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Like it or not, we are fast approaching the time when linear tape-based machines will be a thing of the past. In 1992, RADAR (distributed by Otari) was the first stand-alone system to offer disk-based, 24-track recording. Now distributed by iZ Technology Corporation — the original creators of the RADAR system — RADAR 24 bridges the gap between the traditional linear tape decks and the more elaborate DSP-based editing systems. Offering a simple, stable and solid product is the philosophy that has always reigned at iZ, and RADAR 24 continues that approach, while offering new systems at a fraction of the cost of its predecessors.

THE BASICS

The unit I tested consisted of the RADAR 24 (a four-rackspace unit), the optional Session Controller, a 48-channel meter bridge and the Nyquist 24/96 I/O board set. All the units are attractive and well-made, and convey a feeling of quality. The front panel has an On/Off switch, floppy drive, 18-gigabyte SCSI drive in a removable Kingston Fast-Wide Ultra SCSI hard disk carrier, and a 9.2-gig 2x DVD-RAM drive for backing up the system and archiving projects. Operating system chores are handled via an internal IDE drive, while digital audio is written to the removable high-speed SCSI drive. Besides the DVD-RAM drive, factory installed backup options are numerous, including Exabyte Eliant, Mammoth, Mammoth Lite, AIT and Orb.

The unit's chromed rear panel features six sets of DB-25 connectors for 24 tracks of audio I/O, as well as three sets of DB-25 TDIF connectors (with an additional three sets of DB-25 connectors for optional ADAT and multichannel AES for a total of 48 digital I/Os, which can be used simultaneously with the analog I/O). Stereo AES/EBU and S/PDIF connectors round out the selection.

Sync connections are via two pairs of BNC connectors for wordclock and video (house) sync, and there are also standard MIDI In/Out/Thru and Sony 9-pin machine control connectors. These provide access to RADAR's SMPTE timecode chase lock/generator, MIDI timecode chase/generator, video sync, wordclock sync and machine control. Additional interfaces include an Ultra Wide SCSI connection for external drives, standard parallel port connectors, keyboard and mouse sockets, and the proprietary RADARLINK connector, which allows for simultaneous operation of up to eight RADAR 24 (or RADAR II) units.

In addition to audio levels, LEDs on the meter bridge indicate the status of the track, including solo and edit states. All of this eye candy makes it entirely possible to operate the RADAR 24 and Session Controller without a monitor, though a monitor will be necessary if you intend to operate RADAR with the (included) standard PC keyboard alone. Projects can be named, and all menu options can be accessed using the front panel controls and the LCD window.

IN SESSION WITH RADAR 24

Anyone familiar with autolocator remotes will have no trouble getting around on the Session Controller. The familiar standard transport buttons, jog wheel, QWERTY keypad, numeric keypad and dedicated hot keys make all operations fast and efficient. Most of the buttons on the Session Controller contain an embedded LED that indicates status. The current operation is displayed both on the LCD screen on the Session controller itself and on a similar virtual window in the RADARVIEW screen (more on this later).

All connectors and cables are clearly labeled, and I found the setup to be about as simple as it gets. However, when I plugged a generic 19-inch computer monitor in the standard SVGA connector and flipped the Power switch, I found that RADAR generates a bit more fan noise than is necessary. I have been building PC-based audio systems for years and have found that a lot can be done to lower the noise level, simply by carefully choosing the case fans, power supply and CPU fans. In an ideal situation, the RADAR units should be located in an isolation box or in a separate room away from control room or recording areas. Perhaps this is not as big an issue as it first appears. I spoke to the people at iZ and was informed that RADAR is now shipping with a much quieter power supply and fan.

I repositioned the unit outside of the control room and rebooted. As RADAR is based on the PC platform running the stable and reliable BEoS 5 operating system, the familiar PC "post" screen appeared and was quickly followed by the BEoS logo. This was briskly replaced by the RADARVIEW track screen and after that, the PC and BEoS operating system became completely invisible to the user. RADARVIEW — the one and only screen you have to deal with — is an overall graphic view of all 24 tracks, similar to the track view screens seen on almost all editing software. Similarly, individual tracks can be zoomed into and out of for detailed waveform editing. Overall, I found RADARVIEW to be simple, good-looking and intuitive.

The sound of a digital recorder is primarily the sound of its converters, so I first checked out the AD/DA section to see what all of the fuss was about. A bluegrass session with acoustic instruments gave me a real chance to hear the detail the converters were capable of, and I was not disappointed. A Martin D-28 box guitar came though with a sheen I had not previously heard, and the transient punch of the banjo was remarkable. Such clarity is not inexpensive — the Nyquist 24/96 card is a \$2,995 option.

Next I decided to try a real-time digital transfer from a friend's Tascam DA-88 via the TDIF connectors. Because the DA-88 offers SMPTE, MIDI and Sony 9-pin sync, and also included the SY88 synchronizer, I had a chance to test almost all available sync options. I didn't expect to find any issues with RADAR's sync capabilities, and I didn't. Later, using both SMPTE and MMC where appropriate, I was able to achieve rock-solid sync with my studio PC running Logic Audio, Cakewalk Sonar and Cubase 5.0. This brings me to my second and final gripe with RADAR. At the time of writing, RADAR 24 was not able to import projects from other editing systems, nor is it able to import audio files via the DVD-RAM drive; in fact, only small .WAV files can be imported via the floppy drive. [Editor's Note: Several of these

concerns have been addressed with the upcoming release of Version 3.10 software. See the "RADAR 24 Software Update" sidebar for details.] However, iZ promises that RADAR 24 will soon have the ability to import Pro Tools projects, and other file-import capabilities are planned.

Once the tracks were in RADAR, it was time to explore the editing possibilities. Those accustomed to editing on more elaborate, computer-based DAWs may find the editing functions of RADAR 24 rather limited. However, as RADAR is intended as a direct replacement for linear tape machines, the developers at iZ decided to stick to the editing basics: Anyone who is familiar with other digital editing platform will not have a problem getting around on RADAR 24 and will appreciate its plusses, such as real-time waveform rendering, the ability to perform multiple in/out paste marks on-the-fly, and its dedicated controls on the hardware controller for fast, one-touch setting of in/out/sync points and 10 Locate buttons.

After defining the in and out point of the area to be edited, the user can then place it in a virtual clipboard from which it can be cut, copied, pasted, moved, erased, slid, looped and reverse-pasted. It is a simple matter to position the clip, either by using the jog wheel or by using the autolocator, to find a pre-defined point. All edits can be auditioned, and there are up to 99 levels of undo. All of this is so simple that it is quite possible to edit on-the-fly during a session, something you may be afraid to try on a more complex system. Another nice feature is the Mark Sync button, which allows sound effects and audio cues to be easily and precisely positioned during video post-production.

In keeping with the tradition of simplicity, archiving and retrieving RADAR projects via the DVD-RAM drive could not be easier. From the LCD window, you can choose either the Backup or Restore menu, pick the project you want to archive or load and hit Enter. RADAR does the rest, and the 9.4-gig capacity of the DVD drive eliminates the hassle of backups from slow tape loads, as in earlier versions of RADAR, or multiple CD-Rs.

Readers familiar with the previous RADAR and RADAR II are already acquainted with the superb sound quality, 24-hour tech support and bulletproof stability of RADAR 24. The list of artists and producers who have recorded using RADAR reads like a "Who's Who" of the recording industry. So, what does the latest incarnation of RADAR bring to the table? RADAR 24 features an improved user interface and supports sample rates of up to 192 kHz. Add to that the robust BEOS 5 operating system, SOUNDMASTER compatibility and 9.4-gigabyte 2x DVD-RAM backup, and you have a package that's fairly hard to beat. Did I mention price? The RADAR 24 system I tested priced out at \$10,870 retail, while a similarly configured RADAR II system would have sold for over \$20,000. Quite a reduction!

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RADAR 24 Pricing

The base RADAR 24 system is \$4,995, with an 18GB drive; 24-channel TDIF I/O; 2 channels of AES/EBU and S/PDIF I/O; SMPTE/MTC /AES/video/word/9-pin sync; standard KC-24 keyboard; port for SVGA monitor; and all necessary software. By selecting from a wide range of options, RADAR 24 can provide a customized system to fit a variety of user needs.

Options include:

Session Controller: \$1,195, with 33-foot cable. This full-function autolocator/controller features an LCD screen, dedicated transport controls, jog wheel, macro keys, dedicated editing keys and menu shortcut keys. An optional 66-foot extension cable is \$150.

Meter Bridges: The \$495 Meter Bridge 24 is designed for console-top or Session Controller mounting, providing full-range, 24-track LED metering without having to use the onscreen meters. The Meter Bridge 48 (\$795) offers 48-track metering for dual-RADARLINKed RADAR 24 or RADAR II systems.

Digital I/O: Twenty-four channels of 96kHz-capable pathways in AES/EBU format on three DB-25 connectors, \$995.

Classic Analog I/O: Essentially the same 24-channel, 48kHz AD/DA converters used in RADAR II, \$1,695.

Nyquist Analog I/O: Twenty-four channels of 48/96 kHz AD/DA conversion, \$2,995. The \$3,995 S-Nyquist Analog I/O option is similar but offers improved conversion.

Drives: The standard 18GB Barracuda drive that comes with RADAR 24 can be upgraded with a variety of optional hard disks ranging up to 36 GB, for nearly three hours of 24-track recording at 48 kHz.

Backup: An assortment of auxiliary drives are offered for archiving or backup, including: double-sided 9.4GB 2x DVD-RAM, \$695; 7- to 14GB Eliant 820S 8mm tape drive, \$1,795; 14- to 28GB Mammoth LT drive, \$1,995; 20- to 40GB Mammoth drive, \$2,995; and the 60- to 150GB Mammoth 2, \$4,995.

Cabling: To access the TDIF digital or analog I/O, you'll need D-25 sub-to-XLR (or -TRS) breakout snakes. These are available from numerous vendors, ranging from the ordinary to the exotic — depending on your budget needs and tastes, but they must be figured into your RADAR budget.

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