

## Tracking the Transition

**Studio pros sound off on hi-res formats, favorites and frustrations. Stephen Murphy reports.**

“**P**erfection of means, and confusion of ends seem to characterize our age.” Albert Einstein spoke those words over 50 years ago, but the quote could have just as easily come from any of the recording professionals who contributed to this article their opinions about high-resolution recording and the current state of affairs in the recording industry in general. Their words paint a picture of promise as well as frustration for the industry in which we all make our living.

From hybrid recording techniques to overall trends and predictions, each engineer offers insight into their work in DSD, high bit depth/high sample rate PCM and analog recording and mastering.

### DSD Denizens

Direct Stream Digital (DSD) continues its slow march forward, picking up new endorseees along the way. The engineers I spoke to who had recorded in DSD or heard SACDs (Super Audio Compact Disc is DSD's consumer counterpart) extolled its sonic virtues.

Producer/engineer/label owner Tom Jung (DMP Records) was in on the DSD ground floor: “I've been working in DSD for approximately six years. I had some of the earliest Sony and Phillips DSD prototypes — weighed 16 1/2 tons, took up a whole room! Things have improved slightly since then,” Jung says with a laugh.

Veteran classical producer/engineer Tony Faulkner (London Symphony Orchestra, St. Petersburg Philharmonic, BBC S.O.) switched to DSD for his live recordings: “Listening back to DSD sounds like a really good, transparent preamp instead of a recording.”

“Working in DSD leads me to master in different ways than PCM - it handles the top end better, and I find that because of the extra resolution I can use less compression,” says recording/mastering engineer Alan Silverman (*The Producers* cast recording, *The Birdcage* soundtrack, Chet Baker re-issue).

### DSD Detractions

Although introduced over five years ago, the majority of working audio engineers have not had the opportunity to audition DSD recordings, let alone work in the format. On the consumer side, few are familiar with the SACD format, and fewer have actually heard it.

While no one I spoke to faulted DSD sonically, there was a near-unison chorus from those working in the format lamenting the lack of product and technical support.

“DSD is absolutely great, except you can't process it,” says producer/mastering engineer Jon Astley (The Who, Tori Amos, Tears for Fears, Judas Priest). “Tori's latest album was mixed to DSD and released on SACD, but I had to go out to 24/96 PCM because it was the only way I could master it properly. The pace of development has been quite perplexing and frustrating, really.”



Stephen Marcussen in his Hollywood mastering facility

Faulkner agrees: “The big disadvantage is that DSD requires very expensive and esoteric hardware. And those of us who have adopted DSD have had awful grief trying to deal with these prototypes with nowhere near as mature interfaces as PCM. The transition period has been, and continues to be, awkward in many ways.”



Alan Silverman with recording artist Norah Jones

“I would certainly feel better if more people had access to the technology and support,” says Jung. “But it will improve — Sony has been working with other manufacturers on several developmental initiatives.”

### SACD for the People

A major development on the SACD consumer front is increase of dual-layer CD/SACD releases including the recent remastering of the entire Rolling Stones catalog — nearly 30 discs in all. Bob Ludwig mastered the discs using DSD transfers from the original analog mix session masters. The DSD transfers were carefully assembled by Teri Landi from U.S. label ABKCO and Steve Rosenthal from The Magic Shop in NYC. Jon Astley supplied Ludwig with DSD transfers and detailed notes from the Decca UK vaults as well.

“These remasters are only available on the hybrid CDs, which should give the SACD a major push towards consumer consciousness,” comments Astley. “Another bit of positive news is that prices are coming

down on consumer SACD-capable DVD players. Of course, I'd want a player with digital DSD outs, but that's a whole other issue...”

Engineer Joe Blaney (The Clash, The Ramones, Tom Waits) does not work in DSD but enjoys his new SACD player from the consumer perspective: “It has made me more of a listener in my own studio. The

# High-Resolution Recording

► acoustic guitars and percussion on the Stones SACDs, or the sound of the high hat on Jeff Beck's *Blow by Blow* SACD — things that sounded great when they were cut to analog tape sound great once again. It makes me smile!"

## Format Wars and You

"When I first heard the CD in 1982, I got a headache, and that headache never went away — I just got used to it. When I heard DSD for the first time, that's when the headache stopped," says Silverman.

I asked Silverman if the continuing epidemic of overcompression will eventually infect the SACD. "The nature of the PCM CD hides a lot of the damage being done by music-mangling, level-driven mastering. With DSD, the damage created is going to be far more apparent. Based on my own experience, DSD will lead people to better fidelity."

## Analog from the Ashes?

Lest we forget, analog is often still the benchmark for high-res recording. Blaney explains one of the reasons analog continues to appeal to many engineers: "When I first started making records back in 1981, I loved switching between the board mix and the two-track repro head and loving what the analog tape deck did to the mix. When DATs took over, switching between the board mix and the DAT output was a disappointing, almost ugly experience."

A few engineers reported declines in analog use: "The analog business here has been drying up tremendously — I just used the half-inch deck for the first time in two months," says Katz.

But most of those interviewed said analog is enjoying new life, especially in concert with increases in DSD remastering and as a multichannel mix delivery format for eventual DSD or other high-resolution surround releases.

Marcussen has noted an increase in the amount of analog tape coming in to his mastering facility, especially for multichannel projects: "I'm seeing a lot more one- and two-inch eight-track masters coming in. In fact, we had a situation where our one-inch deck went down last week and it was a real problem because of the amount of analog work coming in."

With the increase of incoming analog comes moments of déjà vu for Marcussen. "I was looking at a stack of 15 two-inch tapes in my studio thinking I was suddenly back 20 years. I thought I'd said goodbye to two-inch many years ago, and here it is, right back in my face — and I'm loving it!"

Mastering guru Bob Ludwig (Rolling Stones, R.E.M., Tracy Chapman) reports that analog technology and formats are still evolving: "Analog continues to advance. We have owned a one-inch two-track for quite some time now with either audiophile tube electronics by Tim de Paravicini or 'Aria' discrete solid state, Class A electronics by Crane Song's Dave Hill. So far, in every comparison we have made between one-inch versus half-inch, the wider tape wins. As wide as half-inch sounds, one-inch sounds wider!"

He continues, "Advances are being made in analog 5.1 surround as well. We have done four surround projects so far using a special two-inch eight-track (plus time code track) machine. Again, the rather massive tracks have, for the majority of these projects, sounded better than the digital alternative, even at 96kHz."

## Hybrid Happenings

An increasingly popular technique with recording engineers is to combine analog and high-resolution digital formats to provide the best of both formats.

Producer/engineer Chuck Ainlay (Mark

Knopfler, Wynonna, Vince Gill) explains his hybrid approach to recording Mark Knopfler's latest release. "We recorded to two two-inch 16-track recorders. I also locked up the Nuendo system, recording at 24/96, for additional tracks and final transferring. Once we'd decided on the best takes, we dumped the all the tracks from the two analog decks into Nuendo and mixed from the direct outs of Nuendo into a custom Neve 8087 board."



Veteran classical engineer Tony Faulkner

Although Blaney describes himself as "one of the last analog guys in New York," he has recently found use for incorporating high-resolution PCM into his traditionally analog setup.

"I've started using (MOTU) Digital Performer at 24-bit/96 kHz locked with my MCI JH-24 two-inch 16-track recorder. I cut the basic tracks to the analog deck. Then I dump reference submixes into Performer and continue tracking without the MCI. This saves wear and tear on the tape, and lets me add more tracks during recording. Then when I mix, I lock up the MCI to Performer and use the original analog tracks along with the newer tracks I cut digitally."

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— Alan Silverman

Blaney works around one negative side effect he found in the hybrid process: "I go the extra step of using a Lynx synchronizer to lock the analog deck to the computer because I don't like the sound of the digital tracks when the master clock is forced to follow the fluctuating motor of an analog deck."

Another popular analog/digital hybrid approach is to record digitally and mix analog, or vice versa. Ainlay describes the hybrid mixing process used on Mark ►



Tom Jung with the Sony Sonoma DSD System

Faulkner explains how he deals with the dueling formats: "All the equipment we have is switchable — I've been fairly cautious that way. I bought a Genex which is switchable between DSD and PCM, and the dual-format dCS converters are fantastic. Otherwise, redundancy is the rule."

On the subject of weaning consumers from the CD, mastering engineer Stephen Marcussen (Santana, Elton John, Marilyn Manson) offers, "It's not going to be easy convincing consumers to ditch everything they own. In fact, don't even tell me to replace my CD collection!"

Mastering engineer Bob Katz (Itzhak Perlman, Dizzy Gillespie, Livingston Taylor) cuts to the chase: "The hardware wars are only making hardware manufacturers rich," though he acknowledges the fallout will not be pretty.

Faulkner notes: "DVD as an audio delivery method seems to be going off in so many different directions — the latest emphasis is to make sure that audio DVDs play back on any consumer system, from DVD-A to the 5.1 cinema formats."

While this may be practical, it is an approach that may continue to confuse rather than win consumers. As my engineering colleague Ty Ford says, "It's the Beta/VHS wars cranked up to 11!"

# High-Resolution Recording

► Knopfler's solo recordings: "We mixed to a one-inch two-track from Mike Spitz/ATR. That's what we mixed to on 'Sailing to Philadelphia' and it worked great. Mark actually ended up buying an ATR one-inch deck of his own."

Ainlay explained that on the new album, the initial mastering attempt using the analog mixes proved unsatisfactory, especially when

*"I thought I'd said goodbye to two-inch tape many years ago, and here it is, right back in my face – I'm loving it!"*

— **Stephen Marcussen**

compared to the reference CDs cut at the mix sessions from the mixes he simultaneously recorded into Nuendo.

"Basically you have to look at an analog deck as a processor as well as a recorder. Analog puts its own color and fingerprint on the process, and since we tracked and mixed analog for the most part, we found that the additional analog stage was more than the project required. In this instance, the 24/96 mixes were the best choice."

## State of the Industry

Many of those I spoke to pinned a good part of blame for the industry's lackluster economics and persistent consumer disinterest on continuing format and licensing conflicts within the industry. Consumer and professional would-be purchasers sit on the sidelines and wait (the really motivated ones watch as well as wait).



Chuck Ainlay uses a hybrid analog/digital approach.

"The whole audio economy is going to go down the drain because of stagnation," says label owner David Chesky (Chesky Records). "There's no excitement anymore."

Ludwig astutely blames some of the consumer disinterest on an oft-discussed (and

oft-ignored) technical phenomenon of the digital age: "About 8 years ago digital domain compressor/limiters with 'look-ahead' abilities that allowed a 'zero' attack time became available. The general levels of CDs have subsequently increased by an alarming amount, sucking the life and longevity out of almost all commercially competing recordings."

"Thank goodness these didn't exist when the Beatles and Stones were first recording or no one would ever want to go back and hear them again! I personally feel the compression mania is somewhat responsible for the record industry losing a hold on the music buying public, as 'loudness for loudness sake' has replaced musicality. Never in the history of the human race have people heard music in such a highly compressed state."

Chesky raises another hot issue in the industry: "So much is being held up by the issue of providing digital outs on consumer hardware because of copyright concerns. But the Napster phenomena proved that thievery is not predicated by sound quality."

"We're in such an odd state in the industry," says Ainlay. "There are many professionals I know who are saying, 'Why bother?' when consumers are complacent, and labels continue to provide inferior quality. It is an extreme attitude, but I understand where it comes from."

## Tails Out

In closing, the engineers offer words of wisdom to cut through the confusion.

Alan Silverman speaks to the metaphysical quality of DSD: "I think the SACD format re-establishes a connection to recorded music that was broken with the rise to dominance of the CD. It fills a very human need."

Marcussen offers a realist perspective: "If you ask a wide range of engineers and producers about audio formats, you may not find a lot of love for 16-bit 44.1 kHz PCM. But in the end, we're all PCM lovers because that's how we make our livings right now."

Chesky offers this olive branch (and tells the record industry where to put it!): "The bottom line is all the high-resolution formats, DSD, PCM or analog, can sound very good. The record industry is stuck ten years behind what we do in the studio and they can't get their act together — we've got to get past this bottleneck."

Ludwig sees a solution to the surround format wars: "In my opinion, the key to the assured success of 5.1 will come next year when automobile manufacturers start to offer



In-demand U.K. mastering engineer Jon Astley

surround systems in cars. If they adopt as standard equipment 'universal' players with both DVD-A and SACD capabilities, it will, in one event, eliminate format wars. Consumers will be able to choose by title and not care if it is SACD or DVD-A because it will always play. If the car manufacturers don't offer universal players and make the consumer choose between a SACD and DVD-A player, we will all lose a great opportunity."

And, lastly, Chuck Ainlay reminds us of why we bother: "Striving for the best possible recording has always been the goal for us — it's the artistry in what we do. It's what the pioneers of the recording industry did, and it's what we will continue to do." ●

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