

# The world's first music Blu-ray

Morten Lindberg, Norway

Photos: Lindberg Lyd



Morten Lindberg started out as a classical balance engineer in 1992 and the expanding activity formalized in the foundation of Lindberg Lyd Ltd in the summer of 1996. Lindberg Lyd AS is among the very first in Europe to utilize DXD- and SACD-technology in commercial audio production. The signal path is as simple and short as it is technically advanced: fantastic musicians and adventurous music in a beautiful venue recorded by DPA 130V microphones together with Millennia Media amplifiers and SPH-YNX2 converter go to the PYRAMIX workstation. The technical tools and practical solutions are developed by Merging Technologies in Switzerland and Digital Audio Denmark together with Lydrommet and Lindberg Lyd AS in Norway. In 2001 they decided to make their own products for direct distribution. The result is the identity of the music label 2L.

Blu-ray is the first domestic format in history that unites theatre movies and music sound in equally high quality. The musical advantage of Blu-ray is the high resolution for audio, and the convenience for the audience as one single player will handle music, films, their DVD-collection and their old library of traditional CD.

Our only hesitation is the replication costs, that currently are at a "Hollywood-level". The music business does not bring the same revenues as the movie industry. A mandatory copyright protection, one that we actually don't want, is another obstacle in the astronomic fees charged by AACIS (Advanced Access Content System). But my hopes are high for the Blu-ray format, and very soon the fabrication costs should be at the present level of DVD, making it possible even for small record labels to make Blu-ray a standard carrier for music. Somewhere down the line we might see Blu-ray supplemented with download services, integrated in the live profile 2. Today we offer both stereo and multichannel FLAC (Free Lossless Audio Codec) in 24 Bit/96 kHz as independent download services.

I personally prefer extremely high resolution PCM over the DSD. All resolutions found in the DIVERTIMENTI are sample rate converted from the same DXD source files. Comparing them in our studio we find only subtle differences from DXD (24 Bit/352.8 kHz) down to 192 kHz and 96 kHz. The obvious degeneration is from 96 kHz down to 48 kHz. I find DSD, as used in the SACD format, somewhat different in colour from DXD and 192 kHz PCM; in some mysterious way DSD is softer and more beautiful but slightly less detailed. In DXD I find the shimmering brilliance from the original analogue source as

directly from the microphones. The most obvious reduction in sound signature is of course the 48 kHz core extracted from the DTS- and the Dolby Digital 48 kHz just sounds terrible, compared to anything. In addition to linear PCM in 24/192, DTS Master Audio and DD True HD is offered on DIVERTIMENTI with the purpose of convincing audiophiles of their true lossless qualities. The stereo layer of the SACD and the LPCM 2.0-stream on the Blu-ray is a full resolution mix from the original microphones. Mostly we find that the microphone placements used for the surround make a fine stereo. Occasionally, we put up extra microphones dedicated for the stereo stream.

Our DIVERTIMENTI is 100% according to the official Blu-ray specifications. Unfortunately all players are not. Due to the 192 kHz rate in MCH, not all first generation players has the processing power required for decoding, and therefore "cut corners" and down-sample or down-mix to stereo. PlayStation3 is one of the machines equipped with sufficient power to handle all formats. I believe all future models of Blu-ray players will prove compatible with the standards. New models will be matched by a new range of receivers, with HDMI V1.3 making decoding a lot more easy and compatible than today.

The musical and technical process of recording and editing are identical for



SACD and Blu-ray. When I started as a recording engineer in 1990 there was no focus on surround sound in classical music. It was the introduction of SACD that made us aware of this magnificent perspective. Surround sound gave us the solution to the depth and spatial resolution we experienced live on stage in a concert house, but were not able to recreate in stereo.



Trondheim Solistene in the Selbu church, Norway

We prefer to record in spacious acoustic venues; large concert halls, churches and cathedrals. This is actually where we can make the most intimate recordings. The quality we seek in large rooms are not necessarily a big reverb, but an openness due to the absence of close reflecting walls. Making an ambient and beautiful recording is the way of least resistance. Searching the fine edge between direct contact and openness; that's the real challenge. A really good recording should be able to bodily move the listener. This core quality of audio production is made by choosing the right venue for the repertoire, and balancing the image in the placement of microphones and musicians relative to each other in that venue. Planning and discussions with the musicians create trust and a sense of occasion and excitement



Morten Lindberg (in the front) and Hans Peter L'Orange  
Photo: Tore Dag Nilsen

that translates onto the recordings. What we insist upon in the recording phase is time.

We usually spend from four to six days of recording on a 60-minute repertoire. In credit of the musicians I need to say that this is not in need of getting the score right, but in order to bring forward the right mood and dimensions. At most projects the entire first day is spent bringing the dimensions down from a 1500-people hall to the proximity encountered on a home-visit to your living room. The challenge of this process is to get the volume down, keeping the intensity and energy up, without being intrusive. There is no method available today to reproduce the exact perception of attending a live performance. That leaves us with the art of illusion when it comes to recording music. As recording engineers and producers we need to do exactly the same as any good musician; interpret the music and the composer's intentions and adapt to the media where we perform.



Microphone set up for DIVERTIMENTI

A senior Norwegian HiFi journalist visited our studio recently. Prior to our listening session I explained to him how we recorded MOZART with the orchestra in a circle, all musicians facing each other – surrounding the listener. He raised from his chair and wanted to leave. I begged him to listen – and he stayed for three hours; leaving us with the conclusion: "Now I need to go home and write an article apologising all my readers for the thirty years I have misguided them in stereo. Surround sound is the real thing."

Compare a 20k Euro stereo to a 40k Euro stereo; my subjective increase in quality is 10%. Compare a 20k Euro stereo to a 40k Euro 5.1; you get an objective 80%

increase of resolution and perspective. The real problem, that makes the above balance not materialize, is the fact that very few labels up to now has produced content that bring out the full potential of multi channel. The approach of "rear for ambience only" is feeding carbohydrates to the persistent claims of stereophiles. When it comes to recording a solo instruments, a lot of conservative forces claim that surround sound can add nothing to a good stereo. This might be the case with a traditional dry "synthetic" (multi-monosources) studio recording. But to us it's not about the object itself; it's all about the landscape where the instruments perform. In real life a grand piano is not a point source; it's a three dimensional sculpture, and surround sound is our tool to bring forward that experience to the listener.

#### Equipment used for the recording of DIVERTIMENTI

- Matched DPA 4041S for all five main channels
- DPA 4003 with AP50 for LFE
- Millennia Media HV-3D with DPA 130V feed and customised for DPA 4042S direct
- SPHYNX II (DAD AX24) converters in DXD [24 Bit/352.8 kHz]
- Pyramix Workstation in DXD
- B&W802 and Sennheiser HD650

For this recording, we used five identical and matched DPA 4041S microphones which brought us closer to our musical and aural dreams than ever. For the LFE-channel we utilized a DPA 4003 mounted with a L50B Acoustic Pressure Equalizer. All microphones are routed discrete all the way to each of the surround speakers. No dynamic or frequency processing will be deployed to the signal chain. We recorded in DXD."

Morten Lindberg wird auch zur Tonmeistertagung nach Leipzig kommen. Er wird dort sein Projekt im Rahmen der Blu-ray Session vorstellen (Donnerstag, 17.30 Uhr) und neben anderen am Roundtable „Blu-ray als Format für die Audiobranche“ (Donnerstag, 18 Uhr) teilnehmen.