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## Opcode Vision DSP v4.1 Sequencer

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US software and hardware innovators Opcode have come far since their first MIDI-only sequencer in the late '80s; the latest descendent of that program, *Vision DSP*, incorporates 24-bit audio recording and compatibility with VST plug-ins. **Bob Dormon** focuses on the new features in this latest *Vision*...

Pioneers of Apple Macintosh hardware and software, Opcode have maintained a strong presence in their native US sequencer market for well over 10 years now. In the late '80s, together with their rivals MOTU, Opcode benefited from US customers' typically deeper pockets and the lower prices of Macintosh computers on their home turf. In Europe, however, and the UK in particular, the early days of computer-based sequencing were pretty well dominated by the Atari ST, together with sequencing packages from Steinberg and C-Lab (and later Emagic). As the Atari's share of the market collapsed under the challenge of Macs and PCs, both Steinberg and Emagic developed versions of their flagship MIDI + Audio sequencers for the victorious platforms, ensuring that users abandoning their STs were able to stick with the sequencer they'd grown accustomed to.

This user loyalty has continued to make it difficult for the US sequencer manufacturers to break through in Europe, and so have European innovations like Steinberg's ASIO driver system, which has recently become established as a standard for Macintosh audio applications and third-party PCI audio cards. Nevertheless, the Yanks aren't going to take this lying down, and the latest version of Opcode's long-running *Vision* sequencer, *Vision DSP*, comes 24-bit-ready with additional software bundles and a battery of features that may well charm even the most ardent European software fan to try some American pie.

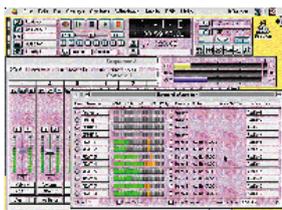


### Vision To v4.0

The biggest innovation in Opcode's flagship *Studio Vision Pro*, however, is not featured in *Vision DSP*: their patented Audio-to-MIDI and MIDI-to-Audio conversion features. These allow a monophonic audio line to be converted to (and then edited as freely as) ordinary MIDI sequencer data, and subsequently reconverted to audio incorporating any changes (say to timing or pitch) you've made to the MIDI version. While you *don't* get that in *Vision DSP*, this does at least give you an idea of the level of audio editing sophistication that Opcode have achieved. Even this, however, has not proved sufficient to sway the Euro-sequencer faithful over the years, and so version 4.0 of both *Studio Vision Pro* and *Vision DSP*, released last year, incorporated a number of changes in response to the gripes of long-standing users. One of the most significant changes in v4.0 was the inclusion of user-definable key commands. First-time *Vision* users didn't have this option until version 4, and had to cope with some antiquated key commands dating back to times where numeric keypads weren't standard. In addition, version 4 overhauled the somewhat 'primary school' look to the *Vision* user interface (which had always belied its rocket science capabilities), adopting the MacOS 8 look, with embossed graphics, and introduced the freedom to customise the appearance of the user interface (as demonstrated by the natty screenshots accompanying this article). *Vision DSP*'s dialogue boxes also received an update, such that many of them now encompassed a variety of functions accessed via drop-down menus. Conveniently, certain edit procedures could now be set to affect all files, only selected files or all files except those chosen by the user.

### New To v4.1

Nevertheless, some features that users of *Vision* and *Studio Vision Pro* were anticipating in version 4.0 have only just materialised in version 4.1. With the adoption by Opcode of the ASIO driver standard and VST plug-in architecture (as used in Steinberg's *Cubase VST*), it has at last become possible



for *Vision* to offer real-time effects without the need for additional DSP hardware (ie. using just the Mac's Sound Manager). The program does this by means of Acadia, a system entirely new to *Vision DSP* v4.1 and listed as an audio interfacing option from the Audio System drop-down menu (keeping company with Digidesign's DAE, the Apple Sound Manager and the MIDI Only choices). Provided your Mac meets Acadia's minimum system requirements (a Power Mac with a 603e processor), selecting Acadia here allows *Vision DSP* to start using VST plug-ins and the ASIO driver, irrespective of whether you're using an ASIO I/O card or just your Mac's built-in I/O. Each Acadia channel can manage four VST plug-ins and a real-time EQ with four separate bands (of which more later). Acadia even contains a completely new routing system for *Vision*, which enables four sends per channel that can access any of the 16 busses provided. The busses can be used as effects sends for the audio playback channels, which can then send to other channels configured with effects plug-ins. This is a CPU-saving approach which is, in effect, the 'virtual' equivalent of the way you'd normally set up a conventional mixer for outboard effects. In a similar vein, the busses can be used to sub-mix channels too.

Acadia refers to its own setup file that has to be in the same folder as the *Vision DSP* application, and Acadia files optimised for 601, 603, 604 and G3 processors are included on the *Vision DSP*

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#### pros

- 24-bit recording.
- VST and Premiere plug-in support.
- Flexible routing matrix.
- Excellent QuickTime integration.
- Peak SE* audio editor and *Galaxy* librarian software included.

#### cons

- Offline bounce to disk does not include plug-in effects; real-time bounce necessary.
- Access to essential audio setup parameters appears in several places.

#### summary

The best-value 24-bit MIDI + Audio sequencer on the market at the moment.

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can run *Vision DSP* without additional hardware. However, although Acadia functions (and therefore VST plug-ins) are disabled on these Macs, they can still access *Vision DSP*'s other type of plug-in, which is available to both 68K and Power Mac users (and which, incidentally, *Cubase VST* cannot run) -- the non-real-time Premiere plug-ins. These provide the means to access high-powered effects on low-powered machines, offering a preview-and-play process that lets you hear a small section, make your adjustments and then create a new, processed sound file. Admittedly, most plug-ins have migrated to the VST format -- but why waste CPU power on something like a real-time compressor? Furthermore, effects such as Opcode's own excellent vocoder emulator plug-in, *fusion:VOCODE*, cannot be used in real time for technical reasons anyway; so in my opinion, *Vision DSP* has the edge over *Cubase VST* here.

Another big selling point of *Vision DSP* is that it's 24-bit-ready out of the box; all you need is a suitable 24-bit PCI hardware audio interface. The installer CD provides drivers for the PCI 24 from Lucid Technology and the STUDI/O from Sonorus. Drivers for 16-bit cards from Korg and Digidesign are also included, although the Korg 1212 I/O driver provided was at version 1.1 and not the current v1.2. If you want to use a 24-bit Digidesign TDM system, however, you'll need *Studio Vision Pro 4.1*. Apart from this and the Audio-to-MIDI conversion features, there's not too much of a difference between *Vision DSP* and the *Pro* version.

These finer points may escape those new to *Vision* and shy of its 336-page audio manual and 92-page supplement of features new to version 4.1. There's nothing wrong with manuals though -- you can at least take 'em to the bog with you [each to his own, I suppose -- Ed], which is more than can be said of the PDF files that regularly appear as hard copy substitutes on installer CDs. And *Vision DSP* gives you the best of both worlds, as all the manuals appear as PDFs too.

#### Getting Started & Setting Up

As with all Opcode sequencers, installing OMS (the Open Music System) is a prerequisite for MIDI functions, and the *Vision DSP* installer CD goes through the motions of this while installing the main program itself. Like MOTU's FreeMIDI and Emagic's *Sound Driver*, OMS scans the serial port you select for a MIDI interface, and on discovering one, will interrogate the port(s) for attached MIDI devices, which it does with more success than most applications of this type. OMS also enables users to access the QuickTime Musical Instruments extension (see box, right), which in QuickTime v3.0 offers a complete set of General MIDI sounds provided by Roland.

As with all MIDI + Audio sequencers, recording audio demands that you establish the appropriate

#### QTMI, QuickTime Video, *Vision DSP*, & You

Effectively, QTMI (Quick Time Musical Instruments) offers a 16-part multitimbral synthesizer that can function on virtually any Mac. This free General MIDI soundset provides an equivalent to the soundsets generally installed as standard on PC soundcards. If you haven't got a General MIDI synth and you need to prepare some GM MIDI files, you can use *Vision DSP* with QTMI to preview a GM song. The GM instruments appear by name and selecting them calls up relevant program change numbers in the process, which will be stored on the new MIDI file.

Opcode have, over the years, worked very closely with Apple, and the former's OMS has also been part of the latter's QuickTime for some time now. Consequently, the QuickTime features on *Vision DSP* are the best there is. MIDI and audio tracks can be freely exchanged with QuickTime movies running within *Vision DSP*. Hence, a video of your band converted to a QuickTime movie could be imported into *Vision DSP*, tarted up with de-noising plug-ins, and then have some backing vocals and crowd applause added for good measure!

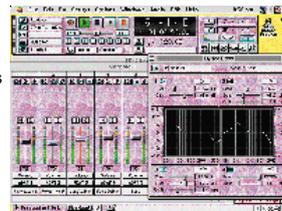
If you have just an instrumental piece with video, then you can save on disk space and transfer just the MIDI tracks only. The finished QuickTime movie can then be run on *MoviePlayer* (free with QuickTime) with the MIDI tracks playing on QTMI or routed to an external synth after using the OMS and QuickTime control panels. Since *MoviePlayer*, QuickTime 3.0 and QuickTime Musical Instruments are also available for Windows 95 and Windows NT, *Vision DSP* offers a path to cross-platform multimedia creation with serious sound capabilities that extend to 24-bit files!

(arrangement) page needs to be chosen and set to record too, by clicking the first box under the R column. However, you may want to *limit* the ins and outs available (by unticking them) to increase your system's performance. You can see a readout of this at all

code from Creative Studio (which I used for most of this review) need delicate handling. Once heralded as Apple's home-based multimedia solution, the now discontinued Creative Studio/Performa can accommodate half-length PCI cards and, if you're adventurous (like me), you can even squeeze in a full-length Korg 1212 I/O card -- just don't snag any ribbon cables (also like me!). As a minimum system for Acadia use, this model can handle eight tracks of audio with ease, yet applying real-time plug-in effects to all eight tracks is high-on impossible.

However, if you've got an ADAT-compatible interface card installed, hooking up to a digital mixer with built-in effects and letting that do your processing reduces the strain on your CPU considerably. Using a Creative Studio with MacOS 8.5, a 1212 I/O card (with the latest v1.2 drivers) and a Korg 168RC digital mixer worked a treat. In addition, the inexpensive Performa 5400/6400 and 5500/6500 series have been given what potentially amounts to a new lease of life recently, as they can now be upgraded to G3 spec, thanks to the Vimage Vpower PF/240 card. It fits in the level 2 cache slot boosting performance to the equivalent of a 233MHz desktop G3. Watch this space for a full review.

Those using *Vision DSP* with a standard 603 model but no obliging ADAT interface card or digital mixer will have to take things a step at a time and maybe resort to offline Premiere plug-ins for some of the processing. EQ and compression can be applied on a handful of tracks, but reverb plug-ins soak up the CPU power in one fell swoop. Furthermore, as with all sequencers offering real-time effects, a level 2 cache is essential.



destination for the audio files, and pick file names (which *Vision DSP* can automatically create for you if you wish). More importantly, a few tweaks to the way your computer handles audio data are also necessary before you can start recording, and unfortunately the vital parameters are spread around a number of dialogue boxes. Seeing that Opcode have elsewhere endeavoured to condense the number of user menus so that options appear as drop-down lists within dialogue boxes, it's a pity that the majority of audio features can't be altered from just one area. Instead, you'll need to select Acadia for ASIO card implementation, then Hardware Setup to choose the preferred audio device, such as Apple's Sound Manager. Incidentally, this option uses the Mac hardware but *does* enable all the Acadia functions, providing your Mac meets Acadia's minimum system spec. From within Hardware Setup appears Open Control Panel, and clicking on that reveals a new window that conveys pertinent information on your hardware interface, such as input levels and latency (input/output monitoring delay) adjustments if applicable.

The Record Monitor window reflects the input capabilities of your chosen recording device. For example, if you had a Korg 1212 I/O installed, you'd expect to see eight ADAT channels plus two S/PDIF and two analogue channels. However, if a number of these channels are missing you'll need to inspect the Audio Instruments window. This has changed considerably from earlier versions to make way for the new Acadia bussing features and also reveals the sends, EQs and plug-ins in use at every stage. A simple process of ticking the inputs and outputs required makes them available for use. Even with the inputs armed in the Record Monitor window, a track on the Sequence

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Choosing the Buffer Size menu enables you to allocate more RAM per channel so that the hard disk is accessed less frequently.

Under the Windows menu is a Console section, which provides onscreen mixers for both MIDI and Audio. When you first open a console there are no track assignments on it at all; you can either assign console channels to MIDI and audio instruments manually, or you can use the Build From function, which offers a number of handy options, among them Build Console From Audio Instruments In Use. This conveniently puts all the tracks in order, assigning them their own individual audio instrument channels. From there, you can choose to conceal or reveal the various channel EQ, sends and inserts mentioned a moment ago, in accordance with your own requirements. You can also apply the various routing configurations for the sends (to busses) and inputs/outputs. When everything is set up to your satisfaction, you can begin recording!

#### Recording & Processing

Initially, I checked *Vision DSP's* 24-bit recording capabilities on a Mac G3 with a Sonorus STUDI/O and external converters, with no problems. Yet as *Vision DSP* will appeal to those on smaller budgets, I carried out the majority of my tests with an Apple Creative Studio 6400 with 72Mb RAM and Mac OS 8.5; this model has the minimum processor required for Acadia support (for more details on optimising this particular family of Macs, see the 'Performa Enhancing Bugs' box on page 64). Sticking with the low-budget theme, I tried a number of tests, including simultaneous multitrack recording using ADAT interfacing, courtesy of the Fostex FD8's ADAT output (see review starting on page 170 of this issue) together with a Korg 1212 I/O card. Furthermore, these transfers were done slaving *Vision* to the MTC output of the FD8. This setup allowed *Vision DSP* running on a Creative Studio to record eight tracks in one pass, punching in and out on cue while sync'ed up. All was fine and dandy. The metering in the Record Monitor window confirmed that all eight tracks were being received, and after recording, a single track (segment/part) was created in the Arrange window containing all eight tracks. The Separate Multitrack feature in the Edit window will unpack the single track into eight independent ones. However, you might spend all day looking for this feature, as you need to make sure that the actual sequencer track is selected on the far left, not the new

#### Bundled Bits

Supplied with *Vision DSP* is *Galaxy*, Opcode's MIDI Librarian package. *Galaxy* provides another level of convenience to users as it will let you see the names of the patches available within your synths rather than just program change numbers. The Open Music System (OMS) can create its own patch names without *Galaxy*, but typically, these are just the original factory defaults. *Galaxy* gives you the names of whatever is currently loaded into the synth and you can change those sounds mid-session without even quitting *Vision DSP*.

Opcode also bundle *Peak SE* (a cutdown version of BIAS's *Peak* audio editor), with *Vision DSP*, and this can make light work of particular editing tasks. Memory permitting, it can also be accessed directly from *Vision DSP*. The primary reason for *Peak's* inclusion, though, is to enable users to ferry audio back and forth via SCSI from popular samplers. This is to match MOTU's *Digital Performer* which is capable of the same.

installed that you can use instantly. The default settings for the plate reverb didn't do the plug-in justice, but the other dozen reverb presets brought out a different flavour that was quite acceptable.

*Vision DSP* has an offline bounce-to-disk feature, but presently this does not include the real-time effects. That has to be done in real time by routing your mix output back into the Record Monitor inputs. It's a shame really, as the offline method can be a lot quicker and, in some instances, plug-ins causing playback glitches from overtaxed CPUs do not do so when used offline.

#### Conclusions

While Opcode have sensibly jumped on the bandwagon and accepted ASIO and VST – adding momentum to the need for such standards – *Vision DSP* is far from being a copycat program. Whatever *Vision DSP* lacks, Opcode have plugged the gaps with bundled software such as *Peak SE* and *Galaxy* (see the 'Bundled Bits' box) to enable *Vision DSP* to comprehensively integrate with your respective audio and MIDI gear. And if you're a budding multimedia muso then the QuickTime features will enable you to reach beyond your Mac and deliver your creative gems into the dank recesses of Windows 95 and NT platforms.

If you're a user coming to *Vision DSP* from another sequencer, you'll certainly have to get used to some different ways of approaching editing tasks (and you might miss the lack of a floating tool palette), but in doing so you'll discover some unique features that you probably won't want to live without. It's the cheapest 24-bit audio/MIDI sequencer on the market too. Tempted? You should be. **503**

#### information

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• Power Macintosh with level 2 cache, 603 processor, 32Mb of RAM and System 7.6 or later.

#### MIDI SPEC

- MIDI Tracks: 99 per sequence.
- MIDI Editing Methods: Tracks (Arrange page/track overview), Graphic (piano roll-style), List (event list), Notation (score edit), Pulse (drum edit grid).
- MIDI Note Quantisation: Grid Quantise (standard), Groove Quantise (preset templates and user-definable).
- Other MIDI Functions: Arpeggiator, MIDI Remote Control keys, MIDI faders/consolos, MIDI Machine Control.

#### AUDIO SPEC

- Audio Instruments: 64 voices maximum depending on hardware configuration.
- Quantisation: 16-bit and 24-bit recording and playback (I/O hardware-dependent); 8-bit files can be imported.
- Sample Rates: Up to 48kHz (though 44.1kHz is the maximum permitted with the Mac's internal sound capabilities).
- DSP Features: Sample Rate Conversion, Normalise, Invert Phase, Reverse, EQ, Fade/Crossfade, Mix (multiple audio tracks to a mono or stereo track), Pitch-Shift, Formant Shift (sex changing), Time Scale (fit audio to time), Adjust Audio Tempo, Premiere plug-in support (non-real-time effects).
- Acadia Features Per Channel: Four VST plug-ins, four sends (from a choice of 16 busses), four-band EQ (with selectable bands for parametric/shelving characteristics).
- Supported Digital Audio Hardware: Power Mac's built-in sound capabilities, Digidesign PCI cards including Audiomeia III and Project II, ASIO-compatible hardware including 24-bit cards (eg. Sonorus STUDI/O and Lucid Technology PCI 24).

part containing the audio tracks. *Vision DSP's* Edit menu reveals different features depending on what you've selected – so watch out!

Overall, editing and processing audio in *Vision DSP* takes a bit of getting used to, but like all products of this kind, it's easy once you know how. Included are pitch-shifting and formant (sex-changing) algorithms as well as tempo and time-altering features that work much more nicely (to my ears, at least) than the ones in *Cubase VST*. The built-in EQ in *Vision DSP* is also one of its most impressive features, with four separate bands that can be individually activated and set for parametric or shelving characteristics. A graphic EQ curve also shows the effect your adjustments are making. Favoured EQ settings can be stored too, as can those from the VST plug-ins provided. Here, the selection is fairly run-of-the-mill, but perfectly usable nonetheless. Among the 11 default effects are compression, echo, ring modulation, plate reverb, chorus and a flanger. Many of them have preset libraries

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