value means the system clock, which centrally and synchronously reins in all internal digital functions, must operate with even more precision. The 825’s master clock – listen up, digital freaks! – provides a system clock with a jitter of maximum 2 ps!

According to Norbert Lindemann, the power supply unit has been designed as an external unit not only because of the electrical interference fields, but to specifically isolate the inevitable transformer vibrations from the clocking. Otherwise, this heavenly value – and I have to let it slowly melt in my mouth once more: 2 ps! – could hardly have been achieved due to the vibrations induced alone. At this point it becomes crystal clear what the acoustic qualities of the 825, along with its more than 10,000 lines of program code, are based on – precision, precision and even more precision.

With its dream values, the 825 would be an absolute trump card in a game of CD player quartet, the

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### Associated Equipment:

**Computers:** Apple MacBook Pro OS X 10.6.6 using iTunes 10.1.2(17) **Network player:** Sonos ZonePlayer ZP 80 and ZP 90 via Cat-5-LAN **Memory:** NAS drive with ALAC-encoded music files in MP4 format **CD player:** McIntosh MCD 751, Audio Research CD 2, Proceed PMDT, Philips CD 160, Pioneer DVD 737 **D/A converter:** McIntosh MDA 700, TacT Audio, Proceed **Preamplifier:** TacT Audio TCS Mk II, TacT Audio RCS 2.2 XP, McIntosh C100, Audio Research LS 15, Proceed AVP **Final amplifier:** Goldmund Mimesis 29, McIntosh MC 500, Audio Research VS110, TacT Audio S 2150, TacT Audio S 2150 X, QSC USA 400 **Loudspeakers:** Goldmund Epilogue I+II, Wilson Audio W/P System 6, Wilson Audio Watch Dog, Wilson Audio Whow, JBL 4343, JBL VerTec 4881, JBL 4312 Mk II, Sonus Faber Signum, Klipsch LaScala Anniversary Edition, Yamaha MSP 10 Studio **Headphones:** Stax SR-Sigma with SRM-1 Mk 2, Stax SR Gamma Pro with SRM-X Pro **Cable:** Goldmund, Synergistic Research, Van den Hul, FM Acoustics, Yamamura, Kimber Kable, Audioquest, Transparent Audio, PS Audio, Monster Cable and diverse “homebrewed” cables **Room acoustics:** Echo Buster Absorber, Echo Buster Diffuser, Echo Buster Bass Busters and diverse “homebrewed” absorbers **Room compensation:** TacT Audio **Accessories:** PS Audio P 1200, PS Audio P 1000, Goldmund AC Curator, Transparent Audio Power Bank Ultra Extended, A.R.T. Q-Dampers, Shakti Stones, AudioPrism Noise Sniffer, Harmonix TU-201 improved, Furutech power plug, Bybee Quantum Purifiers

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Lindemann 825 High Definition Digital Player

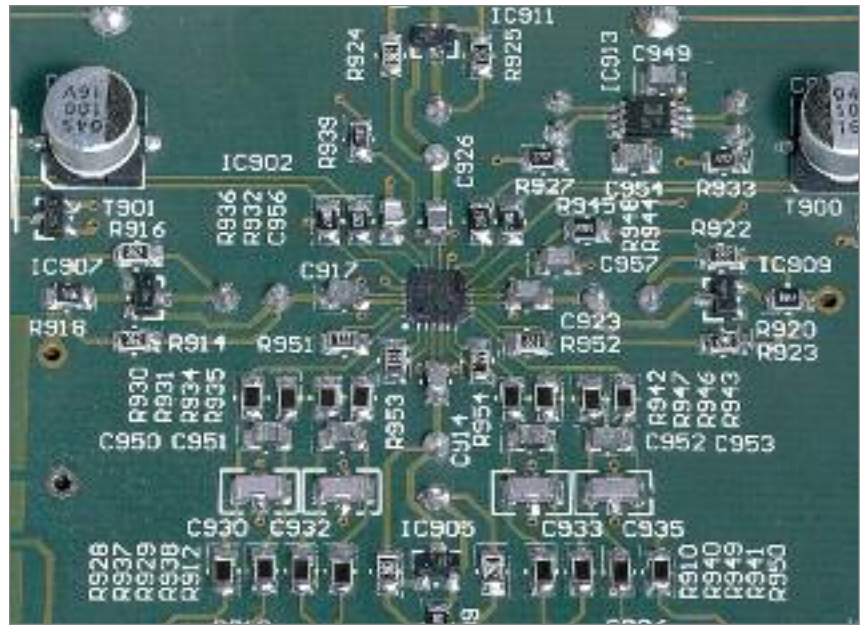


Strict division: a solid metal disk drive on the upper level, while the lower houses concentrated digital and analog know-how

omnipotent joker with which the digital disk game can be effortlessly won.

Directly connected to the module for jitter cleaning, all further processes can be controlled firsthand using a menu item. In “Auto” mode, all data with a resolution below 24 bit and 96 kHz are amplified to exactly this quality. Everything above 24 bits and 96 kHz remains untouched. In “Native” mode, the incoming data remains “untouched”, left exactly the way they are. Last of all, there is also the option of processing incoming data quickly and across the board using 48, 96 or 192 kHz. “Auto” turned out to be, in practical use, the most convenient as well as acoustically, in most cases, the most satisfying version.

I was especially looking forward to experiencing the digital filtering. This too seems to indicate another trend, along with the choice of chip sets. The 825 does not rely on the internal filter function of the D/A converter, high in quality as it may be, but goes a decisive step further - the digital filtering is now processed by an external DSP (digital signal processor). Lindemann sought the support of the Swiss specialists



Exact signal routing: the sophisticated analog module – nothing else is needed

Anagram Technologies to do this, and it is with their help that allowed them to realize a so-called minimum phase filter with an apodizing function. This may initially sound rather incomprehensible; however, this filter proves that Mr. Lindemann is approaching an ideal which not long ago engineers could only dream of. It is vaguely reminiscent of the mathematical proof of black holes: thanks to mathematical evidence, science had long known –

before the real proof was found – that black holes just had to exist. The situation is similar with the Lindemann 825 – the filter used here was long known on paper, and implementing it just defied possibility. Until now. Now it exists and can whisk you away to an acoustic nirvana.

The “trick” is an impulse response, a phenomenon which can also be encountered in nature, with no need to reinvent the universal rela-



Strict layout: Virtually no wishes are left unfulfilled on the rear, there is a wide palette of connection options

## Lindemann 825 High Definition Digital Player

tionship of cause and effect. The filter dissects the digital signal with the precision of a Swiss watch and the sharpness of a Swiss army knife. The most striking thing about this new filter is, however, that any errors generated when encoding the CD are isolated from the network signal with meticulous accuracy, which incidentally provides acoustic benefits throughout any CD catalog. The 825 audibly removes that downright clinical “digital character” from many older recordings of yesteryear. Incidentally, the 825’s DSP ups the data to 384 kHz, a currently unique feature which is ideal fodder for the D/A converter (once again: Wolfson). Norbert Lindemann has rounded off the digital compartment with one last trick, using it to filter the emerging, but still infant, analog signal: the filte-

ring only needs a gentle six decibels per octave, and therefore avoids compromising the impulse response and conducting it against ground, keeping it as clean and crisp as possible.

Once the signal finally arrives in the analog range, it proceeds straight to the analog output sockets, a single-level process, without any need for the often used op-amps (operational amplifier). To shake off the last of any remaining disturbing artifacts, the so-called FDAs (fully differential amplifiers) have been employed in the 825. In the case of the 825, these “idealists” are characterized by an extreme bandwidth extending far into the megahertz range, in combination with a common-mode rejection especially developed for broadband capability, which in turn predeter-

mines the use of its common mode rejection as an extraordinarily effective disturbance component filter. All that, by the way, with a very moderate, low current feedback of just 30 dB, is advantages in getting good sound.

While I am writing these lines, the Lindemann player is in continual operation, playing music non-stop from the laptop via USB, from a streaming client via SPDIF, and again and again directly from CD. From time to time, I am literally stopped in my tracks when the acoustic elements of the 825 exceeds in performance and arouses my attention – just as it does now, listening to “We Supply” from the Stanley Clarke’s album The Bass-Ic Collection. It kicks off with a concrete-hard slap-style bass, which generates a tremendous force with



Strict usage: external power supply unit, 24 bit/192 kHz USB drive for PC and Mac, as well as a well harmonized, phased-out power cable

every strike of the thumb, every pluck of a string by Clarke's dexterous fingers creating a dazzling popping sound. After a number of replays, I decide to connect a second Wilson Audio Watch Dog. As it turns out, only a full-blown subwoofer twin really can reveal the enormous low-frequency control of the 825.

The Lindemann plays with a vice-like, hands-on decisiveness and assertiveness extending right down deep into the obscurity of the lowest octaves, with the greatest possible naturalness and such a convincing balance that its outstanding quality becomes unmistakably apparent. I continue with the album Indian Summer by Friedemann even though it's no longer the latest. For me, it is an intimately familiar measure of light and airy playback. Cueing it up once again, I finally use headphones to catch a glimpse of the 825's winning hand – which I rarely needed to before! What can I say? Even in this case, the 825 is resplendent with its superb, open and spacious reproduction, including a phenomenally balanced, flawless resolution reaching far into the highest levels without ever developing the faintest sign of abrasiveness. Norbert Lindemann really seems to have succeeded in reinventing the circle: maximum fine resolution, in the highest of levels, that never gets annoying. That guarantees hours of effortless listening pleasure.

For example, on Sergei Sergeyevich Prokofiev's Peter and the Wolf, read in the German version by Bernhard Victor Christoph-Carl von Bülow (alias Loriot) and in its

English version by Gordon Matthew Thomas Sumner (aka Sting), even the supercritical vocal range is handled masterfully. Physicality or fine resolution? This is not even an issue here. The 825 High Definition Digital Player makes it impressively clear that the two can go together! The impression that the 825 doesn't even need to make an effort to produce this unbelievably well-balanced performance is manifested again and again. It just seems to pull it out of its digital sleeve, as if it were the most natural thing in the world. The various inputs are all at the same level, that being the highest possible. Using comparable output data, they consistently provide comparable results.

Lindemann's 825 is one of those rare components which rouses an immediate sensation of assurance – the assurance of having done things right. There is never even a shade of doubt that it could ever be a tick better. In short, its acoustic performance cannot be considered any-

thing other than the ultimate statement in matters of precision.

If this unit, and I am deliberately avoiding the term "CD player", were a dissertation at a University, then the doctorate, once awarded, would never be withdrawn due to the suspicion of plagiarism. Quite the opposite as nothing other than a *summa cum laude* would be appropriate, and couldn't be called into question by a Professor accepting wooden nickels.

The Lindemann 825 High Definition Digital Player is a clear-cut case: a triumph of evolution!

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## Lindemann 825 High Definition Digital Player

**Functional principle:** DAC with a classic front-loader

CD player **Media supported:** CD, CD-R, CD-RW, HDCD

and CD layer of hybrid-SACDs **Analog outputs:** asymmetrical (RCA), symmetrical (XLR) **Digital outputs:** SPDIF (1

x optical, 2 x RCA) **Digital inputs:** SPDIF (1 x optical, 1 x RCA), USB **Special features:** can be

used as a DAC or "jitter cleaner" for other components, minimal phase apodizing filter, USB up to

24 bit/192 kHz, external processors can be looped in using "slope", full metal drawer, external

power supply unit **Design:** Silver/black **Dimensions (W/H/D):** 44/13.5/34.5 cm **Weight:** 10.2 kg

**Guarantee period:** 3 years

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