

## THE BIT-ER TRUTH

Highresolution-Downloads promise musical enjoyment like listening directly to the mastertapes. Are they able to replace DVD-Audio and SACD?

By Joerg Witzsch & Hans-Ulrich Fessler

"Do we still need CD and SACD?" With this deliberately provoking remark Caroline Dooley, Head of Linn Records, presents a new, highly interesting format for HighEnd-ers: the Studio Master Download. Music, you could not buy in such quality as a download before – taken from the original stereo masters with up to 24bit and 96 kHz resolution – thus in best studio quality.

"Of course we do not think to stop providing CDs and SACDs", Dooley gives the all-clear, " but in times of fast DSL-downloads you have to think with blinkers off and later on confront yourself with reality again and provide our customers with the format best suited to their needs." That means: mp3 is done and out as a downloadable format for enthusiasts of good sound-quality - long live high resolution, uncompressed WMA and FLAC. Besides CD and SACD, Linn-Records now offers a third possibility to enjoy music in perfection. How perfect? stereoplay wanted to investigate that in detail and developed a real "masterplan" to give consideration to the provoking assumption on top: could it be possible, that high resolution downloads are the replacement of the SACD? Interestingly enough, for the test another high resolution format comes into play, that Linn does not have in its portfolio: DVD-Audio

### THE MASTERPLAN

If you set out to test the quality of music-downloads, you must be highly aware not to be caught by the many "soundtraps", a computer puts in your way to perfect enjoyment of sound. Not only does the soundcard need to be of highest quality, also the components and the operating system of a computer are in the way of good sound-reproduction. The power supply: not developed to provide good sound-quality, partly a real "jamming transmitter". Or widely spread "Windows": the internal ("K-") mixer is in the way, resamples signals to 48kHz much of the time, before they find their way to the soundcard – also not really HighEnd-y. Through the line-connections, many computer-generated residuals find their way to the amplifier. All that, you have to cut out of the way.

stereoplay will test Linn's Studio Master Downloads using two ways: first, with a computer acting as a music-server, second, with DVD-Audio. If you use software like Minnetonka's Discwelder or low-priced DVD-Audio Solo and burn DVD-Audio in LPCM-format from the high resolution downloads, you avoid all software- and hardware-related issues from a computer, that could influence sound-quality – theoretically, the music is stored on the DVD exactly as the sound engineer provided it for download. Could it be, that the custom-made DVD-Audio beats the SACD?

The "highend-y" conversion of a normal computer into a music-server is a bit more complicated. stereoplay chose an external soundcard from Studio-Expert RME. Its FireFace 400 is attached via FireWire to the computer and bypasses Windows' "resampling-traps" with special ASIO-drivers. The high resolution downloads are directly fed into the soundcard through the "Foobar

2000"-player without changes in bit-perfect quality. stereoplay deliberately avoided the use of Windows Media Player, since it cannot make use of ASIO drivers. Furthermore, FireFace 400 provides a highly-specialized jitter-correction, that is able to virtually eliminate almost all computer-generated Jitter.

To provide direct comparability between CD, SACD and the downloads, stereoplay did not make use of the excellent D/A-converters of the FireFace 400, but instead only used its internal SPDIF-converter. With this high-bit-PCM-signal the reviewers fed a multiplayer from Linn: the Unidisk SC. It is able to play back CD, SACD and the custom-made DVD-Audio and also provides a digital input, which accepts the high resolution digital signal (exception: 88.2 kHz signals are not accepted over the digital input, which Linn confirmed upon request).

So all formats were making use of the same converters and electronics – comparability was perfectly established. Last, all-dominant step in stereoplay's "masterplan": a comparison between SACD and custom-made DVD-Audio with the best multiplayer, Steroplay knows: Linn's new Akurate CD.

## THE TEST

Already with Barb Jungr's album "Walking in the sun" – mastered with 44.1 kHz and 24 bit – the reviewers noted for the custom-made DVD-A: "slightly darker and subdued, a little lack of tension." Played back from the harddisc, the test-tracks sounded clearer and more open, the electric organ's cue was clearer, fresher and more striking. Its crescendo in "Trouble in mind" sounded more threatening.

The comparison to the SACD showed: from the harddisc, Barb Jungr's voice sounded a bit more dull, the bass a bit more sluggish. The SACD scored with a more coherent imaging, bass was even more distinct and outlined. Barb Jungr's voice was embedded even better within the arrangement without losing autonomy.

Interesting phenomenon: the DVD-A sounded more rhythmical at first. That turned out to be a fallacy quite soon: indeed the DVD-A separated the individual notes better, but only, because they were literally punched out – they lacked the fade, the transition into the next tone, that harddisc and SACD were able to provide.

Same result with Carol Kidd's album "Debut". Mastered with 96 kHz and 24 bit, it could impressively prove differences between formats. The custom-made DVD-A provided more spaciousness in the first place, but very soon, stereoplay discovered, that this was a merely artificial 3D-effect, eventually caused by small phase-shifts – the SACD showed the more realistic, musically comprehensible three-dimensionality. Via harddisc, Carol Kidd's debut sounded more rhythmic than via DVD-A, the pianist's witty rendition, his clever use of rhythmical and dynamic phrasing provided good spirits to the listeners. Even more colour, more "swing" and sharper outlines were the icing on the cake, that made SACD again become favourite of the reviewers: "Musicality" was written on the reviewer's notepads repeatedly, when the SACD was spinning in the UNIDISK SC. That also happened during the toughest test of the stereoplay-"masterplan": Played back via Akurate CD, the DVD-A stepped up a gear in quality, but the SACD expanded its advance in sound-quality even more.

Finally: what happens with classical music? One example of the 22 tracks, that stereoplay auditioned over hours, particularly documents that: Mozart's "Adagio in c-minor" (96 kHz / 24 bit). Via DVD-A it seemed, as if the recording had taken place in a well-built theatre. Via harddisc, the place turned into an opera-house, but the awe-inspiring, (tone-)colorful concert hall only was

audible via SACD. Especially during pianissimo, the musical suspense, that only the SACD was able to provide, was merely written into the reviewer's faces.

## BOTTOMLINE

High resolution downloads – be it FLAC, WMA or WAV – surely have a big stake in the future. With a well-equipped computer and an amplifier able to process high resolution signals, it has never been easier to play back music in best quality. Shortly, even computers and soundcards will be redundant if you look at the hardware already supporting lossless codecs like FLAC - not to mention the upcoming all-in-one devices.

Converting the downloads to DVD-Audio already provides absolutely top notch sound-quality, but in comparison between formats has ended up to be the taillight. That, by the way, was not due to the quality of the software used: both Discwelder and DVD-Audio Solo do not add or take away anything from the original; we re-extracted the DVD-A-data before burning them to DVD, and they proved to be 100% identical with the original ("checksum"). But why then the differences? A crosscheck with different DVD-writers showed minimal differences in sound-quality – stereoplay is sure, that the differences noted by the reviewers originate between harddisc and player. In other words: somewhere, where the DVD-writer, the used media, its reflectivity, burn-quality, laser-pickup and mechanics of the player come into play. Nevertheless, for the HiFi-enthusiast without ambitions to build a music-server, DVD-A is an all-around recommendable entry into the highbit-world.

Clear winner of the test was the SACD – it sounded more musical, flowing, coherent and richer in detail – even though differences to the downloads were remarkably minimal in absolute terms.

For stereoplay, that again proves, that SACD and the bitstream-format earn highest merits in sound-quality.

The surplus advantage of the SACD to provide a 5.1-mix most of the times and (in case of Linn) sell at a lower price than the download, will most likely not last long – related offers are already available on the internet or in preparation.

But no matter what format you chose: with this evolution, mp3 is outdated in the world of HiFi and will only remain a storage-space-saving option for the bus, a beach-chair or to go for a run.

## SOFTWARE

For playback, stereoplay recommends two programs: the freeware "Foobar 2000" and J.River Mediacenter (\$40). The latter scores with an excellent user-interface and is perfectly suitable for the use with touch-panels. Both programs support ASIO.

To create DVD-Audio you can either use Minnetonka's "Discwelder Bronze" (\$99) or Cirilca's "DVD-Audio Solo" (\$40). There are no sonic differences, "DVD-Audio Solo" gets a recommendation from stereoplay for its easy usability and many features. WMA and FLAC can be imported directly without previous conversion, the integrated sound recorder for example enables conversion of a vinyl-collection to high resolution DVD-Audio.