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This week I continued my research on the 24-bit digital revolution sweeping the audio industry. Before focusing on the ramifications or impact that this shift in sampling resolution will have on the music business, I thought it appropriate to first explore what type of machines currently existed on the market to implement this high resolution possibility. It suffices to say that 24-bit technology is already flooding the market. From mixing desks to multi-track recorders to effects devices, high resolution audio is now a viable audio medium. The price of these new products is also surprisingly inexpensive considering the quantum leap forward in audio quality which they possess. Considering the affordability and availability of high resolution formats, the savvy consumer would be wise to tailor all future digital audio purchases to this new 24-bit standard.

Realizing that the market is becoming saturated with 24-bit technology, it's hard to know where to begin when investigating new equipment since there are so many new products each month. The heart of any digital audio system, of course, is the converter, and so it is there that I took a first look. Consumers and professionals can currently buy outboard ADCs of the highest quality. Weiss manufactures a 102 Series converter which operates at 24-bit and 96 kHz. Since the conversion process is so crucial in defining the quality of an audio sample, many professionals prefer the use of outboard converters to the converters conveniently available on their recorders. Tonmeister Wojcik of Carnegie Hall, for example, always uses an outboard 16-bit ADC when recording live field recordings at various locations away from his main studio. He connects the digital out of the ADC into the digital in of his portable DAT recorder, thus bypassing the DAT's converter circuitry and using it solely as a storage device. The use of high-quality converter's, therefore, is crucial to sound quality. The Apogee corporation currently produces an 8 channel 24-bit converter, model# AD-8000. With such a unit, the possibility of making professional quality, 24-bit multitrack recordings exists even if storing the digital data on consumer formats. The AD-8000 also includes the UV22 process which allows high resolution conversion to 16- or 20-bits, meaning that a 24-bit multitrack recording can theoretically even be made using a simple 16- or 20-bit ADAT or DA-88 machine.

Semi-professional digital audio equipment, unfortunately, has yet to embrace 24-bit technology. As of yet, the ADAT format has yet to release a 24-bit version. However, Studer has plans for a V-Eight ADAT Type II format machine which would employ ADCs from its digital 24-track DASH recorder, D827. The DTRS format, commonly seen as Tascam's DA-88, is also still only in the 20-bit stage of recording capability. The third digital tape format, DASH (a professional format) already has numerous 24-bit models, including the previously mentioned Studer D827 and the Sony PCM-3348HR. Although AMS Neve has many 24-bit digital mixing desks, such as the Logic 2, Logic 3, and the Capricorn, this technology has not reached semi-pro mixing formats. It seems only a matter of time, however, before 24-bit will filter down the audio chain.

The main question in most engineers minds when considering 24-bit technology is its compatibility with the current 16- and 20-bit models which are pervasive in studios across the country. When moving audio between different sampling rates and frequencies, the transfer is often only possible through the analog domain. This lack of

complete digital compatibility causes redithering and thus adds unnecessary noise to the signal which was digital. To combat this problem, Otari has introduced the UFC-24, a universal format converter which allows audio transfers to stay within the digital realm no matter what the rate or frequency is on either end. Hopefully with the introduction of format converters such as this, professionals will move more quickly into the realm of high resolution audio without concern for matching it with the equipment they already possess and know how to use.

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