The New Atari Falcon030: Details Inside

ATARI

EXPLORER

The Official Atari Journal

January/February 1993

The

ATARI ARTIST

NAMM '93
Special Issue

GENESIS • Chester Thompson

YES • Jon Anderson

Craig Anderton's State of Atari

Dr. Fiorella Terenzi
Atari Music from the Stars

Bulk Rate
U.S. Postage
PAID
East Stroudsburg,
PA 18301
Permit No. 113

$3.95/$4.95 CAN

MAXIMUM MUSIC, MINIMUM EFFORT.

MIDI was supposed to make life simpler, remember? But until now, you needed a split personality to manage a MIDI sequencer and a tape recorder. Two different systems. Two sets of controls. Two different styles.

Isn't it about time for you to focus on music, not technology? Now you can. Combine a Fostex R8 recorder and Atari ST computer running any of three progressive sequencing programs—C-Lab Notator, Dr.T's KCS/Omega or Steinberg's Cubase—to transform MIDI and tape into a single seamless system.

Thread the tape when the session starts, then forget about the tape deck. The computer does the drudge work—transport control, fast tape autolocation (measures or SMPTE), flawless sequencer synchronization, hands-free punching with full system lockup, and punch points settable to the sequencer's resolution. Finally, add MIDI-controlled signal processors and mixers for a totally automated studio system.

To see how this incredible system can increase your musical productivity, and to obtain an informative free booklet on making technology work for you, visit your Atari or Fostex dealer and prepare to be amazed.

ATARI® COMPUTER

FOSTEX

EMAGIC

Dr.T's MUSIC SOFTWARE

Steinberg

Atari Explorer Magazine Volume 8, Issue 1 January/February 1993

CONTENTS

Cover Story

Reviews

Feature Articles

Profiles

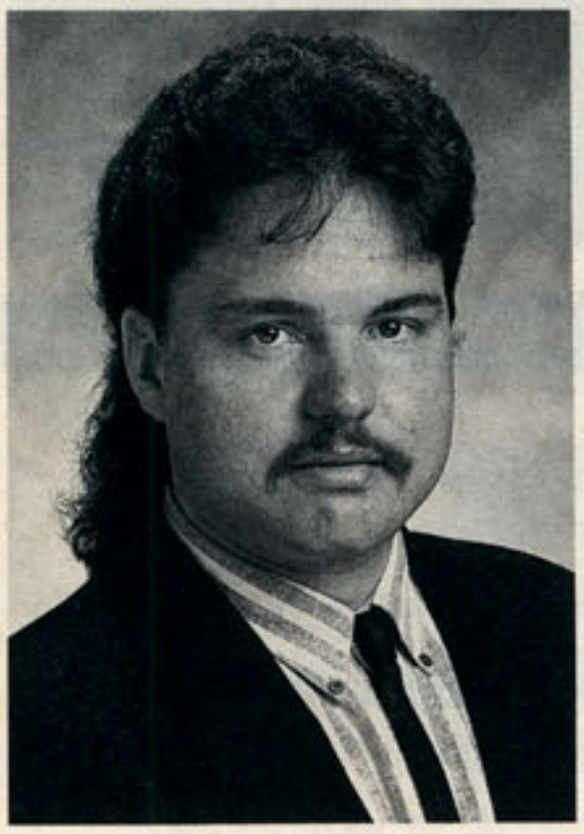
Departments

Atari Music '93

IT'S AN EXCITING TIME FOR ARTISTS. Multimedia is breaking down traditional barriers between the arts, and inspiring creative combinations of video, music, sound, text, and animation.

Just as Atari was on the forefront of MIDI music in the mid-80's, Atari now delivers multimedia power without the price. The Falcon030 computer is a revolutionary new tool that lets you not just make music, but genlock it with video, apply special effects like reverb (thanks to an on-board Digital Signal Processing chip), do hard disc recording, layer in titles and graphics, and much more.

Coupled with these hardware advances is a new generation of software from Atari's family of firmware and software developers. With Atari Falcon030's built-in MIDI, DSP, and multi-tasking operating system, hardware incompatibility is not an issue. Developers can focus their attention on well-integrated hardware accessories, as well as create the type of transparent, user-friendly software that Atari Falcon030's sophisticated hardware makes possible.



To help you sort out some of the issues facing today's musicians, Atari has prepared this special music issue of *Atari Explorer*. Please read on for informative musician profiles and product reviews designed to help you get more out of today's tools. Then, go to your Atari dealer to see and hear what the Atari Falcon030 can do. Compare it with what other companies claim to be multimedia machines, and we think you'll see why a lot of people at Atari (as well as Atari users) are smiling these days.

On a related subject, I believe one of the best results of the multimedia craze is the heightened awareness of audio and music in the computer and consumer electronics industries. This translates to jobs for aspiring professionals educated in the fine arts, technical sciences, or both. Look for Atari Music to support an aggressive education program focused on helping these creative students attain their goals.

It truly is an exciting time for artists. Thank you for your interest in Atari Music and creative computing. If you're coming to the NAMM show, stop by booth 2004 and catch some of the excitement. And, we'd love to hear from you—submit your ideas, comments, story suggestions, and tips (sorry, materials cannot be returned) to:

Atari Artist
Editorial Department
1196 Borregas Ave.
Sunnyvale, CA 94089

—James K. Grunke
Corporate Director
International Music Markets

ATARI EXPLORER

Publisher: **Atari Corporation**
Publishing Advisor: **Mel Stevens**
Editorial Director: **James Grunke**
Editor: **Mike W. Lindsay**
Art/Layout Director: **Darren R. Meer**
Managing Editor: **Peter Donoso**
Special Guest Editor: **Craig Anderton**
Online Editor: **Travis Guy**
Technical Editors:
Ron Robinson
Albert Dayes
Contributing:
John B. Jainschigg • Fadi Hayek
Sue Baelen • Leslie Jennings
John Morales • James Port
Howard Massey • Paul Wiffen

Editorial: Editorial material, including article submissions, press releases, and products for evaluation, should be sent to Atari Explorer, 1196 Borregas Avenue, Sunnyvale, CA 94089. Our phone number is (408) 745-2183. Atari Explorer is not responsible for the return of unsolicited materials.
Subscriptions: 6 issues, $19.95 (U.S.); 18 issues, $49.95 (U.S.). Canada: Add $5.00 (U.S.) per 6 issues. Foreign: Add $10.00 (U.S.) per 6 issues. Checks must be drawn in U.S. funds on a U.S. bank. Send orders to Atari Explorer, P.O. Box 6488, Duluth, MN 55806, VISA/MasterCard orders, call (218) 723-9477.
Customer Service: Inquiries about Atari products (other than Atari Explorer Magazine) and technical support should be addressed to Atari Customer Relations, P.O. Box 61657, Sunnyvale, CA 94089, or call (408) 744-2098.

"I just can't give a more positive review; we bought one."

Dave Small

"For songwriters, the Hotz Box is a dream come true."

Craig Anderton

"This is the future of music."

Herman Rarebell, The Scorpions.

"At last a dream come true. The instrument of instruments."

Mick Fleetwood, Fleetwood Mac

"There is no question that this is the greatest musical instrument since the invention of the piano."

Jon Anderson, YES

Transform your present MIDI instrument into the instrument of the future, with the Hotz MIDI Translator Software.

$299.95

See your dealer or call Hotz Instruments directly.

For those who must have the ultimate controller, the Hotz Box Hardware is available on a custom order basis.

EXPAND YOUR MUSICAL UNIVERSE

with the

Hotz

MIDI TRANSLATOR

HOTZ INSTRUMENTS TECHNOLOGY
P.O. Box 828
Newbury Park, CA 91319–0828

(805)492–5553
(805)493–4650 FAX
(805)492–8711 Modem

Flying the Falcon030
The Musical State of Atari

By Craig Anderton

BACK IN 1985, ATARI BET ON some new-fangled thing called "MIDI." We all know what happened. By including MIDI ports on its ST line of computers, Atari translated that decision into a significant piece of the music market (especially in Europe), and developers came up with hundreds of music programs to support the ST. In fact, Atari was able to ride the first wave of 68000 machines longer than just about anyone else; the ST^{E} is still a viable computer, but you don't see a lot of Mac Pluses or Amiga 1000s around anymore —or PCjrs, for that matter!

You can't ride a wave forever, however, and people were wondering what Atari was going to do for an encore. Some even speculated that the introduction of the high speed Atari TT030 signaled a shift away from the music market and toward business. Few expected what Atari would come up with next.

Getting Acquainted With The Atari Falcon030

It's not that easy to create a lot of excitement for a new machine these days; people have gotten pretty jaded about computers. Yet the latest Atari computer model— the Atari Falcon030 —managed to turn a lot of heads at the 1992 AES show, where it was first unveiled to the audio and music trade. Part of this attention focused around the power: 16 MHz 68030 processor, expandability to 14 Megs RAM, SCSI port, revised DMA chip, MultiTOS multitasking OS. The other part focused on the bottom line price. But what really made the Atari Falcon030 stand out from the crowd was its digital audio orientation, on-board Motorola 56001 DSP chip and "MultiMedia readiness."

The Atari Falcon030 is designed with digital recording in mind. The internal 65 Meg hard disk has enough space for many applications, and there's a SCSI port if you want to record to a *really big* hard disk. Up to eight DMA channels handle digital audio, which can be fed from an on-board stereo A/D converter. As a result, the Atari Falcon030 is ready to record stereo 16 bit audio, with up to 50 kHz sample rate—right out of the box. You know you're dealing with a different kind of animal when the machine applauds briefly during its bootup!

The module that lets you do this, the System Audio Manager, can assign sampled sounds to keystrokes and operations. Much of this falls into the "cute" domain, like having an explosion sound when there's an alert box, but you can also record your own samples as well. Insert your mike into the miniplug stereo input jack, set your levels... and go!

The included D2D program allows access to 11 available sample rates, as well as the option of running under 8 or 16 bit mode, in either stereo or mono. An Edit window shows waveforms in stereo, along with a "transport" for play, record, fast forward, etc. You can cut, paste, copy, as well as save or load any number of samples. It takes a while for it to sink in that this was the kind of thing that used to cost *zillions* of dollars not all that long ago!

Of even greater interest is the Atari Falcon030's 56001 digital signal processor, whose function is determined by what software application is accessing it. The Peavey DPM-3 synth, SP sampler, and ProFex guitar processor, just to name a few, are all based on 56001 family chips. What's more, recording digital audio does not require the actual use of the DSP chip, leaving it free for other tasks. Like what? Well, how about recording guitar onto hard disk while processing it through a "software" effects box which you program on-screen, then performing a mixdown with reverb and echo? Those are just some possibilities. DSP chips can even synthesize sounds or model instruments.

Although including DSP in a computer like the Atari Falcon030 is a pretty leading-edge innovation, the 56001 has been around long enough that there are a good number of applications written for it. Those who want to develop for the Atari Falcon030 have the benefit of a library of sub-routines for various audio applications to draw from. I expect that, rather than re-invent the wheel, developers will simply use the expertise of others to speed up the number of software applications and support for the machine.

The Audio Fun Machine, which also comes bundled with every Atari Falcon-

030, is a program that aptly shows off the machine's DSP capabilities. You can choose effects such as equalization (a dual, 8-band graphic EQ), hall reverb, distortion, flanging, and so on. I must say it's an unusual feeling to pull up a menu and have digital audio options sitting right there. This is something you don't really appreciate until you're sitting in front of an Atari Falcon030 and you realize that you haven't added any hardware or loaded any programs; digital audio is just part of the deal.

The hard disk also comes with a demo of D2D Systems' D2D-Edit hard disk recorder, a $299 program that looks like a tremendous value for the money (see the review elsewhere in this issue). It shares a number of features with the D2D program that comes free with the Atari Falcon030: there's the toolbox for sizing, magnification and scrubbing, and there are the virtual VU meters, transport controls and cue lists. In addition, however, you can also do waveform editing, sync to MIDI Time Code, and a lot more. Very impressive. D2D Systems has another product on the horizon, 4T/FX ($599), which records four tracks to internal or external hard disk, includes real time mixing and EQ, and generates two simultaneous effects accessed directly from the Atari Falcon030's DSP.

D2D Systems also offers two hardware interfaces: SPDIO ($299), a SPDIF digital I/O, and 4I/4O ($599), a hardware interface for the 4T/FX that also includes a SPDIF interface. Both units let the Atari Falcon030 sample at 44.1 kHz or 48 kHz by providing an external sync signal.

Overall, Atari estimates that it will cost around $400 per digital audio track, which would come to about $3,200 for an 8-track recorder (suggested retail list—less for the actual street cost). That's a tough price to beat, especially considering that the DSP is still available to do other things.

The main limitation for professional use is easily solved with outboard gear. Obviously, Atari isn't going to put $1,000 A/D converters in a $795 computer. But there's already an answer to upgrading the Atari Falcon030's I/O to pro quality. Singular Solutions' A/D64x connects to the Atari Falcon030's DSP port, and provides: two channels of 16-bit delta-sigma conversion with 64x oversampling; -115 dB noise floor; minimum signal-to-noise ratio of 92 dB unweighted; maximum THD of 0.003%; and digital anti-aliasing filter. It also has digital I/O (AES/EBU and SPDIF), balanced and/or unbalanced inputs, and a low noise mic preamp with phantom power.

When you add up the price of the Atari Falcon030 with 65M hard drive and four megs RAM ($1,299), Pro Stereo A/D Converter ($1,295), and D2D-Edit hard disk editing software ($299), the price for a two-channel digital audio workstation is still under $2,900 (list). Not bad—pretty good, actually!

Sound Job Opportunity?

After playing a bit with the Atari Falcon030's sound capabilities, I

checked out the Breakout game included on the hard disk (I've always had a weakness for computer games). The nifty sampled sounds used for the game drove home just how thoroughly sound is integrated into the computer. Then I checked out the "slide show," which was accompanied by—you guessed it—a digitally-recorded sound track.

This made me think that Atari Falcon030 programs are going to need a lot of sounds in the years to come, and this could translate into more job opportunities for musicians. I already have a few friends who are doing quite well designing game sounds and effects for multimedia. The Atari Falcon030 could very well accelerate this trend.

The Look And Feel

Those familiar with Atari computers will feel right at home with the Atari Falcon030—once you get used to the files and windows opening and closing with lightning speed, that is! There have been a number of additional enhancements integrated into the operating system as well, many of which will be familiar to Atari MegaST^{E} and TT030 owners. Here are some of the important ones.

•MultiTOS:

Yes, Virginia, there *is* a separate multitasking operating system on floppy disk which comes with the Atari Falcon-030. Multitasking and MIDI make a great combination. Having access to an editor or patch librarian from within your sequencer lets you tweak your sound while you pop up a word processor to jot down lyric ideas. Immediately audition your new sound in the working sequence. Multitasking operating systems can also help increase your productivity. If a hard disk recording program has to do some serious number-crunching on a file to change the EQ or add compression for example, you can zip over to a telecommunications program and download your Email while you wait for the hard disk to recalibrate the sound file.

•Keyboard Equivalents:

You can assign keyboard equivalents to any of the desktop menu options. Being able to keep your hands on your MIDI keyboard while you control your computer's operating system can really make it easy to keep your concentration where it should be—on your music.

•Icons:

A variety of icons can be installed for files or programs. This is fun, but also useful if you want to pick out a certain type of file in a window with a bunch of icons. You can also assign a variety of different colors to individual icons, and Atari has even added animation to them which is activated whenever an icon is selected. A book icon will open to a two page spread display, a file cabinet will roll out it's drawer—pretty neat!

"...the Atari Falcon030 definitely straddles both the pro and consumer worlds."

•Function-Key Launch:

You can install an "alias" of a program on the desktop and assign the program to a function key. Merely pressing that key automatically launches the program. You can also drag a related file to that program and drop it on top of its application's icon to automatically run the program with that particular data file already loaded in.

•Enhanced CPXs:

The CPXs have similar general functions which have been updated to utilize the Atari Falcon030's advanced features and to allow for a more integrated system customization. Of particular note: The Sound and Color CPXs have been updated for the Atari Falcon030.

Software Time

I was surprised at how much solid software support was already in development for the Atari Falcon030 way before its anticipated release. In fact, Barefoot Software had already finished rewriting SmpteTrack and EditTrack According to Barefoot's Dana Byrd, it took only four hours to make the program Atari Falcon030-compatible. This is a good sign for all those prospective Atari Falcon030 owners who are hoping their favorite ST programs will be upgraded in time to start using them on their new computers; if the process is that easy, it should encourage Atari developer updating across the board. The performance of both Barefoot programs on the Atari Falcon030 is smooth and fast, which of course says something about the software as well as the computer.

Several other companies were kind enough to send beta or alpha versions of programs, which seemed well on their way. Of particular note was Oktal's Multitude, a very slick sequencer, that also looks really great on the TT030. Cubase Audio will soon be available for the Atari Falcon030, and Notator Logic won't be far behind. All in all, the Atari Falcon030 is fortunate to enjoy such a wide range of support this early in the game.

Graphics And Multimedia

The Atari Falcon030 hasn't limited itself to sound alone. Atari is out to stake a serious claim in the multimedia field by integrating sound with graphics and video. The Atari Falcon030's color palette numbers well over 250,000, with over 65,000 of those colors viewable on-screen at one time.

Of equal importance is its Genlock-readiness which will allow users to hook

up a simple piece of Genlock hardware for easy titling and integration with video tape. Hi-res graphics and CD-quality sound are a potent combination, but being able to blend video into the whole mix with little additional effort competes squarely against the Amiga family of computers and its third-party related series of Video Toaster products. Right now, video on the IBM is still fairly expensive, and even more so on the Mac, which also still needs to work a number of bugs out of their Quicktime protocol language.

As cassette "porta-studios" stand in relation to conventional studios, the Atari Falcon030 may well prove a valid comparison in relation to big-time multimedia workstations. You could produce a professional looking rock video inexpensively on the Atari Falcon030 with just a few pieces of additional hardware and software. The two channel stereo, CD-quality audio and colorful graphics/animation capabilities are already built right in—which saves you a bundle right off the bat. I wouldn't be surprised if non-professionals started getting involved in producing their own multimedia; people like to make music, paint and write, and Atari's Falcon030 should make it pretty easy to do just that. This is a machine that blurs the line between professional and consumer; the Atari Falcon030 is as attractive a home computer as it is a MIDI/digital audio machine.

Power... Without The Price Too?—The Sequel

At $799 with 1 Meg of RAM and $1,299 (both suggested list) with 4 Megs and a 65 Meg internal drive, the Atari Falcon030's price/performance ratio is excellent. Atari expects to capture not only the first-time computer buyerswho will flock to the Falcon 030, but also those "other" users who are looking to add a second computer to their homes or small businesses and will consider the Atari Falcon030 a good choice as well. For example, multi-effects hardware and software for the Atari Falcon030 would probably add around $300 to its base price. For $1,100, it would make more sense for many people to get an Atari Falcon030 that can do a number of tasks, instead of a dedicated signal processor—even if they already have another computer.

"...the Atari Falcon030 has the hardware to really shake things up."

The Atari Falcon030's specs are extremely impressive, but perhaps more important is the enthusiasm that the company and developers have continually expressed for the machine. A lot of times, what determines a computer's success has more to do with marketing than technology, and anyone will tell you there's no better advertising than word of mouth. A lot of developers think the Atari Falcon030 has the hardware to really shake things up. The Atari Falcon030 could be the Commodore-64 of the 90s, but with an important twist: the C-64 wasn't suitable for any pro applications, while the Atari Falcon030 definitely straddles both the pro and consumer worlds.

Atari has put a lot of work into this compact, powerful box—and it shows. I suspect a lot of musicians are going to end up doing their hard disk recording and mastering on Atari Falcon030s in the years to come.

Author/musician Craig Anderton contributes to Guitar Player, EQ, Keyboard, Pro Sound News, Sound on Sound, and several other magazines. His latest CD, Forward Motion, is on the Sona Gaia label (distributed by MCA).

Atari Falcon030 & Digital Recording with D2D Systems

By Paul Wiffen

D2D SYSTEMS OF CAM - bridge, England has been involved in the designing and marketing of digital audio recording systems for the Atari ST/ST^E series since 1990. Their first product on the market, a $15,000 digital audio system workstation, has been shipping to a number of top European production houses for the last two years. The main components of this packaged system are the hard disk recording hardware and *D2D Edit*, a stereo direct-to-disk recording and editing software program with a host of fully professional features.

Although FCC regulations have prohibited the sale of the D2D Systems' specially-designed hardware elements here in the USA, a few systems managed to find their way into the States, having been brought back by American Engineers working in Europe. One system is in regular use at an L.A. post production house for creating movie trailers by lifting music and other audio from the full movie and editing these down into a short, punchy piece. The trailer for *The Rocketeer* was done exactly in this way.

Z Music have been taking full advantage of one for the last year to do audio post-production for ads and promos. The system has been used on their network ads for Hewlett Packard, Maxwell House and even on one promo song for Apple computers!

Now D2D Systems has adapted their D2D Edit software for running on the Atari Falcon030 with no additional hardware requirements. The program has all of the great features that made it so popular in Europe, such as scrubbing, multiple Edit Point marking on-the-fly, and a Cue Sheet which allows the user to assemble their own custom Edit Decision Lists for seamless cut and paste playback. D2D Edit will chase to either SMPTE or MIDI time code, and also offers the unique ability to trigger the recording and playback of files from MIDI notes sent by a sequencer running on the same computer. This gives it a wider range of applications than any other direct-to-disk package on the market today—on any platform—and it will be priced less than $300.

I'd like to give you some specific examples of how D2D Edit's set of powerful digital audio features have considerably reduced production time—including just a few of the exciting and diverse projects that D2D Edit has already been used for within the pro recording industry, and then touch upon some of the other D2D Systems' programs that are scheduled for release in the U.S. in '93.

Perhaps the most common use of disk based audio is the editing of a stereo master recorded onto Digital Audio Tape. The song is finished being recorded and mixed down to a stereo master, when the phone suddenly rings and you listen as the record company tells you they want a shorter version for a single, or a longer version for a 12". In the old days of analog tape, an engineer would take hours using razor blades to cut and splice parts, eliminating various sections and sticking the required ones back together. The process involved working with numerous copies of the tape for use in repeating a number of sections and as insurance against costly mistakes.

This was exacting work that required a certain hands-on artistic skill; one slip of the blade and the tape became worthless. It wasn't easy. Enter the Atari computer and D2D Systems.

I produced a single version of Peter Gabriel's original 6 minute version of *Steam* from his recent album *Us*—complete with an artificial fade that was not part of the original mix—in less than half an hour. Unlike most Macintosh system-based digital audio systems that dictate your fadeout must be done as a non-realtime destructive routine, which can take up to 16 minutes of computer calculation, D2D Edit lets you easily produce fadeouts in real time by repeating a section and automatically reducing the overall level of each section digitally. Anyone who wants to check out this single length version of "Steam" should visit the D2D demonstration at the Atari booth at NAMM where it will be running as part of a continuous demo.

Another standard use of direct-to-disk editing is for CD compilation, where the completed tracks, usually from various DAT masters, are loaded into the computer via a digital interface to ensure the recordings always remain first generation. I used D2D Edit to master James Asher's world music album, "Globalarium" in this way. Once the tracks were on the Atari's hard disk, we were able to decide their order, the comparative level, and even the exact gap between them (down to a thirtieth of a second!) using the Cue sheet. It was then simply a case of flying the whole thing back to DAT in digital to create the master from which the CD would be

made. Of course, it is also possible these days to transfer directly from D2D Edit to a recordable CD (such as those made by Yamaha) allowing you to actually produce the master on CD itself.

One of the most interesting projects I was involved in utilized D2D's ability to trigger recordings and playback of notes sent by a MIDI sequencer running on the same computer. At the Frankfurt Music fair last year, Jim Gilmour of the Canadian band *Saga* was doing a medley of the band's tunes (as their compilation of Greatest Hits was riding high on the German charts at the time) and he wanted to be able to trigger backing vocals and guitar riffs using his Steinberg Cubase sequencer. Using D2D Edit as a Desk Accessory, I was able to have it active at the same time as Cubase. MIDI notes on a special track not only triggered vocal parts—including one section which was too high for Jim to sing more than once—but also recorded riffs played by the guitarist during the actual performance to be triggered later. This would leave Jim free to solo live over the combined digital and MIDI recorded set of riffs and chord changes.

My most recent production project on D2D Edit involved a remix of a song by English artist Marcia Johnson. The original recording of *Waiting For You* was done as an "after hours" kind of thing, but it was felt that if the tune was remixed with a dance groove it could be a hit at the clubs. I used D2D's new Atari Falcon030-based 4T/FX to record and loop a stereo house dance beat, then brought in E-Magic's Human Touch to sync their Notator sequencer to that rhythm and added a MIDI keyboard synth bass and some sampled strings. Finally, I loaded the stereo vocal track from the original D2D Edit master recording into 4T/FX and mixed it, using the EQ and effects features contained in the program. You can hear the results in the D2D demo on the Atari stage at NAMM.

Incidently, the video footage that will be used was also edited on the Atari Falcon030. D2D's next focus is on a direct-to-disk video editing program, and although no product name has been announced yet, you can expect to see a D2D video editor on the Atari Falcon030 later in the year.

D2D Edit - $299; 4T/FX - $599; SPD/IO digital interface - $299; 4I/4O Input/Output expander - $599.

Distributed in North America by: **Digital IO,** 2554 Lincoln Blvd., Ste. 122; Marina del Rey, CA 90291. (310) 398-3993.

The Yamaha CBX-D5 4-Track Digital Recording Unit

By Howard Massey

THERE'S LITTLE DOUBT that for those of us who use computers in conjunction with music applications, *the* hot topic in '93 is going to be digital audio. Technology has advanced to the point where it's now possible for personal computers to step in and take the place of our trusty old multi-track tape recorder, and in recent years this feature has become increasingly affordable. If anyone needs proof that digital audio is indeed the "wave" of the future, check out the new Atari Falcon030, which provides extensive digital signal processing (DSP) capabilities.

The good news is that, thanks to Yamaha's brand new CBX-D5 digital Hard Drive Recording System, anyone who has an Atari ST/ST^E/TT030 computer can get in on the digital audio bandwagon for a very reasonable price, *and* still be able to continue using the Yamaha CBX-D5 when they trade up to an Atari Falcon030! This "little white box" (about 12" x 4" x 14") has a minimum number of hardware controls, but don't let its simplistic appearance fool you—there's a powerful digital audio engine underneath this innocent looking case. The CBX-D5 allows you to record audio from a microphone or line-level source, such as a CD or tape deck, *directly* onto your hard disk—in effect, turning your Atari computer into a professional quality four-track audio digital recorder.

The CBX-D5 communicates with any kind of host computer that uses a standard SCSI interface, which both the Atari Falcon030 and TT030 have. Older MegaST/ST^E and 1040ST/ST^E owners which use the original standard Atari ASCI/DMA port can pick up a product from ICD called The Link ($100). It's an external ASCI/DMA-to-SCSI host adaptor which takes all of ten seconds to install, and enables your Atari to communicate with *any* SCSI device on the market, including CD-ROM drives, laser printers, flat-bed scanners—you name it.

SCSI is a high-speed data transfer protocol that allows up to seven devices, including the host computer, to be linked in a chain. The CBX-D5 provides two SCSI connectors and a handy external push-button SCSI ID selector switch so that you can interface it with your Atari and an external hard drive. If you are already running an external hard disk or Atari laser printer off that port, simply install The Link on the last item in your hardware peripheral chain and hook up your CBX-D5 on the end. Alternately, you can also get a DMA Switch A/B/C/D box from Nice & Software ($70), hook The Link to any of its four ports and away you go.

In addition to an Atari computer, there are only two other ingredients required: software and a hard drive. Yamaha has designated Steinberg as their initial Atari developer, and so the premier release of Cubase Audio for the Atari is specifically designed to work in conjunction with the CBX-D5. The unit's four discrete digital inputs and outputs support both professional AES/EBU and consumer S/PDIF formats, in addition to Yamaha's own proprietary MEL2 format. It also offers two balanced analog inputs and four balanced analog outputs, as well as a Word Clock input/output for fine synchronization in professional broadcast applications and the traditional MIDI In/Out & Thru ports for controlling a variety of DSP-related functions.

Analog-to-digital conversion is 16bit —the CD standard—and the unit supports four different sampling rates, including the professional 44.1 kHz rate used by CDs *and* the even higher 48kHz rate used by DAT machines. Digital-to-analog conversion is 18bit, with 8x oversampling. Terminology aside, these specs mean that you can create recordings with the CBX-D5 that sound every "bit" as good as anything you might hear on your favorite CD.

Bear in mind that digital audio files can be quite massive—they require 5 megabytes of memory to store just one minute of monaural CD-quality audio data, or about 10.5 megabytes for a full minute of stereo, and a full 21 megabytes for a minute's worth of four-channel audio! For this reason, you'll probably want to use the CBX-D5 with one or more high-capacity hard drives, preferably dedicated solely to the purpose of storing audio data. Unlike some other digital audio systems, the CBX-D5 isn't particularly demanding in terms of the kind of hard disk you use; it only requires that your drive maintain a minimum 30 msec access time—so it can

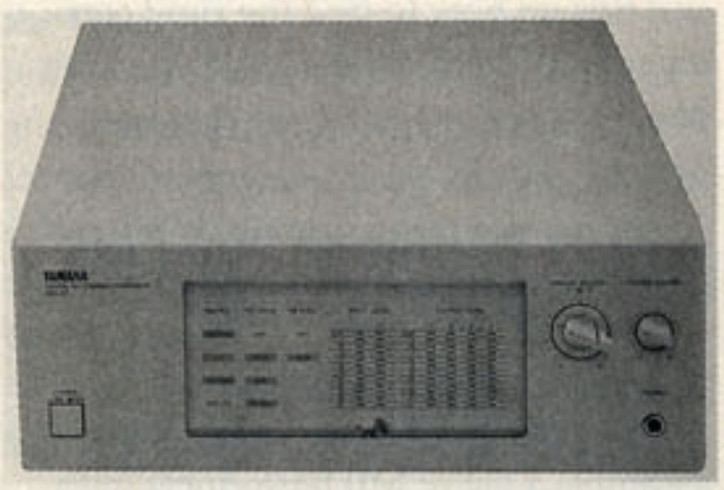
even work with some removable Syquest cartridge drives. Yamaha does recommend, however, that you avoid using hard drives that employ an automatic recalibration feature. Some large-capacity drives will activate this function within a constant cyclical preset time period, whether the heads are presently engaged or not and initiate a head-park procedure which is overridden if a read/write event is in progress. This procedure makes these drives unsuitable for digital recording, so make sure to confirm the unit you have your eye on buying doesn't employ this feature.

One of the features that makes the CBX-D5 really unique is its provision of on-board multi-effects. Reverb, delay, flanging, phasing, pitch change, chorusing, ring modulation, compression/limiting, expansion, noise gating and even an Aphex Aural Exciter effect can all be accessed and applied through the unit. These impressive, professional quality effects are provided by Yamaha's renowned SPX1000 chip which has been installed within the CBX-D5. You can assign up to four different effects simultaneously—all in the digital domain. In addition, each of the CBX-D5's four audio channels has its own dedicated digital equalizer. This added feature allows the same fine degree of tonal control that you'd expect to find only in a professional audio mixing console.

All of these audio processing features are MIDI-controllable, so you can easily automate your entire mixdown. More importantly, these functions are all carried out by the CBX-D5's microprocessor, and not on your Atari's CPU, which can be otherwise kept free for system calls like screen redrawing and other operations.

Of course, all of this hardware won't mean much if the host software isn't up to snuff. Again, the good news here is that Cubase Audio will indeed offer the same intuitive, yet powerful, editing and recording environment that has made Cubase one of the most popular sequencers on any platform. Only now, you'll have the added capability of digital audio as well, and be able to control all of the CBX-D5's functions right from your Atari!

For years Cubase has been one of the leading MIDI sequencers around—in fact, Cubase was originally developed on the Atari. Cubase Audio adds access to four additional tracks that are assigned to digital audio channels. In the way they can all be altered and manipulated, these audio tracks are practically indistinguishable from any number of companion tracks which are MIDI generated. This ability makes for a full, integrated environment for MIDI



sequencing alongside digital recording.

Think of it! You can now overdub vocals or killer guitar solos to your MIDI tracks—all inside your Atari—without *ever* having to leave your sequencing program! Both MIDI events and digital audio events are automatically locked together from within the program. In fact, Cubase Audio treats digital audio "events" much like MIDI data. For example, you can create any number of virtual tracks, and mix or merge them with no loss of fidelity; cut, copy or paste; mix the relative levels of audio and MIDI tracks in an on-screen Mixer; even quantize the start times of digital audio events.

This kind of integrated system, where both MIDI data and digital audio data can be recorded and played back simultaneously, provides its own built-in digital synchronization—although you'll still need SMPTE if you intend to sync your music to video.

The actual process of recording audio to your hard disk is done in Cubase Audio's Monitor window, which provides a number of bar-graph displays that allow you to set optimum recording levels for each track. There's even a clip indicator that shows the number of errors that result if your input level is too high. The total amount of time you can record is limited only by the size of your hard disk and your selected sample rate. You can then place the resulting digital audio file, or even just a *region* of the file (referred to as a *segment*), into an Audio Pool. From there, segments can then be placed into audio tracks, which are basically similar to MIDI tracks except that their graphic editing window actually shows you a picture of the recorded wave itself!

There are also a number of specialized screens which allow you to control the CBX-D5 multi-effects processor as well as each channel's digital EQ settings.

As of press time, the final price of the CBX-D5 had not been announced, but given their past history, it's likely to be priced competitively with other digital audio systems. The Atari version of Steinberg's Cubase Audio has a retail price of $795.

Whether you're a professional or amateur musician, or if you're just someone interested in being at the cutting edge of technology, you owe it to yourself to check out Yamaha's CBX-D5 digital hard drive recording system and Steinberg's Cubase Audio for the Atari.

Yamaha Corporation P.O. Box 6600; Buena Park, CA 90622-6600; (714) 522-9011.

Steinberg-Jones 17700 Raymer Street, Suite 1001, Northbridge, CA 91325; (818) 993-4161.

ICD 1220 Rock Street; Rockford, IL 61101; (800) 373-7700; (815) 968-2228.

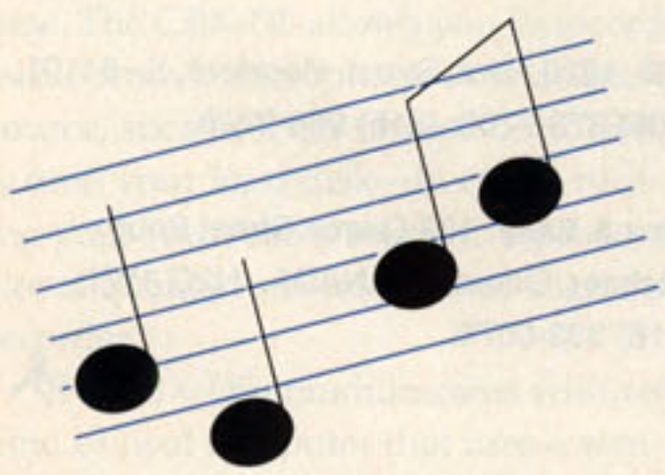
Nice & Easy 103 Queen Street South; Kitchner, Ontario, CANADA, N2G 1W1; (416) 332-0075.

Computer Musician's Purchasing Guide

By Peter Donoso

WHETHER IT'S YOUR first time or your one hundredth, beginners and pros often share a mutual experience when they step through the door of their local music dealer. Almost instantly, you feel like you've been teleported to some startling new dimension of existence—an alternate universe filled with awesome instruments and technical gear suddenly materializes before your eyes, set up in veritable canyons of displays that seem to just go on forever. Next thing you know, you've suddenly dove into an ocean of music and you've found yourself being carried off by the overwhelming currents of the latest sounds and eye-catching multi-colored equipment.

Maybe you've had some exposure to MIDI from a friend or maybe you caught the MIDI music fever at one of your local school's music classes. But even if you're a long-time musician who's just starting to get into computers, it can still feel like there's an overwhelming number of choices and decisions to make. So many products, so much to find out about! Hopefully, this Computer Musician's Purchasing Guide will provide you with some suggestions and tips on how to find the right combination of products that will work for you.



Find Someone You Feel You Can Trust

You may quickly find that trying to assemble a list of MIDI products with the kind of features and capabilities you need may end up smacking into your specific budget with some painful awakenings. The trick here is finding out what you *really* need to get started and build from that.

Asking other musicians or friends what they like and don't like about their own gear can be a great beginning. Your school may have someone in their music department who is very MIDI knowledgeable and can make some good suggestions. Ask them for a referral to a reputable local music or computer dealer. If you've got a number of places to choose from, check them all out! Find the one that will help you spend your hard-earned dollar wisely.

The sales person who wins your confidence will prove invaluable in helping you set up your system, as well as giving you some good advice about future purchases. They benefit by winning the loyalty of a repeat customer. Pick a place that has good word of mouth and a good reputation. Make sure you know about their deposit, lay-a-way, return and refund policies. Don't assume that any one place does business like any other. Ask the salesperson how long they've been selling computers and MIDI equipment, and if they're involved in music outside the store as well. These can be good clues as to how knowledgeable they really are. If they're a weekend musician or hopeful songwriter, chances are they've got more than their sales commission in mind when giving you advice.

Learn What MIDI is and How it Works

MIDI, as you may already know, stands for Musical Instrument Digital Interface. It's a convenient way for any number of units, from keyboards to drum machines, effect boxes, guitars, wind and percussion instruments (and of course, computers), to communicate with each other by using a universal computer-like langauge.

The great thing about MIDI is that you don't have to be a programmer to use it, because it's already been compiled into a set of commands that are automatically exchanged between units via a pair of cables, each containing a 5-pin male DIN plug on either end. Like your stereo receiver, each MIDI unit has an IN and an OUT, and they are similarly connected opposite each other—IN to OUT and vise versa.

If you never thought of a computer as an instrument, you may be surprised

to know that every product that features a MIDI interface has what you might call a tiny computer of its own built right in! The consumer electronics industry is even moving towards incorporating MIDI into CD and audio-visual systems in the very near future. This is yet another sign that MIDI will be around for a long time and become a familiar word to most people sooner than you may think! As a knowledgeable MIDI person, you'll already have the jump on everyone else in knowing all of its many advantages and ways for use with a host of exciting new, as well as existing, products.

If you're new to all of this, don't be put off by what may seem like a lot of complicated technical talk, because you can begin using MIDI with a minimum amount of basic information in hand, and start making music right away with some pretty exciting results. The recent addition of General MIDI to the MIDI spec now makes it even easier for people to simply plug their MIDI keyboards or modules into their computers and have their sequencers automatically use the right kind of instrument patch for each part, which makes everything sound pretty realistic.

You Can Never Read Or Question Enough!

The less you know about the subjects and products you're interested in, the more you're at a disadvantage. Well-informed and well-educated sales people can really be worth their weight in gold, but you've got to gather up your own blend of reading material and personal opinions as well. Try to know something about the product's features and capabilities before you check it out.

Most music retailers receive a large number of color brochures and catalogs from various maufacturers specifically for handing out to customers. Don't be afraid to ask if there is one available for the product you're interested in. If they're out of a particular piece of literature, you can often call up the manufacturer and usually have it sent to you for free. Have the exact model number of the unit or units you want to read up on to avoid any confusion or disappointment. Some companies also provide informational numbers so that you can call and ask questions about product features and capabilities. When you get

"Make sure you're getting the capabilities you expected."

the brochure, look it over—front to back—and learn how to read the specs and features listing, which is usually located on the back page. This is usually where most of your questions and differences between similar products will be answered.

You may be otherwise able to afford some additional piece of gear or software if you go with a less-expensive, perfectly acceptable, alternate product that has the important functions you really need. Extra "bells and whistles" may look great, but will they really be worth it when, six months down the road, you find you hardly ever use them? You might want to sit down and make a list for yourself, dividing it between what you'd *like* to have and what are really and practically "must haves." Once you've got a sense of prices and total cost, you'll have a clearer picture of what you may have to hold off on and leave for a future purchase.

There are a lot of books out on MIDI that may be carried by your local bookstore or music dealer. If you're just starting out, you want one that will be able to explain concepts and functions in an easy to understand format with informative accompanying illustrations. *MIDI For Musicians*, by our guest editor Craig Anderton, is one such excellent book to look for, and there are others as well that fit the requirements for a well-organized source of easy-to-comprehend material.

Get a subscription to any of the major music magazines that are oriented towards either your specific instrument or interests. Of course, a subscription to *Atari Explorer* is your best source for information on the entire universe of Atari products, including in-depth reviews of the latest third-party hardware and software products.

Apart from a number of other available publications that also cover Atari products, there may be a MIDI or Atari User Group in your area that you may want to consider joining. Clubs and user groups are often a great source of help and information in clearing up any confusion or questions you may have about your gear.

No matter how much you think you know, the MIDI universe is still expanding, so the more you know, the better. Read, read, read—and never be afraid to ask a question. If the first person comes up with a condescending answer, chalk it up to their own moodiness and ask the next person. Some people are great at making simple sense out of a seemingly complicated subject. Keep your ears and eyes open—and don't let yourself get discouraged!

Make Sure Everything Will Work With Everything Else

Some software works only with a mono monitor, some only with color. Check to see if your computer has enough memory to run a program and whether you may need to purchase additional hardware to get the same results as in the brochure or on the computer screen at your dealer's store. If the salesperson is not certain, make sure the manager of the store knows you're buying this item on the condition that it's compatible with your system, and that you expect a full cash refund, or at the least, you expect your purchase credited back to your charge card account if it doesn't work.

Compatibility is a major issue when

you're dealing with hundreds of products from a large number of different companies, and even with products from the same manufacturers, so be careful. Most music stores have manuals filed away from their floor models, so ask to see one, just to make sure.

If the product has a MIDI interface, it usually will be able to handle most of the basic MIDI functions. But don't assume that just because something has MIDI that it will do everything your friend's MIDI instrument does. The MIDI spec has grown over the years to include more features as the need arose for their use, and there are a number of older or inexpensive products that don't support these features. General MIDI is a good example of this. Almost every recently released major product has it, and although it's more of a convenience than an essential feature, it may be the reason that attracted you to a specific piece of gear to begin with. Make sure you're getting the capabilities you expected.

Some MIDI units also only have a MIDI IN. Some only need an IN, but on other pieces you can only access the sounds in the unit from another MIDI instrument, so you can't record any MIDI information coming from the unit without a MIDI OUT. The Roland Boss DR550/DR550 MkII drum machine is a good example of this. It has a really great selection of killer sounds, and can be programmed with original patterns, but you can only save these patterns to the machine itself. You can't record them on your computer's sequencer—although you can use the unit's sounds for playing back a sequence *from* the computer. The unit is really best suited for recording live, in conjunction with a MIDI percussion controller, or as an inexpensive way of expanding your present drum machine's sounds.

We hope we've given you a jump on what you need to know and look out for when pulling together your system. In the following pages we've given you a comprehensive guide that not only recommends what to look for when buying your computer system, but the best music hardware and software programs that are available as well. Each product has a brief description of its major and unique features. A sample screen or photograph accompanies most products, and we've separated them according to their specific category of functions.

Micro Computer Depot

Atari's largest dealer in the south east. We have been selling and servicing them since 1981. We are Sales and Service authorized for the complete Atari line.

Call for current pricing on all machines.

1-800-845-3070
Order Line Only
For tech support call
803-788-5165
Store/Order Hours
Mon-Fri 9:00-6:00
Saturday 10:00-2:00
Eastern Standard Time

One Year Warranty on all Computers!

Atari Hardware

Falcon 030/4/65	$ Call!!!
1040STE	$399.95
MegaSTE/2-Color	$1,099.95
MegaSTE/4-Color	$1,199.95
SC1224 12" Color	$224.95
SM147 14" Mono	$195.95
SC1435 14" Color	$329.95
TOS 2.06 Rom Set	$59.95
SLM605 Laser	$1,049.95
Drum Kit	$179.95
Toner Kit	$28.95

Ask about the 520 STE Discovery Pack and the 1040 STE Family Curriculum Pack.

FA-ST Hard Drives

FA-ST	40 MB	$483.95
FA-ST	80 MB	$554.95
FA-ST	130 MB	$629.95
FA-ST	212 MB	$826.95
FA-ST	340 MB	$1164.95
FA-ST	1.2 GB	$2279.95

We only use quality ICD cases, power supplies, and host adapter kits with Maxtor drive mechanisms for maximum reliability.

Four year warranty add $175!!!

Accessories

Alpha Data	
3 Button Track Ball	$75.95
Opt/Mech Mouse	$36.95
I.B. 3.5" DS/DD Drive	$169.95
Migraph Hand Scanner w/Touchup	$289.95
Xwitch-IT	$37.95
Mouse Master	$39.95
PLI 21MB Floptical(NEW)	$499.95
D.E.K.A.	$89.95
PLI CD Rom Drive (NEW)	$749.95

Entertainment

Archer Maclean's Pool	$44.95
Falcon - Classic Collection	$55.95
Fate of Atlantis	$44.95
Vroom (Fantastic Race Sim)	$44.95
Vroom Data Disk	$32.95
Ultima IV	$46.95
Knightmare	$52.95
Sports Best Multi-Pak	$39.95
Utopia Combo Pack	$52.95
Ishar	$49.95
Rampart	$46.95
Railroad Tycoon	$52.95
Dungeon Master/Chaos Pak	$38.95
Sim City/Populous Pak	$44.95
Castles	$42.95

Child's Play

ADI Maths	$48.95
ADI English	$48.95
ADI French	$48.95
The Shoe People	$45.95
Numbers Count	$29.95
Letters for You	$29.95
Math Blaster	$25.95
Pepe's Garden	$42.95

We import many European titles. Call for weekly specials.

Productivity

Calamus SL	$699.95
Calamus	$229.95
Outline	$189.95
Phasar 4.0	$74.95
Data Manager Pro	$114.95
DBMAN V	$159.95
Calligrapher Gold	$199.95
Pagestream 2.2	$229.95
Home Accounts 2	$93.95
Church Manager	$199.95
BEST Business Mngr	$229.95
Word Perfect	$169.95

Utilities

Double Click	
DC Data Diet	$52.95
DC Desktop	$27.95
DC Shower	$19.95
DC Utilities 2.0	$29.95
Codehead	
Warp 9	$33.95
Hotwire	$29.95
Lookit/Popit	$29.95
Maxifile	$29.95
Multi-Desk Deluxe	$37.95
Diamond Edge	$54.95
Diamondback II	$39.95
Didot Lineart	$179.95
UIS 3.3	$18.95
Gribnif	
NeoDesk 3	$54.95
Sudden View Student	$22.95
STalker	$39.95
STeno	$23.95

Programming

Devpak 2	$89.95
Devpak 3	$133.95
HiSoft COBOL C/PM	$84.95
FTL Modula-2	$149.95
WERCS	$79.95
FORTH	$69.95
Prospero C	$129.95
Lattice C 5.5	$235.95
High Speed PASCAL	$143.95
ButtonzBasic	$44.95
GFA BASIC and Companion Products	*call for current pricing*

Micro Computer Depot

224 O'Neil Ct. Suite 14
Columbia, SC 29223

No surcharge for credit card orders.
Free shipping on all software orders above $100!

VISA MasterCard DISCOVER

Musician's Computer System Comparison

By Peter Donoso & Fadi Hayek

YOU'RE READY TO START seriously thinking about making a computer system purchase. Although the choice to us seems rather obvious, every buyer still needs solid facts and figures to make an intelligent decision. After all, choosing which computer system meets your present musical as well as financial requirements—while still allowing plenty of room for expanding into new areas of interest (music-related or otherwise) without costing you an arm and a leg—is probably the single most important choice any musician will make in getting together their own home studio. Rather than just tell you to, "Buy an Atari!", we felt it was important for you to see for yourself how a comparable system from the "other" guys shapes up against ours in regards to value and price.

What's Important

What defines *comparable*? Careful evaluation led us to a list of the most basic demand and concerns of any musician, factors such as the speed with which information is processed, ease and versatility of use and compatibility with third party hardware peripherals, as well as the important aspects of how sound and MIDI are handled, and, of course, what all of this is going to cost you.

Despite the obvious bias towards what we feel are superior systems, we also know that any product's credibility in a competitive market comparison rests solidly on both a company's respect for a customer's intelligence and its ability to present the consumer with an accurate and well-informed body of evidence to support its claims. Sales hype and marketing propaganda may manuever a customer towards making the initial purchase, but without a solid basis in hard facts, any hope for consumer word-of-mouth advertising and potential future repeat business just flies right out the window.

With that in mind, the accompanying chart lists all the features a musician would need to look for in pulling together their 90's music-oriented power system, a system that will be able to serve them into the next millennium. At the end of this article is a feature by-feature comparison chart of the three major music platforms, detailing their individual costs for each related feature. Some entries may equate contrasting CPU access speeds in what may appear to be unfair or seemingly inaccurate comparisons. "How," you may ask, "can we put a 80386DX/33MHz on equal footing with a 68030 running at 16MHz —who are we trying to kid?". Perhaps a short discussion on the subject of "numbers" in relation to Run Time and Access Speed are in order before you start thinking about raking us over the proverbial coals for claims that may at first seem to be stretching the limits of credibility.

Going by the Numbers

In the beginning was the Number, and the Number had been given omnipotent status— it could know no other truth. Everyone naturally came to the logical conclusion that 386 beats the pants off 286 and that 16 is better than 8 when it comes to defining a degree of MHz—right? So everyone believed—until you really start to look at how an Atari system's architecture can prove otherwise. Although many were called, only a few of the more forward thinking consumers had chosen to look for themselves.

The majority of the masses had been indoctrinated by the dominant computer system, which led them to believe the rational assumption that greater speed and better features come *solely* from the release of each "new and improved" processor, and they still cling to this logic as gospel. Meanwhile, the previous processor title holder for speed—one could even say the last *three*

versions—had yet to see their real potential actually realized before manufacturers urged abandoning them for "new, improved" models (programmers have been famous for finding addresses and pathways in a chip that manufacturers adamantly insist at first are impossible or don't exist... until the claim is investigated and—lo and behold—a previously undocumented routine is verified!). In simple English this means that we have a tendency to put an emphasis on speed as defined by a *number*, when in fact the *true* potential of a chip can be said to lie in a combination of the way a chip is designed and *how* that chip's features are utilized by the computer's motherboard.

Atari's designers saw the *real* potential of the original Motorola 68000 in a way that Apple (who uses the exact same chip series) missed (DOS/Windows based computers use the Intel 80x86 chip series which has a different architecture). Combining a more efficient utilization of the chip's design with the idea of having the operating system totally contained within a set of separate ROM chips, Atari proved that the optimum speed and power of a chip lies in a combination of *both* its architecture and the *way* in which the chip is connected to the rest of the central processing board, thereby pushing the performance envelope beyond the manufacturer's definition of so-called maximum capabilities. This rather radical "numbers" equation turned the computer world upside down by proving the "% Power + Design x % output > $ performance" theory was indeed possible. Power *can* be had without the big bucks price tag. It became the Atari banner—Power Without The Price.

A Computer Does Not Live by Processor Speed Alone

The other platforms are basically stuck with software-based operating systems that, to a good extent, depend on the next generation chip to provide the opportunity for improved performance. Being originally designed around this premise committed their future development to a *primary* dependency on a given chip's capacity for handling information. This means making any improvements or adding new features to their operating system requires writing layer upon layer of additional code. Each additional volume of code slows down the way and speed with which a computer normally processes both data and screen output to the monitor. Windows open and close at a slower rate, graphics and images take longer to redraw, crashes happen more frequently and in general, most operations reveal a marked increase in lag time. The only way to regain the previous processing speed is to go with a more powerful chip.

This is why the minimum practical requirements for running a DOS based computer with Microsoft's Windows is a 386DX running at 33MHz with 4 megs of memory and an 80 meg hard drive. Windows software (the equivalent of Atari's GEM system, which is *already* integrated into the Atari TOS operating system chips) has to run on top of DOS software. This is a *lot* of code, one which requires a chip that can meet the demands for larger processing pathways to accommodate ever-increasing chunks of bits and bytes just in order to be able to maintain any kind of decent speed.

What this all means, is that a Windows-based computer *needs* that higher level of Intel chip to come up to the same cruising speed of even the most basic operating system functions (like opening and closing windows) on a Motorola-based 68000 Atari running at 16MHz! You may be thinking, "Well, it's obviously the Motorola chip.", but that assumption doesn't necessarily hold true either. One particular situation that illustrates this point is **Gadgets by Small**'s famous Macintosh emulator.

Dave Small perfected his Spectre cartridge, which successfully runs the majority of Macintosh software on an Atari computer, and released it with a capability for faster processing speed than Apple's most popular computer at the time, the Mac Plus. The fact that an Atari computer was running under the additional burden of emulating a radically different operating system that utilized the exact same Motorola chip in a totally different fashion, and *still* managed to beat the speed of the original manufacturer's system, is a credit to both the genius of Dave's programming skills and the original Atari system designers. I should mention that there are two Mac 128k ROMs in the cartridge itself, but these, in and of themselves, do not by any means a Macintosh make.

Get the Whole Picture

Of course, we all look forward to owning the next technological wonder product, and each new development in the field of microprocessors points the way to greater features and speed potential. The point we're trying to make here is that rating a computer system solely by the "numbers" can be a deceptive practice that may leave you out in the cold without this month's rent, when tomorrow's technology may in fact be well within today's budget! Don't be deceived by the value of a product when using partial information and outdated assumptions to evaluate something that *appears* to be less than you think you need. It just might turn out to be the technological wonder you've been wishing and waiting for—at a price you can afford *now*!

Our survey that compares one company's system with a specific chip version and operating speed as being on the same par with others that are rated at different "numbers", have all been seriously researched before making any claims qualifying them as equal candidates. Just try to remember that numbers by themselves don't tell the whole story—overall design and performance play a *major* role—and then there's the bottom line. Such aspects as a computer's degree of versatility, reliability

Musician's Computer System Comparison Chart

Features	Atari Falcon030	Cost	Apple MacII CI	Cost	IBM PC Clone[1]	Cost
CPU	16MHz Motorola 68030	$1,299	25MHz Motorola 68030/-68882 FPU[3]	$2,539	33MHz Intel 80386 DX	$ 1,499
Operating System	TOS Ver. 4.0 3-D Icon - Based with NewDesk Desktop	Included	System 7.1	n/a	Microsoft DOS 5.0 with Windows 3.1	Included
Multi-Tasking	MultiTOS Pre-emptive Multitasking with Adaptive Prioritization	Included	Not Available (Only capable of multiswitching)	Included	Available under Windows 3.1	Included
Memory	4 Megabytes of RAM	Included	5 Megabytes of RAM	Included	4 Megabytes of RAM	Included
Hard Drive	65 Meg	Included	52 Meg	$ 319	80 Meg	Included
Floppy Drive	1.44 Meg MS DOS Format Compatable	Included	1.44 Meg Superdrive MS DOS Compatible	Included	1.44 meg 3.5 & 1.2 meg 5.25	Included
Digital Signal Processing	32MHz Motorola 56001 (Multi- functional for CPU, DA and Snd FX)[2]	Included	Not Available From Apple (See Digital Audio below)	n/a	ProAudio Spectrum 16 bit Stereo / 44 kHz Sampling	$ 300
MIDI Interface	MIDI In/Out	Included	MidiMan Mini MAC Interface - 1 In/3 Out	$ 100	MidiMan MM401 1 In/ 1 Out	$ 100
Audio Processing	16 bit DMA Stereo Digital Audio with up to 50kHz sampling rate & support for up to 8 channels	Included	Digidesign Audio Media II stereo audio card operating at 32MHz	$1,100	Digital Audio Inc.—The Card D with The EDditor-16bit Stereo/ 44.1 kHz w/editing software	$1,020
Graphics & Color	16 bit Color / Super VGA Displays up to 65,536 Colors From Pallette of 262,144 Colors	Included	Apple 8-24 switchable card. Achieves 16 bit on 14" monitor.[4]	$ 900	Leading Edge Super VGA w/512k - 16 bit.	Included
Internal Slots & Additional Ports	**Slots:** Processor Direct Slot **Ports:** • SCSI-II w/ DMA • Stereo Audio Mic/Line Input • Stereo Audio Line Out • DSP for interfacing with Professional DACs & ADCs • VGA/Multisync, Composite Video, RF or Broadcast Analog RGB • High speed LocalTalk-compatible LAN • Bi-directional Parallel Printer • RS232 Modem • 128k Cartridge • 15pin enhanced digital/-analog controller & light pen mouse/joystick port	Included	**Slots:** NuBus (3) **Ports:** • Standard SCSI • Mono Output Port • Apple Video Port/RGB/ Multisync • Apple Serial (2) • External Disk Drive • ADB (2) for Mouse & Keyboard* **Extra:** • Keyboard extra	Included $ 185	**Slots:** (6) **Ports:** • Parallel • Serial / RS232 • Joystick • MS Mouse & Keyboard **Extra:** • SCSI II • RF	Included $ 295 $ 349
Totals		**$1,299**		**$5,143**		**$3,663**

and ease of use can also come into the definition of "paying the final price" as well. Does the software have an equivalent cost for the same program on both platforms, or similar products on a feature-by-feature basis for an equivalent cost? Once you start to compare systems on a "price"-per-feature basis—all of these factors start to play an equal role in helping you arrive at your final decision—not just the price alone. We know you can't be fooled into making anything other than the smart choice, but don't just take our word for it—take a look and see for yourself. We'd like to think the facts simply speak for themselves.

Key to Musician's Computer System Comparison Chart

* All prices are manufacturer's suggested retail. Although actual selling prices may vary, final cost to the consumer for all 3 systems still remains in relatively close ratio to list prices.

** All systems and third party peripheral add-ons were chosen on the basis and order of the following criteria: 1) Must have comparable features; 2) Must be the most reasonable in cost from among a number of similar products by respective competitive manufacturers.

*** All units are rated in conjunction with the use of a 14" Super VGA or equivalent color monitor. We felt since most monitors with 16 bit color capability or better can in fact be used with all 3 systems, there was no need to include them directly in the comparison.

1. IBM-compatible Leading Edge Systems, ModelD3M-T101
2. Because of the way in which the DSP chip is connected to the rest of the processors on the motherboard, the multiple pathways and capability for independent access to them has no equal in the other two systems, even when the same exact chip is included on third party sound cards.
3. Unlike an optionally available 68882 Floating Decimal Point math co-processor for the Atari Falcon030, which only serves to further enhance its overall performance, the 68882 math co-processor chip included with any MacII CI comes closer to being a basic requirement, rather than an option, when dealing with a number of popular Mac programs which fail to run without it, such as Microsoft's Excel spreadsheet software.
4. This card's resolution is dependent on the size of monitor used. Although it is capable of 24 bit color on a 13" color monitor, the card does, however, experience decreased resolution when used in conjunction with a larger monitor, and drops to a lower 16 bit resolution in conjunction with a 14" monitor, and 8 bit on a 19" monitor. It was also the most reasonably priced one we could find.
5. After comparing feature by feature, we determined that the Atari Falcon030's DSP chip represents the equivalent of *two* PC card functions—a Sound Card for the PC's sound file and game-related sound features and another card for digital audio—covered by one chip. Although capable of 16 bit quality sound, a sound card still does not qualify it for use with digital audio recording. The Mac, unlike the PC, is not a game oriented machine per say, hence the omission of a sound card.

Digital Audio Recording

THE FACT THAT YOU CAN capture sound and hear it being played back in *any* form at all is amazing in and of itself, but being able to record on anything other than the old familiar tape medium, like hard drives—really makes you start thinking back-to-the-future,looking for signs of a strangely contoured DeLorean lurking about.

Not only has the future arrived, it's practically ahead of itself! The Atari Falcon030 is the culmination of technological advances made over the last decade at a price that is light years ahead of its time. Two channels—*stereo* digital audio with better than CD quality sound, *plus* a digital audio editing software package, *plus* 16 bit digital sound effects unit, *plus* the powerful, true multitasking environment of the latest Atari operating system —all of this at one unbelievably low price that works right out of the box!

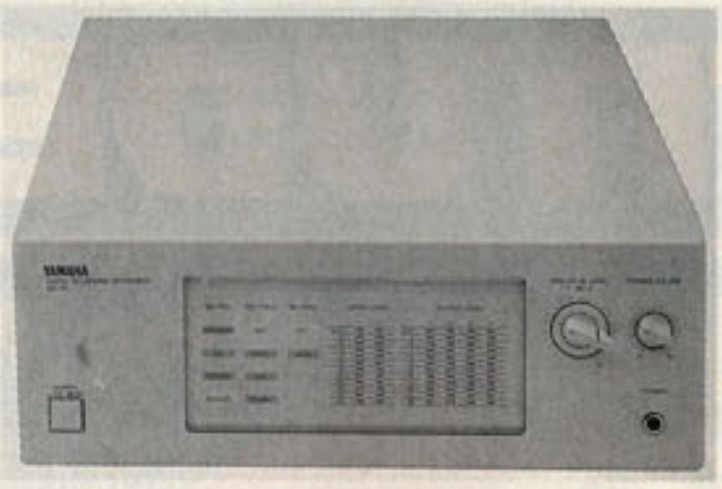
What's even better, with the addition of an external digital signal processing unit, multi-track digital audio workstation software and a MIDI sequencing program, the Atari Falcon030 can realize its true potential with capability for up to *eight* channels of digital recording—a digital multi-track recorder that can integrate seemlessly with 64 tracks of MIDI, melding both mediums into *one* awesome music recording environment.

Edit, move, rearrange and manipulate *both* equally, as if MIDI tracks and digital audio tracks—sequence and live recording—were practically indistinguishable from each other!

-Fadi Hayek

Related Hardware

CBX-D5 (PRICE TBA) WILL ALLOW you to record audio from a microphone or line-level source, such as a CD or tape deck, *directly* onto hard disk. Up to four individual tracks of digital audio with unlimted overdubs are possible, with no degredation in quality between the first one and any succeeding number of copies. The CBX-D5 communicates with any kind of host computer via a standard SCSI interface such as the one used by both the Atari Falcon030 and TT030. Atari MegaST/ST^{E}s and 1040ST/ ST^{E}s with standard Atari ASCI/DMA ports can still use the CBX-D5 as well, with ISD's The Link ($100) external ASCI/-DMA-to-SCSI host adaptor. The CBX-D5 provides two SCSI connectors and a handy external push-button SCSI ID selector switch so that you can interface it with your Atari and an external hard drive. Steinberg's premier release of Cubase Audio for the Atari is specifically designed to work in conjunction with the CBX-D5. The unit contains four discrete digital inputs and outputs and supports both professional AES/EBU and consumer S/PDIF formats, as well as Yamaha's own proprietary MEL2 format. It also offers two balanced analog inputs and four balanced analog outputs, as well as a Word Clock input/ output for fine synchronization in professional broadcast applications and the traditional MIDI In/Out & Thru ports for controlling a variety of DSP-related functions. Analog-to-digital conversion is 16bit—the CD standard—and four different sampling rates are used, including the professional 44.1 kHz rate used by CDs *and* the even higher 48kHz rate used by DAT machines. Digital-to-analog conversion is 18bit, with 8x oversampling. These specs mean that you can create recordings with the CBX-D5 that sound every "bit" as good as anything you might hear on your favorite CD.



Yamaha's CBX-D5

-Howard Massey

Yamaha Corporation P.O. Box 6600, Buena Park, CA 90622-6600; (714) 522-9011.

A/D64X AUDIO INTERFACE ($1,295) is an independent 2 channel analog-to-digital converter (audio to digital audio) with 64 times oversampling and a 3-stage linear phase digital anti-alias filter, to insure that full bandwidth is maintained during the conversion process. The unit is suitable for transferring digital audio from DATs, CD players with digital outputs, digital mixing boards or any unit with digital in/out capability, effectively allowing all transfers to remain in the digital domain. Connec-

tion with the Atari Falcon030 is made through the DSP port, and is located on the back of the A/D64X alongside a number of other ports, including both an AES/EBU or S/PDIF Digital Audio Input and Output, variable (unbalanced) Left /Right RCA Line Input, three-pin Cannon/XLR Left/Right Balanced Line Inputs with +4/-10dB level selector,

A/D 64x from Singular Solutions

Cannon/XLR Left/Right Balanced Low-noise Mic Pre-amplifier/Instrument Mic Inputs and a 48v Phantom Power switch for condenser microphones. The unit's front panel features sperate Left/Right controls for both Mic Pre-amp Gain and Line Inputs, an Analog/Digital Input Source selector, and Absolute Digital Overload LED indicators.

Singular Solutions 959 East Colorado Blvd., Pasadena, CA 91106; (818) 792-9567.

D2D SYSTEMS OFFERS TWO DIGI-tal hardware interfaces: SPDIO ($299), a SPDIF digital I/O, and 4I/4O ($599), a hardware interface for the 4T/FX that also includes a SPDIF interface. Both units let the Atari Falcon030 sample at 44.1 kHz or 48 kHz by providing an external sync signal.

-Craig Anderton

Digital IO 2554 Lincoln Blvd., Suite #122; Marina del Rey, CA 90291; (310) 398-3993.

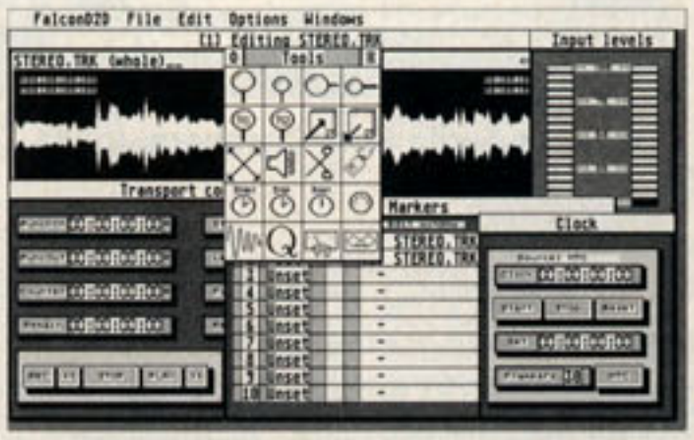
Software

D2D (FREE W/ATARI FALCON030) contains a number of the features that make D2D Edit so powerful. D2D has a more simplified toolbox but provides the same basic cut, paste and assemble capabilities as its big brother, along with the Cue List feature for assembling parts. It can record using a variety of sampling rates, save your finished piece to disk and can also playback a number of additional sound file formats besides its own.

-Craig Anderton

Atari Corporation 1196 Borregas Avenue, Sunnyvale, CA 94089; (408) 745-2000.

D2D EDIT ($299) IS THE FIRST HARD disk recording and editing package for the Atari Falcon030. There are several available windows including an edit window, waveform editor, an analog tape-like transport section, separate cue list and digital VU meters. Tell the program where you want to record audio, assign the file a name, then specify a sampling rate (50 kHz, 32 kHz, or an external sync source), and recording length. Perform standard editing techniques (including cut, paste, and copy) to your recorded sounds, as well as



D2D Edit from D2D Systems

assemble "cue sheets" (playlists) of different recordings that can be synched to MIDI Time Code. The cue list lets you assemble different "bits" of digital audio in various orders. A scrub feature lets you vary the speed of a designated song section, which allows you to easily audition a part at a faster or slower speed and use the lowest speeds for rocking back and forth to easily locate the exact beginning or end of a part. D2D Edit also lets you do waveform editing, sync to MIDI Time Code, and a lot more. D2D Edit requires a dongle that slips into the computer's cartridge port, allowing you the luxury of making unlimited backups of the software. The program is easy to figure out, and the manual makes it all very managable for first time users. A thorough introduction to digital audio that can take you past the basic requirements for spoken narration to some very sophisticated results for professional mixing, this is indeed an auspicious beginning for the Atari Falcon030. What is even more impressive is the price. At $299, it's an incredible bargain!

Digital IO 2554 Lincoln Blvd., Suite 122, Marina del Rey, CA 90291; (310) 398-3993.

4T/FX ($599) WILL ALLOW FOUR tracks of digital audio to be recorded, edited and manipulated much in the same way as D2D Edit. In addition, it includes real time mixing and EQ, and generates two simultaneous effects accessed directly from the computer's DSP. You have full mixdown capabilties with digital EQ and effects for each individual track, and time compression and expansion capabilities are amply supported as well.

-Craig Anderton

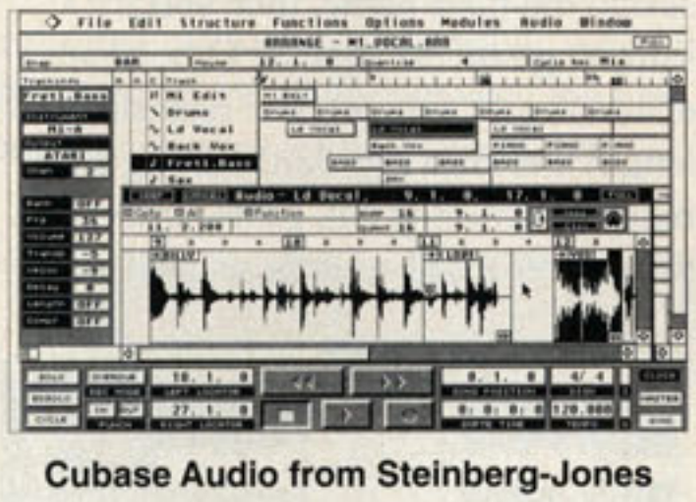
Digital IO 2554 Lincoln Blvd., Suite 122, Marina del Rey, CA 90291; (310) 398-3993.

DIGITAL MASTER EX ($3,995) THIS impressive product (originally distributed Digital Master) now has a new home at Digital F/X Inc., and new features that leave the high-priced etiquette of the competition in shamelessly poor taste. Running under a unified, sleek operating system that handles this expanded 4 channel/16 Track version, Digital Master EX offers non-destructive editing, variable speed playback and record, SMPTE sync with chase-lock, 4 channel event playlist and true graphic waveform editing, as well as DAT backup/restore. Unlike the 1980's "Pay More For Apple Macintosh II With Sound Tools" solution, Atari & Digital Master offer a 1990's "Give me MORE and charge me LESS" attitude. Whereas other systems require expensive custom

hardware and/or high priced computers, Digital Master EX and your ST, ST^{E}, TT030 or Atari Falcon030 computer system are a proven high speed, powerful full featured desktop digital audio workstation solution. Being compatible with a variety of SMPTE sync, multiple digital I/O, and sample rate formats makes this product totally compatible with all existing multi-track analog or digital audio systems. Consisting of 3 single space rack units, the system hardware includes a SCSI II-based control module for high speed data exchange with your Atari, an RS422 interface for VITC and Video Machine Control, Optical Digital input, 4 discreet coaxial S/P DIF and AES/EBU Digital Input/ Outputs, SMPTE In/Out and an RS232 remote control input. Two other modules each provide 2 channels of balanced Analog-to-Digital (64x oversampling) & dual 18 bit Digital-to-Analog (8x oversampling) converters with switchable +4 or -10dB levels and feature an impressive 10Hz-22kHz Frequency Response with >96db Dynamic Range and >90db Signal to Noise Ratio. On the software end, Digital Master EX uses a multitasking modular Operating System that lets you access different program modules for multiple applications, including one of the best time compression systems used in the industry. Other features include Digital Audio Cleanup, Digital Parametric EQ and a Play List Editor that chases to SMPTE Time Code (unlike systems that need to convert SMPTE to MIDI Time Code, which often creates frame loss problems over a period of time, Atari's internal clock reads SMPTE *directly*, thereby insuring that the accuracy and integrity of your music is preserved throughout the editing process). The competition can go on producing higher priced solutions but in these recessionary times musicians are going with companies like Atari & Digital F/X, where they get more for their money, and everyone comes out a winner.

Digital F/X Inc. 755 Ravendale Drive, Mountain View, CA 94043; (800) 274-4339.

CUBASE AUDIO ($795) IS AN INTEgrated MIDI/Digital Audio Editing system that combines the high tech features of Hard Disk Digital recording with all the power, features and capabilities of CUBASE in *one* seemlessly integrated package (Catch the review of CUBASE in the Sequencer section of this issue). Cubase Audio is designed to work in conjunction with (and requires) Yamaha Corp.'s CBX-D5 (rumored to be between $2000 to $3000), a 4-channel hardware Hard Disk Digital Audio Recorder with digital parametric EQ, digital automated mixing and a built-in Yamaha SPX1000 effects unit. Chaining up to four CBX-D5s via SCSI, any 4-meg Atari computer can now handle 4 to 16 tracks of digital recording, editing & mixing, all within



Cubase Audio from Steinberg-Jones

the ever-popular Cubase interface. In a nutshell, what you can do with MIDI you can also do with audio. A new Audio Track Type keeps things well organized, and editing is handled in a new Audio Editor, similar to a dedicated Arrange window, but for listing audio events. Each audio Part is connected to an audio channel on the CBX-D5, and corresponds to the Arrangement section's tracks for performing Cut, Copy and Paste functions on actual audio without ever touching a razor blade. Banish Silence lets you apply gated processing to your recording, automatically isolating any signal below the user-selectable level and duration, and erases it. This innovative function greatly increases your hard disk's recording capacity by removing unrecorded data and saves having to buy external noise gating units. And the list of features just keeps on going. Cubase Audio has the ability to *quantize* recorded sound! By setting a number of movable Quantize points, Cubase Audio's Quantize command automatically re-quantizes your sequence to match the tempo and timing characteristics of a digital audio Part. The Normalizing feature allows you to adjust volume for achieving maximum dynamic range allowable before distortion of the digital signal. At a total projected cost well under $4,000, (including Yamaha Corp.'s CBX-D5), Steinberg's Cubase Audio blows the other computer platforms out of the water.

Steinberg-Jones 17700 Raymer Street, Suite 1001, Northbridge, CA 91325; (818) 993-4161.

MUSiCOM ($99) FOR THE ATARI FALcon030 is a versatile chameleon which offers a number of exciting digital audio features in one complete package. You can use it to record 8bit mono or 8/16bit stereo samples in frequencies ranging betweeen 8.2 and 49.2 kHz and set both input/ouput levels separately for each channel. Mask a lead vocal from a recording using subtractive mixing with variable control and record your own high quality karaoke voice production complete with digital delay, phasing and flanging. A built-in Harmonizer lets you take one voice and manipulate it to sound like a harmony, allowing you to even do three part harmony. Use the 10 channel equalizer to make your voice go from soprano to bass, and everything can be recorded direct to hard disk and ready for recording or further enhancements.

-Peter Donoso

Compo Software Corp. 104 Esplanade Avenue, Suite #121, Pacifica, CA 94044; (415) 355-0862.

BRE Software

Order Toll Free: (800) 347-6760

Order Line Hours: Mon.-Fri. 8:00 AM-5:00 PM, Sat. 10:00 AM-3:00 PM Pacific Time
Customer Service/Order Status/Inquiries/Canada Orders: (209) 432-3072

Largest Selection

We've been compiling our Public Domain Library for over 6 years and currently have over 1500 Public Domain Disks, and we're adding more all the time.

FREE Catalog with every order

Public Domain/Shareware Software

Over **1500** Disks Available for the Atari ST

Utilities, Games, MIDI, Applications, Music, Graphics, Educational, Clip Art and much more.

Games

#511 - Dungeon Master Maps for Levels 1-7
#720 - Dungeon Master Maps for Levels 8-14
#835 - Adventure Game Toolkit - A shareware pkg that allows you to create your own top quality adventure games. (DBL)
#898 - Chaos Strikes Back Maps for Levels 1-10
#957 - Mystic Mirror: Adv. Game Similar to Dungeon Master. 2 Players (Color)
#960 - Wheel of Fortune V3.0 (Color)
Stellar Starfighter - Shoot'em Up
#962 - Space War V1.0 - The Classic Space Shoot'em Up for 2 Players (Color Only)
#963 - Go Up V1.0: Lode Runner Clone (Mono Only)
#993 - Monochrome Games: Pac Man & Columns
#1015 - Cartographer Demo: Maps out or Edit your Dungeon Master or Chaos Strikes Back saved games. (1 Meg)
#1040 - **Sorry V1.8** - Just like the board game. For 2-4 players. (Color Only)
Valgus V2.0 - Tetris clone for 1 or 2 players simultaneously. (Color Only)
#1180 - Hac Man 2 - Professional quality Pac Man Clone. (Color/1 Meg RAM/DBL)
#1220 - Tetris - 1 or 2 players simultaneously **Best version on the ST so far!**
#1222 - MORIA - Single player dungeon simulation (1 Meg RAM/DBL)
#1252 - Captive Helps Files, Gaming Digest 12/91
#1255 - Jeopardy V3, Hearts (Color Only)
#1258 - Llamatron V1.0 - Arcade game (1 Meg)
#1277 - Mystic Well: Similar to Dungeon Master (Clr)
#1295 - Daniel's Dungeon V3.0
#1353 - Klatrix: Tetris/Klax Combination (Color)
#1366 - Rolling Ronny: Super Mario type game (Clr)
#1371 - Blackjack Plus 3 Demo
#1389 - Grav: Rotate & thrust game (Color)
#1409 - Shoot'em Ups (Color)
#1410 - Strabble: Similar to Scrabble for 1-6 players 45,000 word dictionary (1 Meg RAM/DBL)
#1411 - Deathbringer Demo (Color)
#1421 - Unnkulian Underworld - Text Adv. (1 Meg)
#1422 - Baby Jo in "Going Home" - Super Mario type game with good graphics/sound effects (Clr)
#1440 - Revenge of the Mutant Camels (Color)
#1447 - Dem. Man V2.0, Oh Craps, Poker Night (Clr)
#1448 - Triples - Puzzle game (DBL/Color)
#1458 - **DUNGEON LORD** - A very well written role playing game. (Color/1 Meg RAM/DBL)
#1505 - Omega: Dungeon Exploration (1 Meg/DBL)
#1508 - Arcade Shoot'em up: Tanks & Plans (Mono)
#1514 - DC Snowball Fight (Color/DBL)
#1523 - Poker Dice - Great poker game w/dice (Clr)
#1533 - Gold Seeker, Cops & Robbers (Color)
#1535 - Golden Axe, Flipped (Color)
#1538 - Game Cheats/Hints
#1554 - Quest for Tanda - Adventure Game (Color)
#1559 - Warriors Delight Vol 1 - 5 Games (DBL/Clr)

#952 - Address Labeler V2.0 - Create, Print, and Store address labels
#988 - Fast Copy III, NX-1000 Set Up H.P. Deskjet Print Utility V1.4
#991 - Label Printing for H.P. Deskjet & Avery 5260 Labels, Desktop Formatter, Disk Sector Edit.
#1008 - **ICONDESK** - Set up different looking icons
#1038/1039 - DC Desktop Icons
#1078 - Monitor Emulators
#1130/1332/1434 - DC P.O.W. Utilities - Handy utilities from Double Click Software.
#1174 - Address/Labeling Programs
#1175/1176/1177 - Programming in Assembly (DBL)
#1209 - German to English translator, STE Fix
#1214 - GFA Basic Programs/Files
#1267 - Atari Advanced Hard Disk Utilities
#1300/1301 - *Atari ST Topics* (Book) Programs
#1304 - GFA Basic Utilities
#1310 - Virus Killer Programs
#1319 - GFA Basic V2.0
#1322 - KAOS Desk - GEM Desktop Replacement
#1367 - Latest Supra Hard Disk Utilities (DBL)
#1393 - Address Label V3.3, SLM804 Adjust
#1398 - Freeze Drive Terminal V2.10 Demo
#1404 - Stalker 3 Demo - Great new terminal prg
#1406 - ST Tools V1.5, Mega STE Throttle Cable
#1414 - Direct Drive V1.0 - Disk organizer & labeler
#1416 - Mega STE Config Set, Pin Head V2.1
#1429 - Extensible Control Panel V1.0
#1435 - Make 1 Meg, MultiDesk Deluxe Demo
#1441 - Your second GFA Basic 3.0 Manual
#1442 - GFA Basic Compiler Shell Plus V1.0
#1474/1475 - DC Desktop Icons
#1486 - TAC CAT V2.22 - Disk cataloging system
#1497 - Ultimate Virus Killer V5.40 - Usable Demo
#1498 - *TT Utilities:* Collection of utilities for the TT
#1499 - Super Boot V7.2 - All in one bootup utility
#1502 - German to English Translator V1.9
#1510 - Diamond Back II V2.42 Demo
#1539 - Mouse Boot V3D - Mock GEM Autobooter

Bible on Disk

King James Version (8 Double Sided Disks) $24.95

Desktop Publishing

#500/600 - Publishing Partner Fonts
#737 - Calamus V1.09 Demo - Fully functional except for Save (Mono/1 Meg RAM/DBL)
#758/759/994 - Calamus Fonts
#895 - PageStream V1.8 Demo (DBL)
#935 - *Desktop Publishing Utilities*
#1028 - ***PageStream Font Editor V0.8***
#1266 - Silhouette V1.0 Demo (1 Meg/DBL/G-DOS)
#1297 - FP Print - Speeds up PageStream output
#1319 - GFA Basic V2.0 - Now in Public Domain
#1348 - AVANT VECTOR V1.2 DEMO - A bit image vector tracer and vector grahics editor. From CodeHead Software (Mono Only)
#1365 - Arabesque Pro Demo (Mono/1 Meg/DBL)
#1427 - Calamus SL Demo (Mono/1 Meg/DBL)
#1436/1437 - Megapaint Pro Demo 4.0 (Mono/DBL)
#1438 - Genus Font Editor Demo for Calamus Fonts
#1461 - Easy Text V1.2: Budget Desktop Publisher
#1516 - IMG Squeezer, F Scale Accessory

PageStream Fonts

#599 - Binner, Futura Black, Hal, Lubalin, Futura Extra Bold Condensed
#870 - Atari, Baby Teeth, Lucida, Old English
#1044 - Adverse, Barnum, Burlington, Oblique, Caligraphy 2, Celtic, Chancery, Chicago, Dingbat, Flash, Harloe, Olympia, Souvenir Medium, Souvenir Medium Italic
#1094 - Architect, Avant Guard, Bookman, Broadway, Chancery, Dingbat, Kibo, Oakville, Palatino, Western
#1336 - PageStream V2.1: Roosth, Saintf, Sansser, Sharkt, Style, Toulouse, Windsor, Zalesk

Adobe Type 1 Fonts for PageStream 2

#1337 - Classica Heavy, Roman, Italic, Faustus Rhyolite Vertical, Sharktooth, Windsor Demi, Zaleski Caps

#1338 - Cascade Script, Kuenstler Script Black Albatross, Kuenstler Script, Mediciscript, Kuenstler Script Two Bold, Nuptial Script
#1339 - Ashley, Miami Nights, Muriel, Park Haven, Pixiefont, Playbill, SanSerif, Style, Toulouse
#1340 - Caraway Bold, Davys Ribbons, Dragonwick, Eire, Goudymedieval, Polo Semiscript Roost Heavy, Saint Francis
#1341 - Flintstone, Franktimes, Helena, Griffdin
#1342 - Caligula, Crillee, Greencaps, Inkwell, Mira, Isadoracaps, Middleton, Rudelsberg, Wedgie
#1343 - Andromeda, Lower and Upper East Side
#1344 - Graphiclight, Manzanita, Nordic, Parismetra
#1356 - Ambrocap, Dubiel, Flinstone, Middleton
#1557 - Aarcover, Adinekirnberg Script, Dobkin Script, Medusa, Romulous, Harrington

Calamus Fonts

#1150 - Architect, Broadway Engraved, Counter Point, Fancy Chancery, Swiss Medium
#1153 - Lucifer, Bodoni, Bodoni Italic, Drurylane, Drurylane Italic, Hallbats
#1179 - Complete Glib font from FontAbility
#1190 - Micron, Tiempo, Swiss Medium, Leecaps, Medici, Windzor, Zalescap
#1223 - Chicago, Comet, Cursive, Gaudy Cond, Gallia, Gillies, Goudy, Legend, Old English
#1329 - Chili Pepper, Diane, Diego1, Fifties, Mini 6, Galledis, Moscow Regular, Premier Light
#1330 - Recycle Book, Shalom, Tiempo 2.0
#1331 - Albatross Medium, Alexandria Medium, Diane, Krazy, Merlin Caps, Moscow Regular
#1566 - Andromeda Medium, Ann Stone, Caligular

IMG Clip Art

#917 - 4th of July, Valentine's Day, Easter Day
#972 - 1, 5, and 10 dollar bills
#973 - 20, 50, and 100 dollar bills
#1213 - Office Equipment/Scenes (DBL)
#1272 - Religious oriented
#1273/1274 - Military vehicles
#1289 - Camping scenes
#1312 - Religious oriented
#1346/1347 - Christmas Clip Art (DBL)
#1351 - Restaurant Clip Art (EPS Format)

Applications

#810/811 - SHEET V2.5P - Shareware Spreadsheet.
#989 - Paperless Accountant
#1000 - Spelling Checkers
#1106 - Checkbook programs
#1305 - Gramslam Grammer Checker V3.20
#1306 - Hyperlink V1.51 Demo (1 Meg/DBL)
#1361 - Book Database, Calendar Printer V1.02
#1370 - Stock Smart V3.2 - Stock charting program
#1385 - Cal V6.0 - The calendar desk accessory
#1426 - Inventory Pro V6.0 Demo (DBL)
#1444 - **SPELL ONE V1.1** - Spelling Checker
#1457 - Cocktail Selector / Recipe Box V3.1
#1486 - Tac Cat Librarian V2.22 - Disk cataloging
#1500 - **ST Writer V4.8** -Simple easy to use word processor with extensive documentation on disk. H.P. Deskjet Driver included.
#1519 - Vanterm V4.0 - Great terminal program
#1529 - Crossword Editor V2.0
#1537 - Secrets of Flash & 'DO' files
#1550 - Telebase 1.82 - GEM based phone/fax mgr
#1580/1581 - DB Writer: Word processor with 40,000 word dictionary (1 Meg/DBL/Mono)

Children's Programs

All Children's Programs Require a Color Monitor
#551 - *Kid Shapes* For ages 2-8
#552 - *Kid Shapes Plus* For ages 8 & up.
#667 - *Benjamin's ABC's* (DBL)
#699 - Kid Adder, Kid Color, Kid Story V1.4
#920 - Simply Math, Picture Puzzler
#1172 - Math Circus, About the House
#1192 - Math Quiz V1.1
#1403 - Spelling: Object Recognition & spelling
#1424 - Math Facts V1.0, Spider Spell
#1491 - Eliemouse's Rock, Paper or Scissors

PrintMaster Utilities/Graphics

#393/394/533/773/774 - Additional Graphics for use with PrintMaster Plus (5 Disks in all)
#799 - ***PrintMaster Utilities*** PrintMaster to Degas, View/Transfer graphics, Print graphics on Epson/compat.
#1169 - ***PrintMaster Utilities*** Convert to & from IBM Print Shop/Master

Utilities

#399 - Degas/Degas Elite Printer Drivers
#400/800 - 3 1/2" Disk Labeling Programs
#443 - Intersect RAM Baby, Amortization
#514 - Monochrome Emulator V3.0
#688/866/1126/1345 - H.P. Deskjet/Laserjet Utilities
#768/938/1165 - **NeoDesk Icons**
#801 - Label Printing Programs
#888 - *Atari ST Subjects* (Book) Programs
#951 - DC Show It V1.1, Head Start V1.1, Little Green Item Selector V1.6C

Introductory Special

- Any 5 Disks from this ad
- Mouse Cleaning Ball or Disk Cleaning Kit
- Shipping Included - *FIRST CLASS MAIL*

$19.95

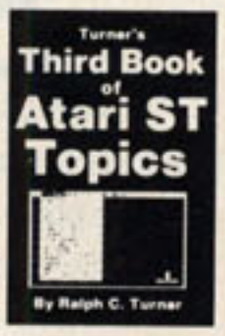
ST Public Domain/Shareware Disk Prices

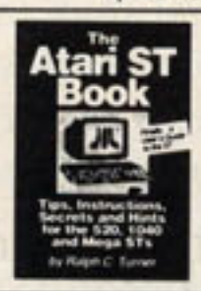
1 - 4 Disks	$4.99 Each
5 - 14 Disks	$3.99 Each
15 + Disks	$3.49 Each

Atari ST Topics

Written in the same format as earlier best selling volumes. Includes: Connecting musical instruments to the MIDI ports, MIDI keyboards, MIDI sequencing, TT030 & Mega STE, Modems, Laser Printers, Telecommunications software, CompuServe, GEnie & BBS's, Using a null modem to transfer files between computers, PD & Shareware software and more.

$16.95





Atari ST Book

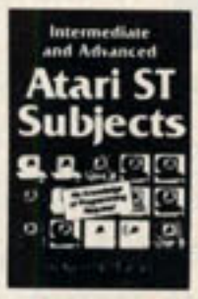
of Tips, Instructions, Secrets and Hints for the 520, 1040 and Mega ST begins where the Atari Owner's Manual left off, providing step by step instructions that helps both beginning and experienced users to get the most out of their ST's.

$16.95

Atari ST Subjects

Topics covered include: Hard Drives, Running IBM Software, Disk Structure, File Recovery, Connecting a 5 1/4" Disk Drive, Assemblying your own Hard Drive, Sector & File Editing, Binary/Hex/Decimal Codes, ASCII File Problems, Escape Codes and much more!

$16.95



ST Xformer Package

The ST Xformer allows you to run 8 bit programs on your ST. Includes cable, manual, and two versions of the software. With the Xformer cable, you can run 8 bit programs directly from 5 1/4" 8 bit disks or transfer between 5 1/4" 8 bit disks and 3 1/2" ST disks. Please call our Customer Service Department concerning compatibility with 8 bit software.

$29.95

Duplitwix Blitz

The Best and Fastest Disk Duplicator for the Atari ST. Backs up a complete floppy disk faster than the ST can format a disk. No internal wiring or cartridges needed. It doesn't matter if the disk is copy protected or not. Program & Accessory versions. Requires 2 disk drives.

$34.95

Hardware & Accessories

3 1/2" Disk Pin Feed Labels (100 per pkg)	$4.95
Mouse/Joystick Extension Cable (8")	$4.95
MIDI Cable (5')	$4.95
Mouse Cleaning Ball	$6.95
Mouse Pad	$6.95
3 1/2" Sony Bulk Double Sided Disks with labels	
Package of 10	$8.95
Box of 50 (79 cents each)	$39.50
Megatouch Springs	$14.95
Dust Covers (Specify Computer)	$9.95
Mega Mouse	**$29.95**
Golden Image Mouse	$44.95
Atari Mouse	$49.95
Double Sided Disk Drive	$149.95
Z RAM Upgrade Boards (RAM chips not included)	
2.5 (520ST)	$99.95
3D/4 (520STFM/1040ST)	$99.95

More Books

GFA Concepts in Programming	$19.95
GFA BASIC and Assembler User Book & Disk	$39.95
GFA BASIC Toolkit with Disk	$34.95
ST Assembly Language Workshop Vol. 1 with Disk	$24.95
C-manship with Disk	$29.95
Calamus Guide to Desktop Publishing	$34.95

Lynx Carts

Trade in your old cartridges! Send $1.00 for complete videogame buy/sell price list.

Write to: BRE Software, Dept. AX, 352 W. Bedford Ave, Suite 104, Fresno, CA 93711

No Credit Card Surcharge. Visa/MC/Discover $20.00 Minimum. Shipping: Public Domain Disks $3.50, Canada $5.00 per 15 disks; Software/Hardware/Accessoires $5.00 minimum, Canada $8.00 min. Hawaii/Alaska/Puerto Rico Call for S/H rates. California residents add 7.75% sales tax. Please allow 2 weeks for personal checks to clear. Price and availability subject to change without notice. No refunds on software/books. FAX (209) 432-2599. To receive complete ST catalog by FIRST CLASS MAIL, send $2.00.

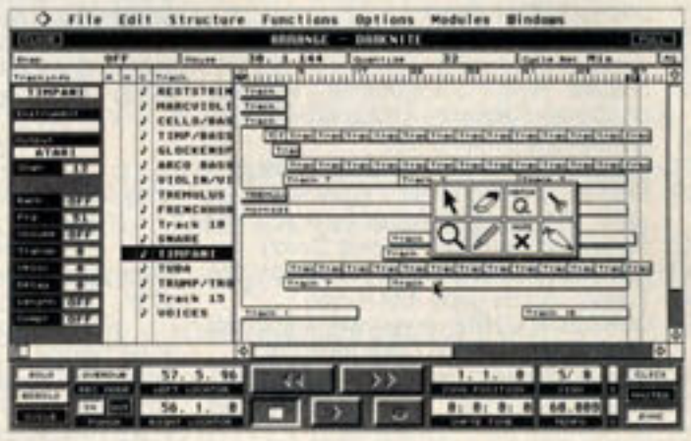
Software Sequencers Steal the Show

IF YOU CAN THINK OF A COMPUTER as being a futuristic evolutionary extension of Thomas Edison's original recording cone needle, then likening MIDI-driven sequencers to the original player piano technology of the 1890s may make this amazing twentieth century development a little easier to relate to. A marvelous technological wonder of its time, the player piano initially consisted of a modified piano housing a crank-driven gear that drew a paper roll punched with a great number of meticulously positioned holes across a pneumatic devise that would shoot streams of air through the holes. The air was then guided through the appropriate tube, triggering its corresponding hammer to strike the proper piano key. All the subtleties of a performance could be captured, recorded in an original session at the factory "recording studio" by using a different kind of piano which would punch holes into a "master" roll as it was being played. The master could then be mass produced, bringing the original artist to an awe-struck public and forever preserving it for an encore performance on any piano player, any time of the day or night.

MIDI shares the same paradox in that it also provides a medium for being able to record and play back a performance, complete with all its original dynamics and subtleties, yet stores it as other than actual recorded sound, and requires some form of piano to translate it into sound. Just as the player piano roll stored music as a series of actual impressions cut into the paper, MIDI stores music in the form of specifically arranged bits and bytes. Your computer provides the means for processing this data, while your MIDI piano keyboard functions as both a "recording" and playback player piano unit. Your sequencer is the essential link between the two, allowing you to translate, store, and recall your music in a form that is easily converted to actual sound through the medium of your MIDI piano. The essential added feature here is the sequencer's ability to *edit* and *reshape* your music in more innumerable ways than those eighteenth century artists could ever have imagined.

Some sequencers provide you with additional abilities to interact with your tape recorder and digital signal processor chip (for direct digital recording, such as the Atari Falcon030), while others also offer a host of scoring and notation features. The means for recording and preserving our music sure has changed, but so has its dramatic increase in personal accessability, and capacity for being molded, shaped and manipulated in an unbelievable number of ways —all right in our own homes.

-Peter Donoso



Cubase

CUBASE VER.3.1 ($499) IS A MULTITASKING Sequencing and Notation program beginners will quickly be able to use, thanks to its intuitive structure, and professionals will appreciate the depth of features and ways in which they can shape and re-form their music. The beauty of this program is that how you would expect to do most things is usually how they actually work. The Arrange window doubles as both your primary recording work environment and a Graphic Song Editor. All recorded passages are treated as "Parts" for each song and graphically portrayed as rectangular-shaped objects. With a few simple click-and-drag mouse movements you can easily move parts around, making the creation of alternate arrangements fast and simple. A right mouse click activates a well-equipped Tool Box icon menu for editing parts, including an Eraser, Scissors for cutting, Glue Bottle for pasting, and Pencil for copying and re-sizing parts and a Magnifying Glass for auditioning them. Tracks can be individually timelocked, making SMPTE event lists quick and accurate! Some great new features recently added with version 3.1 include Track Classification, which allows you to assign a category to MIDI, Drum, Group, Mixer or Style parts so that the appropriate

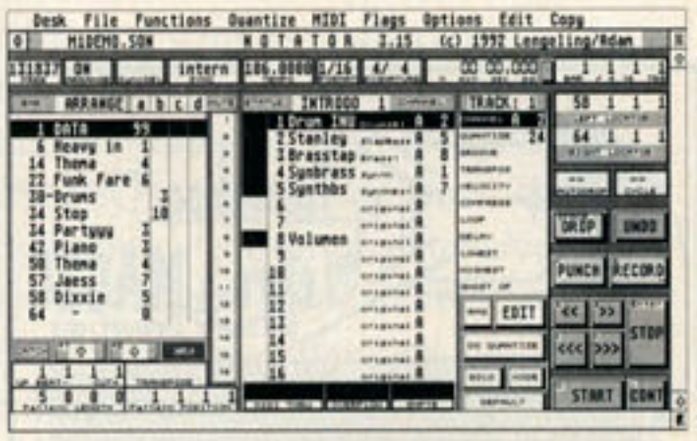
related editor window is automatically called up when you double-click on it; and Tape Track Class, making Cubase a MIDI Machine Control-compatible sequencer (the industry's first), which you can use with a Fostex or Tascam MMC-supported multi-track machine to control your all your tape recorder's functions through your sequencer. Five additional editor windows include: the Key Editor, which has a detailed piano-roll type screen; the List Editor, which allows graphic editing for all types of MIDI data; the Drum Editor, containing a dedicated graphic editor for drum parts and creating Drum Maps; the MIDI Editor, with a recordable realtime Graphic MIDI Controller and a MIDI Mixer; and the Score Editor, which allows you to cycle between three sub-window displays that place you in either Edit mode, where you can configure your score to fit your requirements (Grand Orchestral Staff, Ensemble, Piano with vocal lead etc.), Page mode, a DTP environment for adding lyrics and fine tuning your piece, and the Print Utility mode for viewing the entire score and selecting your printout. You can have as many as 7 windows open at the same time, and because Cubase has a modular design, you can de-activate any editor so that the program can adapt easily to run even on computers with limited memory. This great feature also makes adding new features to the program easy, and producing a major upgrade doesn't greatly affect or change the familiar basic functions of the program. There are a number of exciting new modules either already available or soon to be released. Some of these include: a MIDI Processor for creating MIDI generated delay, echo and chorusing; Cue Trax, a cue sheet and tempo management module that uses time calculators to sync sequenced songs to prerecorded music; Style Trax, a programmable accompaniment module with its own track class that takes a recorded arrangement and turns it into an automatic accompaniment; and Studio Module, a universal sound librarian that lets you save all sounds used in a song along with the sequenced material and can list all the sounds presently in your synthesizers so you never have to reach for you synth rack again. Watch for a more in-depth review of Cubase's many features and capabilities in a an upcoming issue. Cubase is in the Renaissance class of sequencers, suitable for anyone interested in recording and music production.

-Fadi Hayek

Steinberg-Jones 17700 Raymer Street, Suite 1001, Northbridge, CA 91325; (818) 993-4161.

NOTATOR VER 3.15.9 ($699) IS A FEATure packed MIDI workstation that offers a powerful and versatile realtime environment, combining all the features of Creator, E-Magic's highly popular stand-alone sequencing program, with a formidable number of notation capabilities. The program's main work screen is divided in to three primary work sections: a Pattern section gives the user the option of either a 16 track or 32 track mode display, which holds up to 99 patterns, and additional MIDI song files can be loaded on the fly, in realtime; an Arrange section, divided into 4 windows, allows the user to configure patterns, with unlimited overlaps, segues and offsets; and a Tape Transport section offers the standard features, including Punch In/Out, Start/Stop memory positions and a numerical display that show time in either bars, minutes or SMPTE frames. Key Commands are available for practically all of the program's functions. Quantization capabilities are quite extensive, and a choice of 33 groove algorithms are available, 16 of which can be user-defined. Cut, Copy and Paste operations can be performed using a number of graphic or numerical-based guides, and the Hyperedit graphic editor allows you to quickly alter or create a number of MIDI events using the mouse. With the addition of E-Magic's separate Unitor II SMPTE unit, Notator can lock to all standard SMPTE formats and also supports its additional 2 MIDI Outs, which the program partitions into separate groups of 16 MIDI channels each, for a total of 48 available channels. Version 3.15.9. is basically a bug/cosmetic fix up for Version. 3.15, which brought a number of additional features to the program. The TCM-Mode gives the user full function remote control of any Fostex or Tascam multi-track tape machine that supports MIDI Machine Control, from within Notator's environment. There's a scrub feature that lets you audition your sequence using the mouse to quickly locate an exact passage or note. The Softlink program is included to provide a multi-switchable environment for loading and moving between Notator and as many other resident programs as your computer's memory can hold.

Notation features include "Real-book"-style Repeat signs, hidable Bar lines, an increased variety of Key and Clef options, G-DOS support for both Text and Symbol fonts, and although the configurations for each layout are saved with the song, you still must have the fonts present and loaded in order to use them.



Notator

-John Morales

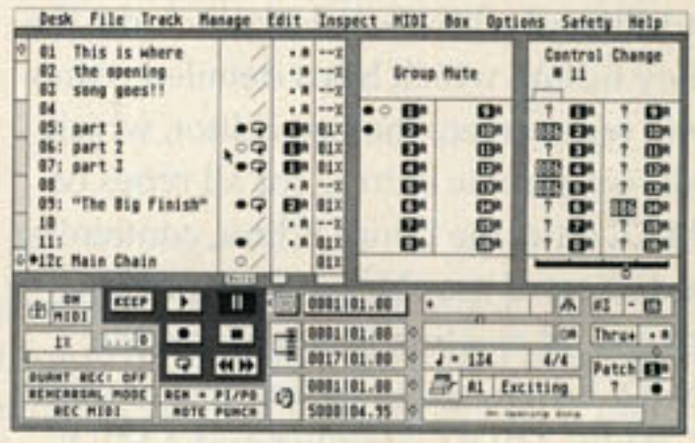
E-Magic—Distributed in the U.S. by: **Ensoniq** 155 Great Valley Pkwy, Malvern, PA 19355; (215) 647-3930.

SMPTETRACK ($499) HAS RECENTLY been upgraded to **SmpteTrack Platinum**, adding even more features to one of the most powerful sequencer platforms available for both the professional

and serious musician. The program is composed of 3 primary work screens. Dedicated users of this 192 ppq sequencer with rock solid SMPTE timing will really appreciate the new "tile" look of SmpteTrack's Main Work screen. All of the Transport, Metronome, Synchronization, Register, and Section controls have moved to the Transport Tile, a full-width section now located along the entire lower third of the screen. Above this, the screen is divided into two Tile display areas. On the left is the "Track Tile" that lists the names and status details of 12 Tracks at a time. In the Tile area, located on the right, the user has the option of displaying either another Track Tile for a total simultaneous display of 24 out of a possible 60 Tracks or any two possible combinations of a Control Tile, now replacing the original Control Column, where MIDI Control Change, Patch Change and Pitch Bend values can be reassigned, a Group Mute Tile that allows for individual or group mute assignments and a Joystick Tile which allows two different controller values to be both viewed simultaneously, and manipulated either individually or grouped for control by the mouse. SmpteTrack's Import Track feature can really come in handy for loading a favorite Drum track, or any combined number of Tracks from another song to help you develop a new song or quickly check out a different possible arrangement of an old favorite. A comprehensive Graphic Editing screen lets you edit, zoom in and out, move, lengthen, scroll and audition your tracks, as well as still providing access to almost every editing function available in the Main Work screen, without having to switch screens. The user can update and save sequences; switch tracks for comparison or editing; and define sections, zones, and note sets to edit. Additional key commands have been added to speed up access of the editing functions.You can define a specific region to edit or make changes to the entire track. Sequence Tempo can now be changed from the graphic editor as well, and a Bar/SMPTE counter display has also been added to the Graphic Editing screen's information display, making it easier than ever to determine your song position during Graphic screen playback. Use the Event List window to edit your tracks numerically. Start Time (related to bar position), MIDI Note Number & Channel Output, Note On/Off and Velocity values can all be edited non-destructively, and Hex values are also displayed. In addition, a separate Curve Display window lets you manipulate MIDI related functions. Attack and Release Velocity, Pitch Bend, Control Change and Aftertouch are just some of the MIDI parameters that are available for editing on this visually graphic MIDI display. Additional new editing features added to SmpteTrack Platinum include: Durate by percent, which allows notes to be durated on a percentage of their current value; Juggle Tracks lets you rearrange selected Tracks either alphabetically, or by MIDI channel and Port; Tracks can now be exempted from transposition so that Drum Tracks, for example, can remain the same while the rest of the sequence is transposed to a new key; True Soloing has also been implemented, eliminating the need for setting up Sections and Chains to create Loops; and finally a repeat sign in Linear Tracks can be called up on the Track Tile to enable automatic Track Loop. SmpteTrack Platinum comes complete with a SMPTE interface box, which connects to the RS-232 modem port to enable Striping and Syncing to all standard SMPTE formats, as well as other forms of synchronization, including "O" and "R" FSK, TTL, and Hybrisync. There's also a handy SmpteMate desk accessory which gives you access to its hardware SMPTE unit for all SMPTE read/write capabilities from within any other Barefoot Software program. A full featured version of the program without the SMPTE unit or SMPTE capabilities is also available as EditTrack Platinum ($199). Either version requires at least one megabyte of RAM and runs on Atari ST, ST^{E}, TT and Falcon030 computers in mono or color resolution.

-James Port

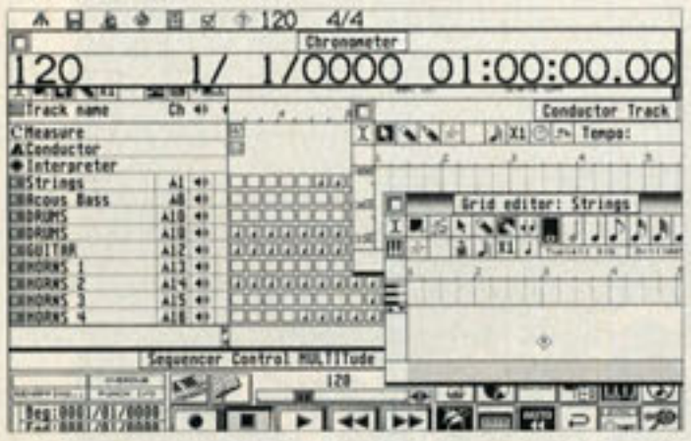
Barefoot Software Inc. 19865 Covello St., Canoga Park, CA 91306; (818) 727-7143.



SmpteTrack

MULTITUDE PRO ($395) IS THE next step in the continuing evolution of its original ancestor, Multi—Oktal's potent sequencer that made its debut

last year to thundering applause. This latest version, now referred to as MULTItude, has been totally overhauled with a new graphic interface that is arranged in a sleek, attractive array of windows for each aspect of the program, and features some half-expected as well as surprising new capabilities and functions. The main sequencing window has your individual tracks arranged in a column on the left side of the screen, with subsequent columns for MIDI channel and mute laid out to the right, and the window can be expanded to reveal additional info about each track. Running at an amazing 768 PPQ, each sequence can contain up to 256 Tracks, with remote capability for segment sequencing and up to 16 Ghost tracks (a copy of a track that does not actually exist in relation to



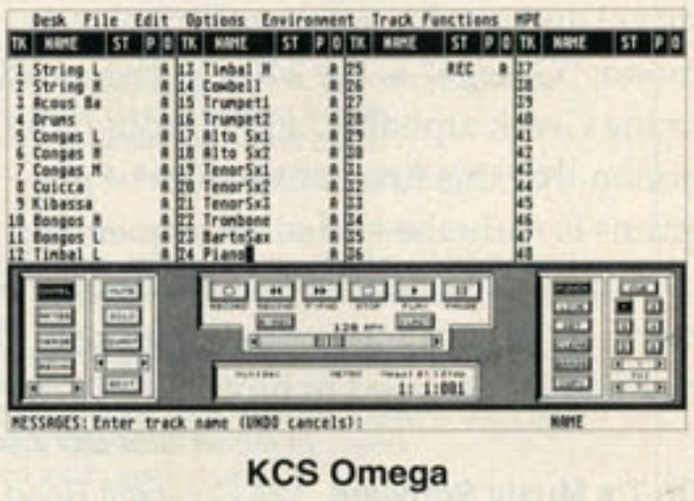
MULTItude Pro

use of memory) per track. The second half of this window is where your song is graphically portrayed as a linked series of squares. Each box represents a bar in the designated time signature, and time values can be easily added or removed with a set of editing tools that are available from the top left hand portion of the window. An additional Toolbox can be called up with a click of the right mouse button anywhere on the screen, which allows for comprehensive editing of Pitches, Duration, Fills, Tempos, Note Shifting, Velocity, as well as a number of Editing, MIDI filtering and related parameters. Below this is a separate window containing a graphic tape transport display along with a menu of icons, which either act to enable/disable various functions or call up additional menus. Along the top of the screen is a set of icons that will drop-down the standard GEM menus available from any active window. The additional editing windows include Grid, Drum, Event, Tempo, Tape Manager, Mixer and Patch Library related functions, all of which can be moved, re-arranged and in most cases, re-sized for placement anywhere on the screen. All aspects of recording, playback and editing functions can all be carried out in realtime, and a built-in On-Line Help feature, accessed through the Help key, makes it easy to start using the program right away. MULTItude also supports MMC protocol for remote control of any Fostex or Tascam MMC-capable tape machine directly from the program. Extensive sync features include MIDI, MTC and Human tempos as well as SMPTE, which is supported in all formats, along with both E-Magic's Unitor SMPTE hardware module, and their Export module, enabling the program to boast support for 64 MIDI channels, with a maximum of 80 MIDI channel capability. A large-sized SMPTE/Bar position counter display can be called up and moved around the screen like any other window, a great added feature. A Library function allows you to store and recall sequences, tracks, sys-ex info, samples (Digidesign's Soundesigner, IBM .WAV and Atari .MOD formats), and patches, and, in what is to my knowledge a first for any major sequencer, MULTItude also supports integrated sample file playback within a sequence through the incoporation of a special Soundwave Track! Oktal also has a MULTItude Pro/Notation version ($595), which offers, in addition to all of MULTItude's features, an incredible number of notation functions that give you the ability to create, edit and print scores with true WYSIWYG (What You See *on screen* Is What You Get *on paper*) capability. A scaled-down version of MULTItude Pro, called MULTItude Intro ($120), is also available. The awesome number of MULTItude's features, functions, configurations and capabilities defies the limits of this space, but needless to say, Oktal has taken a great program and defied the if-it's-not-broken-don't-fix-it adage with twice-as-good results!

-Peter Donoso

Oktal 315 Rene-levesque East, Suite 110, Montreal, Quebec, CANADA H2X 3P3; (514) 844-3428.

KCS OMEGA VER. 5.0 ($299) IS AN ensemble of programs that all interact with each other, providing a comprehensive MIDI sequencing and notation system. This concert of editing and notation programs reside in Dr. T's MPE (Multi Program Environment) and revolve around the popular KCS sequencer program. In the course of its continual development over the years KCS underwent a welcome transformation a few years back from a predominately numerical-based program to a full graphic based interface, bringing its ease of use up to par with its many powerful features. KCS provides the main sequencing environment, with 48 Tracks and a 384 PPQ resolution for ultra-accurate recording. Apart from extensive MIDI system exclusive capabilities, support for polyphonic aftertouch and instant transport cue point shuttling, the program has recently added a Scrunch Edit feature, which can move events forward and backward in a track without changing its overall length, as well as



KCS Omega

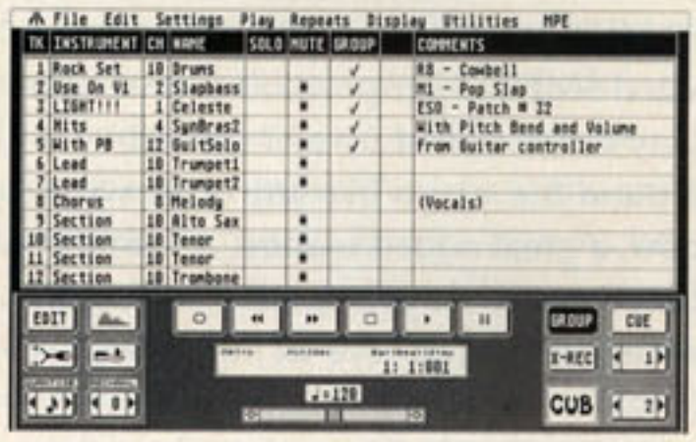
enhanced algorithmic event manipulation in its powerful Programmable Variable Generator (PVG). A new interactive Play menu now also allows realtime control of any sequence during Playback, but the real power still remains in

the ability of its related programs, which, although are capable of being independently run, function as an integrated, interactive environment that bears a resemblance to the computer world's increasingly popular movement towards an independent modular form, when run under the aforementioned MPE. All programs are automatically updated when a change is made in any one of them, and the user has the choice of saving memory by loading only the programs needed to work on the related aspects of their song. A leaner, less memory intensive version of KCS is also made available for systems with only 1 meg of memory. The interactive programs include GSE, their Graphic Song Editor, Tiger, their pianoroll-styled graphic editor, Quick Score, the notation and scoring program, and the aforementioned PVG, as well as a host of useful Public Domain music utilities. Moving between these environments is quite fast, and each program remains where you left it when you return, making it seem as if they are all different windows in the same program! All programs interact in realtime, and provide a well-oiled climate for editing, re-shaping and notating your sequence. SMPTE capabilities are fully supported with the addition of Dr. T's Phantom, which also provides an additional 16 MIDI channels, and all programs both remain uncopy-protected (for easy installation on a hard drive) and can be run in either color or mono. "Omega" is the 24th, or last word in the Greek alphabet, and although the notion that this fine consortium of programs is truly the end-all in sequencing packages may meet with some disagreement, it may well prove to be the last one you'll ever need to buy.

-Peter Donoso

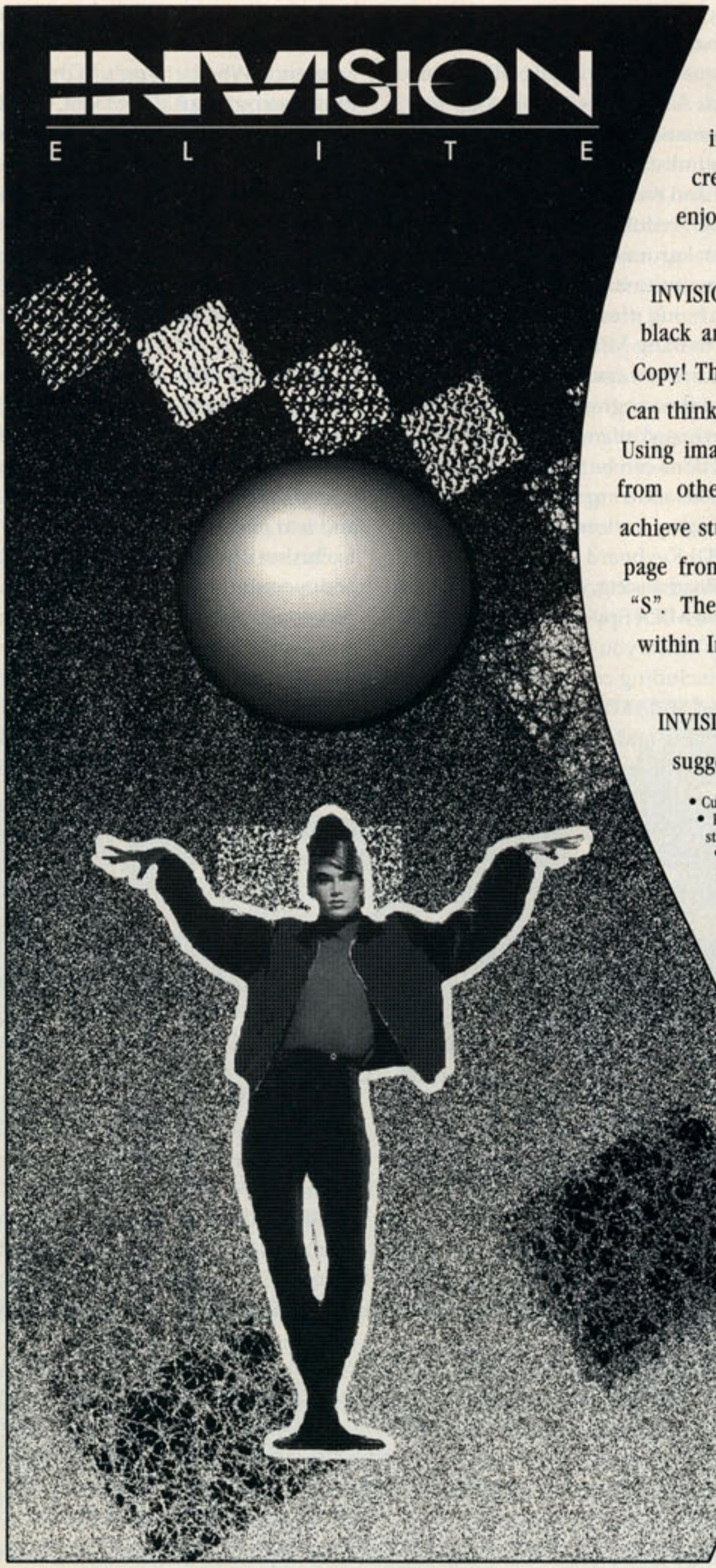
Dr. T's Music Software 124 Crescent Road, Suite #3, Needham, MA 02194; (617) 455-1454.

TIGER CUB VER. 2.0 ($139) IS A 24 Track sequencer that combines realtime graphic editing with a standard tape deck interface. Besides offering the user a number of the more popular expected sequencing functions through standard GEM drop-down menus, Tiger Cub also has a very useful scoring program built right in. Using Dr. T's MPE (Multi Program Environment), you can run any other Dr. T programs, such as their popular X-OR and Caged Artist synthesizer editor/librarian, without having to abandon Tiger Cub. The program also supports use of the ST's internal sound chip, providing a number of instrument sample files that can be assigned to any MIDI channel and triggered during sequence playback. Tiger Cub includes 20 MIDI Files of Bach compositions with the program. Standard music notation can be printed on most 9 or 24 pin printers, Atari lasers (in Diablo 630 mode), or the HP Deskjet and LaserJet series of laser printers. The graphic interface uses a visually attractive piano roll, somewhat reminiscent of the old piano players, and both real-time and step entry recording are supported, along with full graphic editing of notes, tempo, time signature and MIDI Control Change parameters. At 384 Pulse Per Quarter Note resolution, Tiger Cub is more than adequate for most applications. Other features worth mentioning include full MIDI File support, synchronization via Song Position Pointer, System Exclusive record, playback, load, save and editing capabilities, MIDI metronome support and quantization, including a percentage feature. Configurable drum kit and instrument lists provide a quick and convenient way to be up and running without expending a lot of extra time and energy on setup. The program requires a minimum of 1 meg and works in either color or mono resolution. All in all, Tiger Cub is an excellent and affordable entry-level program with some professional features, for anyone wishing to get their MIDI paws sharpened for music.



Tiger Cub

FINAL CUT (VER. 3.0 $89) IS A GOOD choice for the MIDI hobbyist or beginner who wants to learn the basics of using a MIDI sequencer. This program incorporates a number of the editing, timing, and control features of the more expensive programs without overly complicating things with lots of functions that are mostly utilized by professional production studios, while managing to remain intuitive and rather fun to use. Cut, Copy & Paste, Transpose, Quantize, Split, Filter and Merge are among the program's standard functions and Version 3.0 has added some great new features. The Step Editor, which successfully combined a number of popular functions of the Event List and Graphic Screen Editor features into one comprehensive Edit window, has now evolved into the Note Editor. You can now drag notes, view multiple Tracks, and switch between Tracks for editing, all from within this one editor. The program also now offers double the amount of viewable measures at any one time, a Loop Pattern Record mode, and has a constant cursor position display which indicates the standard note name, octave, and MIDI note number for all notes. But wait—there's more! The Copy /Merge function now offers the option of deleting the Source Tracks so an empty track is no longer necessary. A brand new Measure Editor has been added, where Tracks can be edited in Regions instead of being limited to the entire Track. A Multi-Take Mode has also been added, and it is now possible



DMC Publishing is proud to announce the release of INVISION Elite. INVISION Elite has many features which make it an indispensable tool to anyone serious about creativity and irresistible to anyone who likes to enjoy themselves while working.

INVISION Elite allows you to create sophisticated black and white raster images. Stretch! Skew! Bend! Copy! Thin! Thicken! Rotate! Outline! Anything! If you can think of it, chances are INVISION Elite can do it.

Using images that you create in the program, or ones from other sources, you can manipulate graphics to achieve stunning visuals. For example, you could load a page from Calamus and bend it into the shape of an "S". The graphic on the left was produced entirely within Invision Elite.

INVISION Elite unleashes your creativity. The suggested retail price is US $129.95, CDN. $149.95.

- Custom Iconic Interface
- Powerful intuitive design featuring the Icon Bar allows you to get started in minutes.
- Instant Access Panning makes working with large images a joy.
- Keyboard equivalents.
- Fully definable snap function, with single pixel increment capability.
- Coordinate memory.
- Horizontal and vertical lock.
- Multiple Image handling; load up to 25 images at once.
- Virtually unlimited image size.
- Extensive Commands: lines, curves, freehand, stipple, graduated fills and ellipses, squares, rectangles, circles, ellipses, and polygons.
- Powerful, unlimited size, user definable patterns.
- Undo and redo feature.
- Fast and accurate configurable magnification.
- Innovative Block Functions: copy entire image, rectangular or irregular areas.
- Paste blocks using any of four copy methods: Transparent, Cover, Inverse or Overlap.
- Create automatic and custom masks.
- Scale, skew, mirror, and rotate, even in one degree increments.
- Transfer blocks and masks to and from windows.
- Ultra fast special effects: Inverse, Thicken and Thin, Outline, Smooth using white or black, Erase stray dots.
- Image Manipulation: Bend, Distort, Crop, Insert & Remove sections.
- File Exchange: Atari Clipboard Support. Color file import. Calamus Vector Graphic import.
- And much, much more.

An INVISION Elite demonstration version is available for downloading from GEnie and Compuserve. INVISION Elite is a welcome addition to any graphic workstation. Please place your order now.

2800 John Street, Suite 10
Markham, Ontario, Canada L3R 0E2
Tel: (416) 479-1880 • Fax: (416) 479-1882
GEnie: ISD • Compuserve: 76004,2246
Delphi: ISDMARKETING

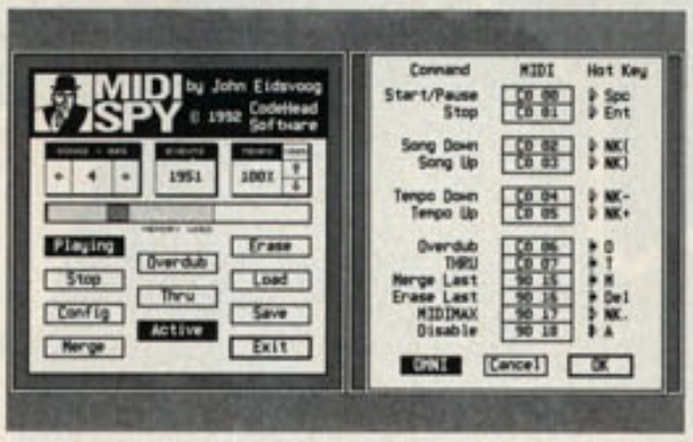
DMC PUBLISHING

to use an external MIDI keyboard or sound module patch as a metronome. Final Cut can also be slaved to other MIDI clocks, offering the possibility of synchronization with tape decks, and features its own "tape machine" interface with all the usual transport controls that are easily accessed with a click of the mouse. It even has animated reels which spin during play, record, and fast forward/rewind modes. This animation does not interfere, however, with the timing of MIDI events and can be turned off by the user, if desired. Final Cut comes on one double-side floppy disk, is not copy protected and will run from floppy or hard disk in both medium and high resolution.

-James Port

Legend Software Systems 3508-34A Avenue, Edmonton, Alberta Canada T6L 5E8; (403) 450-0736.

MIDI SPY ($79.95) IS A UNIQUE MIDI Sequencer that Records and Plays in the background! As a musician, it's never easy to remember to push that button *before* you start recording. Many times you'll just start playing without realizing you're about to create something you should capture. With MIDI Spy installed, you can forget about these things—you don't have to be a recording engineer or try to anticipate your moments of inspiration and end up losing yet another valuable musical idea because your sequencer wasn't ready to record. MIDI Spy is always listening! Offering a form of MIDI multi-tasking, MIDI data can be recorded or played back at any time, from either the desktop or from within GEM or TOS programs, regardless of whether the MIDI Spy dialog box is open or not. The program can catalogue and process an amazing 999 songs and has standard GEM dialogue boxes to provide control through either the mouse or ST keyboard. You can load/save single Songs or Sets of Songs in MIDI Spy format in addition to Multitrack recordings in *all* of the current MIDI standard formats, allowing you the convenience of being able to exchange recordings with any other sequencer supporting MIDI standard files. A definable Record Gap feature automatically divides your recordings into individual songs for easy retrieval and recordings can be Layered through Overdubbing and Merging of songs. Background operation of the program remains unaffected by the current program being presently run in the foreground, making MIDI Spy rock-solid. Hot keys are always active, allowing control of the program from your computer keyboard at any time, and MIDI Spy functions can be assigned to MIDI commands, allowing full control of all sequencing operations directly from your MIDI Keyboard Controller! You can autoload a song, or set of songs, and even have MIDI Spy start playing automatically when you boot up. Song information, including copyright notice, can be entered and saved with your songs and any Song and Track names from MIDI files will appear in the song information box. Another great feature is the ability to Chain songs together to produce a continuous "juke box" type of playback—again all unaffected by the current operation of your computer. A clever Thermometer-type bar display shows memory available and memory used both by the current song and the entire set of songs, and Tempo can be adjusted from 10% to 300% of the original tempo. There are special hooks in the program which work in conjunction with the included Captain Hook utility for helping to eliminate MIDI overflow, as well as features which can be used with CodeHead's MIDI Max software, and the program can be run as a desk accessory. Whether you're a professional musician or a music hobbyist, MIDI Spy is a useful and handy sequencer that gives you the freedom to capture the moment when the muse is indeed upon you!



MIDI Spy

-Peter Donoso

CodeHead Technologies P.O. Box 74090, Los Angeles, CA 90004; (213) 386-5735.

MIND EDIT ($69) ALLOWS FULL editing, playback and recording of Standard MIDI files. All events provided in the MIDI file spec can be entered and edited, including copyright notices, cue and text events, lyric events, and System Exclusive messages! Sequence playback and recording are entirely background processes, which means that you can edit events or even go work in your word processor or sample editor while a sequence is playing, with never a glitch or pause. Multiple ports, MIDI clock and MIDI Time code are all supported and both tempo and SMPTE time based tracks can be created or edited. Sequence files can be converted from format 0, 1, or 2 and the program provides a fully automatic integrity checking and correction for all files, making it ideal for those who want to discover why some some programs crash or write erroneous MIDI files. An event list editor has all the editing, quantizing, and mask display functions needed to quickly create and edit your music, and a Graphic Track and Event Editor for cutting, copying and pasting. There are even Input Drivers that will *fully* convert sequences between Cubase and Notator files for effecting a complete information transference. Resident MIDI (RM) provides a fully multitasking environment for use along with a number of previously MIDI-incompatible application accessories, and features complete background processing and compatability with other MIDI software products. Realtime screen updates draw around other applications' windows, processing continues whether an RM window is

open or not, and new sets can be loaded while a previously loaded set is still playing. MIDI output can be directed out to the Atari's MIDI ports, passed to another running sequencer application, to serial and parallel ports, or selectively to any combination of the above. All 48 tracks can be controlled independantly at different tempos, allowing "DJ" style overlapping of song starts and endings, or tracks can lock to other tracks, waiting for or rounding off to the nearest defined beat. Tracks can be started, stopped, looped, loaded or erased based on incoming MIDI data, allowing sequences to follow what you are playing on your instrument. Lick Recognition allows you to cue a section of a song with a "lick" or "fill", instead of just a note. Masters can be assigned a count, so that it will generate a certain Slave the third time the master occurs, for instance, allowing you to use one controller to step through various output events. In addition to the ability to map events you play on your instrument, you can also map the output of a sequence, allowing 1 MIDI channel's sequence to play on 6 different channels, or an event in a sequence can change rerouting maps or start other sequences. A complete generic bulk librarian is built in, which allows you to edit SYSEX messages and requests in decimal, hex, and binary. And the Permanent Record feature will catch anything you play anytime your compuer is on in a circular buffer, so you'll never miss your first inspired performance.

-Fadi Hayek

Mind Over MIDI 302-9131 Capella Drive, Burnaby, B.C. V3J 7K4; (604) 444-4424.

Quick Mention

MIDISOFT STUDIO ($99) IS A 64 Track sequencer with a host of easy to use functions, including real and step time editing with cut-and-paste features, for the beginner interested in getting into MIDI recording.

Midisoft P.O. Box 1000, Redmond, WA 98562; (206) 881-7176.

Profile On: CHESTER THOMPSON

By Peter Donoso

AS A MEMBER OF THE SUPERGROUP GENESIS since 1976, Chester Thompson has continued to pull a stream of rhythmic bags out from beneath his sticks and pedals, each one chock full of innovative, rock-steady, drivin' rhythms, lined with years of discipline earned from staying right on it with such monster players as Frank Zappa and Weather Report, and each one arranged in constantly surprising and refreshing new ways. Being the "other" drummer alongside Genesis' spotlighted front man Phil Collins has proven to be both a rewarding friendship and a challenge to keep things fresh. The fact that so much talent is continually shared and communicated so fully between two such impressive artists of the same instrument is enough to make other double drummer duos envious. When Collins is on keyboards or fronting a number, Thompson is the one who provides that all-important pulse, and when Phil Collins went on tour to promote his solo album, he knew that the same excitement captured on his original studio tracks had to be there on stage, night after night. The man he wanted to insure that it would indeed was Chester Thompson.

On his own recent solo album, *Make A Joyful Noise*, Mesa/Blue Moon recording artist Chester Thompson has given us an opportunity to gain a better appreciation and a wider view of the breadth and diversity of musicianship this rather soft-spoken yet fiercely talented composer/arranger has revealed within the span of these 11 tracks.

Not surprisingly, when Thompson's foot would begin its sudden, unbidden tapping to the initial pre-productions of this latest work, he wanted to make sure he had a dependable, accurate way of capturing the rapid fire bursts of inspirational ideas and musical phrases that could suddenly show up at any time, whether on the road or right at home. Being able to have his pick of any computer, he wanted a machine that would always be right in the pocket alongside him—day after day, night after night. The computer Chester Thompson wanted was an Atari.

His go-anywhere, be-ready-at-a-moment's-notice gear consists of an Atari STacy4 portable laptop, with 4megs of RAM and a 40meg internal hard drive, running Steinberg's powerful sequencing package, **Cubase**. Thompson needed a computer he could rely on to record his ideas without having to spend a lot of time learning how to use it. He knew the sequencing program also had to be designed to work with a minimum of hassles. It needed to be flexible enough to approach his songs from a number of different musical perspectives and intuitive enough so he could keep the flow of ideas uninterrupted by annoying run-ins with confusing procedures and thick-paged manuals. An Atari STacy and Cubase seemed like a match made in MIDI heaven.

A good portion of the actual material for the album came together on the recent Phil Collins solo tour. Having previously recorded some of the songs using a Korg M1, Thompson simply loaded the pieces off of the keyboard's built-in sequencer and into Cubase. Although he found the M1 to be a good scratchpad, it became obvious that pulling all the various pieces and ideas together was a lot easier to do on his Atari .

"Using Cubase was just great. I could do a key change on one section, play with ideas for melodies and completely change the order of it all. Every song got a thorough going over and I actually got to do all my pre-production right on the computer."

The fact that Thompson feels dubious about his skills as a keyboardist didn't seem to be a handicap when it came to laying down his ideas. Having a solid foundation in harmony and music theory, he found he could use Cubases' variety of editor windows to easily build on his initial ideas, fatten chord voicings and layer his arrangements as he went around the song each time. Having the ability to map a number of the sequencer's basic transport functions to the M1's keys was also a great way to keep his fingers centered on the music.

Note: Some of the information in this profile originally appeared in an interview printed in *Club Cubase*, a newsletter devoted to Steinberg/ Jones' **Cubase** sequencing software.

For entering drum parts Thompson uses a set of Kat MIDI drum pads triggering the drum sounds on either the M1 or Emu's new Proteus Procussion module. First he'll lay down the basic groove, add some quantization and use it as a guide. Then, when everything sounds right, Thompson records it again live without any quantizing to give the parts an authentic feel. Owing to the fact that he's really a live player, Thompson appreciates the way Cubase works right alongside his collaborative sessions as well.

"The real value of Cubase for me is how I could use it as a tool for working out my arranging and composition ideas with some of the musicians who are actually on the album. We'd be playing along on the tune and the keyboard player would come up with this great chord. They couldn't tell me exactly what it was—it would just be one of a number of phrases, just all part of the natural flow. I'd pop up the Score editor and the mystery chord would be right there. Can't beat that kind of feature for checking out what really went down. Being able to get printouts for the scores to pass around among the players at the session was also a big help".

In closing, Chester Thompson narrows down the reasons why he finds it so enjoyable using his Atari with Cubase. "I love being able to take the computer with me to the studio or on tour. Even if I've been away from the STacy for a few months and I find, by the time I finally get a chance to come back to the program, that I may not really remember how I did certain things, Cubase still gives me lots of alternative ways to get that very same result. It's the first time I've really ever found something that works from basic intuition. Whatever works for the way you think, guaranteed you'll find it in the program, and get it to really work for you right away. That ability of the program to adapt to your way of thinking really knocks me out."

SMPTE Sync Units/MIDI Expanders, Patchbays, Mixers, and Controllers

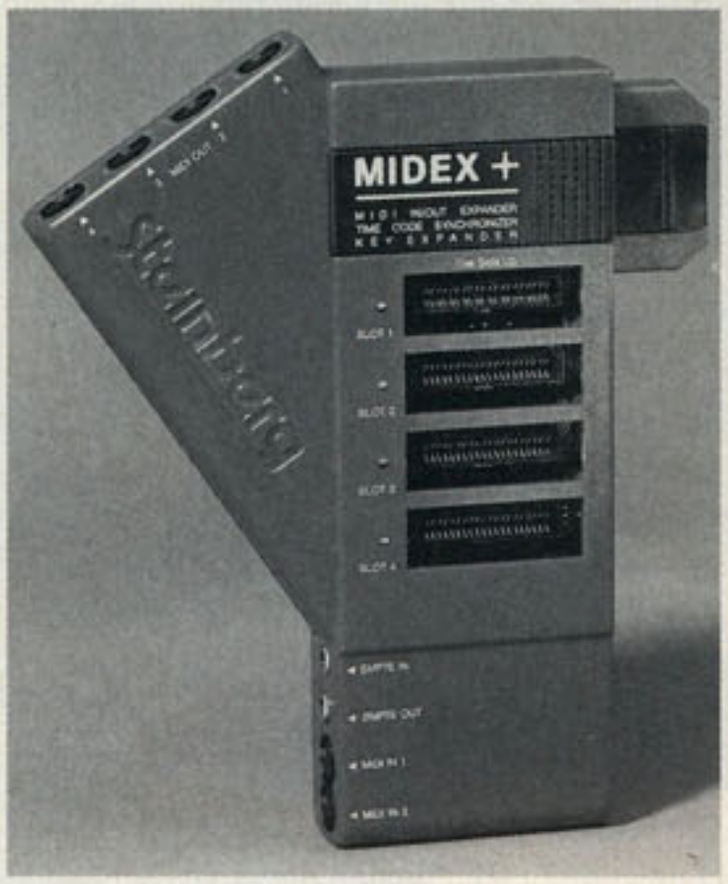
SMPTE (SOCIETY of MOTION Pictures Television Entertainment) Time Code allows you to slave your computer's sequencer to your external multi-track tape recorder. You need to reserve one track (usually the last one, to assure the best isolation) for "striping" SMPTE onto. You are actually recording sound, in the form of a fixed pitch, that's generated by your SMPTE sync device onto this track.

Some SMPTE units even have a volume knob to insure a proper level of signal output, but you can also make adjustments from the tape recorder's input volume control as well. You usually record the signal at -10db, and when your tape machine plays it back the SMPTE sync unit converts this audio signal into a MIDI-related pulse that tells your sequencing program when to start and stop. Use this to sync vocals or any other analog, non-MIDI related musical instrument for getting a perfect match to your MIDI sequence.

Originally developed by NASA to track space objects, it was later adopted by the movie and television industry as *the* standard, reliable method of assuring the sound track (foley sound effects and voice-overs) always synced exactly to the film picture. A number of sequencer companies took advantage of the Atari's internal clock capability to "chase," or lock to sync, *directly* (the Atari is the *only* computer that can do this) through the Atari's cartridge port (Midex Plus, Unitor) or RS232 port (SMPTE Track)—thereby bypassing the audio-signal-to-MIDI conversion process.

MMC (MIDI Machine Control), an exciting new development, has recently been added to the MIDI spec, enabling remote control of all your MMC compatible tape machine's functions through your MMC-supported sequencing software. In this section we have also included information on MIDI Port Expanders, MIDI Patchbays, MIDI Mixers and MIDI Control Stations—all of which either work in conjunction with or extend your sequencer's capabilities to enhance its overall performance.

—Fadi Hayek



MIDEX+

Sequencer-Related SMPTE Units

MIDEX PLUS ($599) IS A MULTI-functional Atari Cartridge Port-based unit that adds an additional 4 MIDI Outs and 2 MIDI Ins for a total of 80 MIDI channels, assignable through Steinberg Jones' Cubase sequencing program. It Reads/Writes and Regenerates all SMPTE formats and has 4 individual Cartridge expansion ports for additional hardware keys and third-party cartridge based peripherals, (excluding Spectre GCR). Port switchable selection for any cartridge is enabled through a desk accessory.

teinberg-Jones 17700 Raymer Street, Suite 1001, Northbridge, CA 91325; (818) 993-4161.

THE PHANTOM ($199) IS A SYNC unit contained within a small RS232 serial modem port cartridge that Reads/Writes SMPTE and FSK time codes. It converts SMPTE to MIDI clock sync and is specifically intended for use with the KCS Omega sequencing modular ensemble. In addition to the RCA In/-Out connectors, the unit also offers an additional MIDI Out for an added 16 additional MIDI channels.

Dr T's Music Software 124 Crescent Road, Suite #3, Needham, MA 02194; (617) 455-1454.

UNITOR ($495) CONNECTS TO THE Atari cartridge port and provides Creator/Notator sequencing software users with Read/Write SMPTE Time-code capability in all four formats—with conversion to MIDI Clock Sync. It also provides an additional 2 MIDI Outs and 2 MIDI Ins for total of 46 possible MIDI

UNITOR2

channels, assignable via either sequencer software. An additional cartridge port for the Creator/Notator sequencer hardware protection key is included. A driver is also available for use with Steinberg-Jones' Cubase sequencing software.

E-Magic—Distributed in the U.S. by:
Ensoniq 155 Great Valley Pkwy, Malvern, PA 19355; (215) 647-3930.

Stand-Alone SMPTE Units

PPS 2 ($49.95) READS/WRITES SMPTE & converts SMPTE Time Code to MIDI, utilizes Song Position Pointer, and reads /writes JLC Smart FSK Sync. Optional desk accessory software ($14.95) allows control of read/write features. Uses supplied AC Power adaptor.

JL Cooper Electronics 1931 Pontius Avenue, Marina Del Rey, CA 90025; (310) 306-4131.

SYNCMAN PLUS ($249.95) IS AN improved version of the original Syncman. This small, compact unit reads/-writes all SMPTE formats, supports Song Position Pointer and converts SMPTE to MIDI timecode. An optional desk accessory ($24.95) enables initiation of read/write functions. Features a knob to control outgoing level of volume signal. Uses an AC adaptor.

MIDIMan 30 North Raymond, Suite 505; Pasadena, CA 91103; (818) 449-8838.

SYNCMAN PRO ($699.95) IS A ONE-space rack-mounted unit containing a Swiss army knife array of timecode functions. It Reads/Writes and re-Stripes SMPTE Timecode in all formats, including JAM, and HOUSE syncs, all of which are commonly used in video post-production, and features a large 8-digit LED window that displays SMPTE Timecode in hours/minutes/seconds/frames. An exclusive Spot-Lock video sync allows synchronization of VCRs and sequencers without sacrificing any audio tracks on the video. By printing a header of longitudinal SMPTE code in the beginning of the video tape, the Syncman Pro can phase lock to the

Syncman Plus

video frame signal, achieving sync without using an audio track. SMPTE to MIDI Timecode conversion features support for Song Clock (MIDI clock pulse which functions as tempo guide) and Song Position Pointer. In addition, up to 768 individual Foley hits (MIDI-enabled triggering of sampled sound effects synced to a SMPTE-designated video frame number) can be Recorded, Played Back and Punched In/Out using a common On/Off pedal connected via the 1/4" phono jack input located on the back of the unit.

MIDIMan 30 North Raymond, Suite 505, Pasadena, CA 91103; (818) 449-8838.

DATA SYNC ($349.95) FEATURES MMC/ADAT sync to MIDI Timecode capability. Specifically designed to read the Alesis ADAT's pre-formatted Super VHS cassette and translate the bit stream encoded in the format to MIDI Time-code (somewhat like a floppy disk drive locates and reads disk sectors) without having to dedicate sync code to a separate track. As an added bonus, the unit also handles MMC protocol, effectively providing remote control of the ADAT through any sequencing software which supports MMC. AC power supply is included.

JL Cooper Electronics 1931 Pontius Avenue, Marina Del Rey, CA 90025; (310) 306-4131.

FOSTEX MTC-1 CARD ($299) allows your Atari computer to have full remote control of a Fostex R-8 ($2800) 8-track 1/4" reel-to-reel deck with the Fostex MTC-1 card installed, via your sequencing software. Supported sequencers include Steinberg/Jones' Cubase, E-Magic's Notator and Oktal's Multitude, which allow full-transport control, Track Arm and Auto-Punch In/Out. The MTC-1 card also adds MIDI/SMPTE and SMPTE/MIDI conversion capability to the R-8, utilizing Fostex's exclusive Proprietary MIDI Machine Control command protocol.

Fostex Corporation 15431 Blackburn Avenue, Norwalk, CA 90650; (213) 921-1112.

MIDI Port Expanders

MIDI port expanders are stand-alone external hardware units (or in some cases, integrated multi-purpose units such as the Midex Plus and Phantom products) that take advantage of sequencers which support multiple MIDI Ports. They allow you to assign these additional MIDI In/Outs to any number of tracks by designating each 16 channels to an A, B, C system of identification, effectively multiplying your basic 16 MIDI channels two to five times, depending on the number of additional MIDI ports offered. Having this capability can really come in handy when working with a number of multi-timbral MIDI units that quickly eat up MIDI channels.

EXPORT ($195) IS A 3 MIDI OUT expansion interface which connects to your Atari's cartridge port and is accessed through the Creator/Notator series of sequencing packages. In addition to the ST's MIDI In/Out, any sequenced tracks can also be assigned to any of the additional MIDI ports, designated by a A-B-C-D label for quick reference indicating their respective assignments.

E-Magic—Distributed in the U.S. by:
Ensoniq 155 Great Valley Pkwy, Malvern, PA 19355; (215) 647-3930.

16 PLUS CARTRIDGE ($10) IS A small device consisting of a female DB-9 connector truncated to a standard female MIDI plug on the other end, providing you with an additional 16 MIDI channels through the use of your computer's RS232 modem port. Supported sequencers include Cubase, Notator and a few others that have since been discontinued, such as PassPort's Master Tracks Pro ST, as well as the On Stage MFP unit.

Tran Tracks 350 5th Avenue, Suite # 3304, New York, NY, 10118; (201) 383-6691.

MIDIPLEXER ($299) IS DESIGNED TO work specifically with Barefoot Software's popular SmpteTrack and EditTrack sequencing software, as well as their Easy Score scoring package,

MIDIPLEXER

adding three MIDI Outs and a mergable MIDI IN port contained within an external unit that connects to your Atari's DMA port.

Barefoot Software 19865 Covello Street, Canoga Park, CA 91306; (818) 727-7143.

MIDI Patchbays

MIDI patchbays provide you with an easy way to re-direct MIDI In/Outs without having to un-plug and reconnect your MIDI cables, and in some units, the additional capability to merge two or more MIDI Ins for simultaneous keyboard controller and computer input. Some units also offer control over a number of powerful MIDI-related features, such as MIDI filtering, remapping and other extensive MIDI capabilities.

MX-8 ($395), ONE OF THE MOST widely successful and versatile MIDI patchbay units available, has 6 MIDI Ins (of which any two can be merged) that can be routed to any of its 8 MIDI Outs. The unit features a 2 line, 32 character LED display, with 50 programmable patch locations, allowing storage of MIDI In/Out configurations, patch names, and a host of powerful MIDI filtering capabilities, including controller re-mapping, crossfading, transposing, and MIDI delay & digital companding effects, as well as being able to save up to eight program change commands with each patch. The optional impressive desk accessory ($49.95) enables control of all the unit's functions, as well as saving and loading an entire bank of 50 patches. An outstanding aspect of this well-designed and attractive Editor/Librarian software features a 128 note piano keyboard display which makes setting up your multi-zoned splits a breeze.

Digital Music Corp. 5312-J Derry Avenue, Agoura Hills, CA 91301; (818) 991-3881.

KMX16 ($579) IS A 15 MIDI IN/16 MIDI Out patchbay with merging on Inputs 1 and 2, which can store up to 99 patch configurations and can recall programs via MIDI. The KMX8 ($319), an eight MIDI In/Out version is also available, and both units offer included Atari

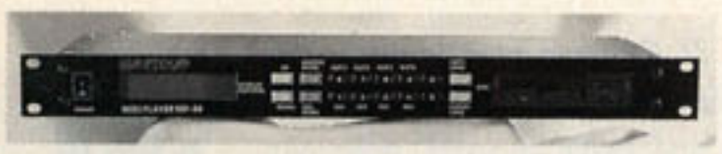
KMX-8 & KMX-16

graphic editing software to provide hands-off programming and control of either unit's functions.

Ensoniq 155 Great Valley Pkwy, Malvern, PA 19355; (215) 647-3930.

MP-44 MIDIPLAYER ($1199) IS A single space rack mount unit which combines a 4 In/Out MIDI patchbay with a 3.5" floppy disk drive that will record and playback standard MIDI files and Sys/Ex data at 384 ppq (pulses per quarter note) in either Atari or MS-DOS compatible format, with 1 meg of on-board memory, expandable to 8 megs. The patchbay, which can have any of its 4 MIDI Outs assigned to any sequence's individual tracks, also features merging capability of up to 4 MIDI Ins, and offers

up to 4 split zones, +/- 5 octave transposition, program change, velocity, volume, and control change filtering for 256 individual patch storage locations. The unit features a 2x40 character LCD readout display, and MIDI clock with Song Position Pointer support. A panic button for stuck MIDI notes is also included. The MP-88 ($1440) has the same features, but gives you 8 MIDI In/Outs. An optional APM-KIT ($206) stores your sequence data while the unit

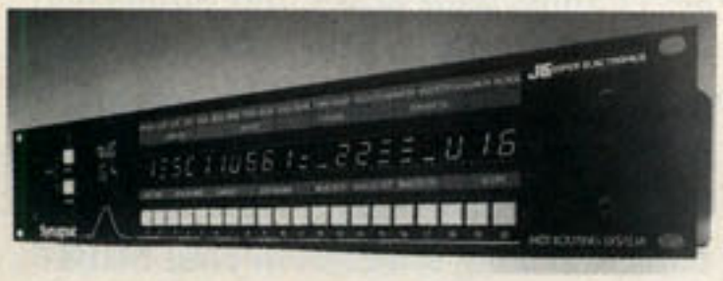


MIDITEMP

is powered off for up to two weeks. There's also the PMM-88E ($799) and the MT-16 ($1499), an 8 MIDI In/Out and double rack space 16 MIDI In/Out patchbay version respectively, which lack the MIDI sequence file features but can be retro-fitted later with a floppy disk drive, and upgraded if desired. Future developments on the way for '93 include ST editing software for these patchbays, interfaces specifically designed to allow the ST to act as a master control for a number of units, linked via optic fiber cable, and a host of other exciting options.

Corrigan Marketing 114 Lakewood Circle, Smyrna, TN 37167; (615) 355-8756.

SYNAPSE ($1,195.00) 16x20 MIDI patchbay with merge on 4 Channels, MIDI Filtering & Processing Displays



Synapse

MIDI TimeCode, and 100 presets. An optional desk accessory accesses functions and acts as an Editor/Librarian for set-ups via Sys-Ex. Also has SMPTE Read/Write capabilities.

JL Cooper Electronics 1931 Pontius Avenue, Marina Del Rey, CA 90025; (310) 306-4131.

MIDI Mixers

MIDI mixers vary in the way they approach automated mixing. Some use MIDI to control VCAs (Voltage Controlled Amplifiers) connected to the MIDI Mixer unit's 1/4" input/output plugs and allow the unit to function strategically between your audio mixer and tape deck. This method offers a form of MIDI-controlled automated mixing often available only on large, expensive pro studio boards. The accompanying software often features a realistic graphic display of an actual audio mixer, complete with faders and pots, allowing you to record, playback, and otherwise manipulate volume, mute, and EQ functions (and even panning in some units) through your computer.

The other basic type of unit contains a number of actual hardware faders that can be assigned to control any MIDI parameter, including MIDI volume, mute and panning, or any one of a number of other MIDI Control functions.

NICHE AUDIO CONTROL MODULE ($499) is single rack space, 8 channel MIDI controlled automation system that uses its own patented alternate method to the usual VCA approach of controlling volume to achieve its remarkable signal-to-noise ratio (better than 95dB), awesome frequency response (sensitive to within .1dB within a 30 to 30k cycle range) and incredibly smooth transitions of all volume changes. The unit has 8 individual 1/4" Ins and Outs and a single Mix Out for combining all Inputs, allowing it to be also used as a dedicated mixer.

Russ Jones Marketing 17700 Raymer Street, Suite 1001, Northbridge, CA 91325; (818) 993-4161.

MIXMASTER ($499) IS AN 8 CHANnel single space rack mount MIDI automated unit which will allow control of volume input/output. Designed to be connected to your mixer's Insert points, the unit utilizes 1/4" TRS input/output plugs for use with Insert cables (a double-banded stereo jack connected to two 1/4" mono jacks in a Y-cable) providing dual signal in/out convenience in one plug. You can program the unit to respond to any MIDI Continuous Controller and features either 4 channel stereo or 8 channel mono capabilities.

JL Cooper Electronics 1931 Pontius Avenue, Marina Del Rey, CA 90025; (310) 306-4131.

MIDI MIXER 7S ($595) IS A ONE rack space unit with 7 Stereo/Mono Inputs (for stereo or mono 1/4" jacks) and 2 plugs for Left/Right Output. The

MIDI Mixer

units also boasts 2 Stereo Effect Send/Returns, 8 Stereo Noise Gates, separate Headphone Output with volume control, separate Main Volume control, Dual Input Gate/Peak LED indicators and trim pot controls for all Inputs and Effects Send/Returns. MIDI controllable features include volume, muting, panning, treble/bass, and effects send for each channel, as well as Gate Level, attack and decays. A desk accessory is also included which displays a graphic mixing console, offering control of all features and functions from your Atari.

Mark Of The Unicorn Inc. 1280 Massachusetts Avenue, Cambridge, MA 02138; (617) 576-2760.

FADERMASTER 8 ($299.00) A MOVable fader hardware unit that allows each fader to be MIDI controller assignable. The hardware interface uses optional desk accessory setup software, which features a snapshot load/save function for recall of all fader positions

FADERMASTER

for automating mixes of software sequenced tracks. Control also covers dynamic control of any and all MIDI parameters (such as volume, panning, sustain, etc.) during sequencer playback. Powered by an included AC adaptor.

JL Cooper Electronics 1931 Pontius Avenue, Marina Del Rey, CA 90025; (310) 306-4131.

MIXTAB ($550) 8 CHANNEL TABLEtop unit with hardware fader controls and a variety of knobs that you can assign to various MIDI functions. A clever cycle effect using shifting colors displayed on a single LED located within each row of controls indicates exact parameter position for both present and previous settings, and the unit can store up to 100 settings in "snapshot memory." Although optimally designed to work in conjunction with up to 3 Fostex's DCM100s (see below), the unit can also be well-suited as a standalone MIDI mixer/controller.

Fostex Corporation 15431 Blackburn Avenue, Norwalk, CA 90650; (213) 921-1112.

DCM100 ($799) A SINGLE-SPACED rack-mounted mixer that features a 1/4" headphone jack with volume control and 8 knobbed front panel for controlling its 8 TRS 1/4" line inputs, allowing the unit to be configured as either an 8 channel stereo or 16 channel mono mixer. In addition there are also 2 effect sends and 2 effects stereo returns, high & low EQ, pan position and master output—all of which can be placed under full MIDI automated control. This can be done through one of three ways: the Fostex's MIXTAB unit or, alternately, a hardware or software-based sequencer. Presently supported are mixer maps for Cubase and Notator— available upon request.

Fostex Corporation 15431 Blackburn Avenue, Norwalk, CA 90650; (213) 921-1112.

MIDI Control Stations

MIDI control stations offer a convenient hardware version of your sequencer or digital audio software's graphic "tape transport" controls. Some units include additional hardware controls, providing a more comfortable alternative controller to your mouse for quick and effective shuttle editing of your sequences and digital audio samples. Alternately, they may provide additional controls for playing sequences live on stage.

MEDIA CONTROL STATION ($269.95) the slick new successor to JL Coopers' popular CS-1 unit, which offers the same MIDI Transport Controller functions within a sleeker unit taking up less space. Uses optional desk accessory software to access all features, including the Shift key-based subfunctions of the hardware unit. The unit requires no external power.

JL Cooper Electronics 1931 Pontius Avenue, Marina Del Rey, CA 90025; (310) 306-4131.

CS-10 ($1,295) COMBINING ALL THE features of the Fadermaster with the convenience of a Media Control Station, this powerful one-piece integrated unit gives the user hardware control of all basic functions for such digital audio workstations as Digital Master EX. An optional CS-10M ($100) MIDI adaptor allows the CS-10 to also control both hardware and software MIDI sequencers as well. External power supply included.

JL Cooper Electronics 1931 Pontius Avenue, Marina Del Rey, CA 90025; (310) 306-4131.

ON STAGE ($129) THIS INGENIOUS unit allows those musicians who use their ST on gigs to manage their sequences the luxury of being able to leave their monitors home. The unit, which plugs into the parallel port of your computer and communicates with its own included software, consists of a 3' cable connected to a small housing that features 8 separate LEDs designed to provide all the information a performer needs to know concerning which set of sequences is presently loaded. Since the unit executes all its sequence from RAM, shuffling between songs is fast and simple, and memory constraints are eliminated since the unit can also load songs over those previously played, even while another song is playing. The On Stage's software consists of On Stage Edit, which allows you to set up lists according to 4 bank sets (with up to 8 MIDI sequence files per set), as well as set volume, tempo, key and MIDI channels, and On Stage MFP, which actually imports your pre-configured sets and also provides remote control of play, stop, pause, forward/rewind and both bank and song select from your MIDI keyboard.

Tran Tracks 350 5th Avenue, Suite # 3304, New York, NY 10118; (201) 383-6691.

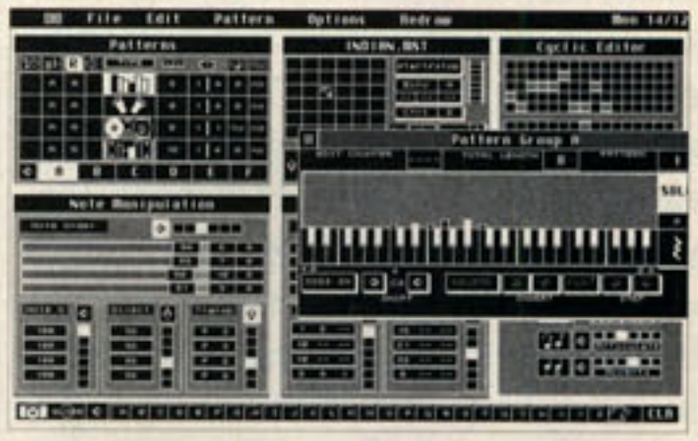
Algorithmic Composers

WE USE ALGORITHMS (OR *algorism*, after *al-Khowarizimi*, the 9th century Persian mathematician attributed to formulating their many applications) all the time—probably without even being aware of it—to make even simple things such as adding and multiplying numbers easier and faster by avoiding a step-at-a-time procedure. When adding a group of numbers you often *carry* the second place value of any sum that exceeds a single digit "over" to the next column of figures. If we wanted to add 69 + 59 + 49 + 39, for instance, we would start by arranging them in a column, then add the first column (9 + 9 + 9 + 9 = 36), *carry* the 3 over and add it to the next column. The alternate method would require starting with the number 69 and adding 1 to that number 59 times, then taking the result and repeating the same procedure, until all three numbers had increased 69 by 1 a total of 147 times, or 216. Both methods yield the same answer, but the first is by far the fastest!

Algorithmic composers can also offer a sort of musical "shortcut". Though falling far short of being able to produce an entirely natural, "human" sounding composition, they can still be a valuable tool for generating alternate variations of musical passages (or even totally different musical ideas) that may reveal musical possibilities a composer might not have otherwise thought of, or inspire them to move their work in totally new directions. The same holds true for programs that imitate the popular home keyboard "one finger" feature, allowing you to compose original melodies over drum, bass and chord accompaniments that are automatically generated for a given set of entered chords and musical style. They can also serve as a way of learning *what* defines a particular style of music—how one type of bass line and rhythm, for instance, gives you a Latin feel, while another gives you a Blues Shuffle.

You may think it a little strange to be using your personal computer as a sort of interactive "Muse" for inspiration, but then music itself actually has a lot to do with mathematics. This is not to say that an art steeped in feeling and emotions can be simply reduced to a mere set of formulas, but it does play a larger underlying role than we often realize. Who says math can't be fun?

-Peter Donoso



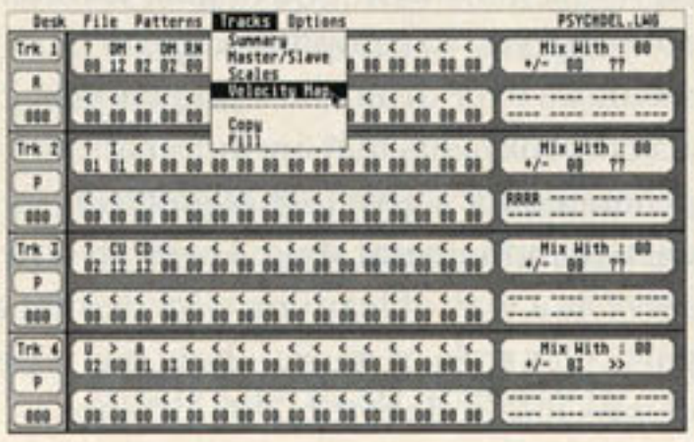
M from Dr. T's Music Software

M ($199) OFFERS A VARIETY OF ways to create any number of new and sometimes astonishing variations, which you can also change and further edit in *realtime*. A main work window features a tiled display of 5 movable windows, each of which contain a variety of buttons which function in various ways: some are either on/off, toggled between two positions, changed numerically or combine both button and numerical functions, while others function as range bars or are moved as sliders. The Pattern window has 5 locations for storing pattern groups, each of which can hold up to a total of 4 individual patterns. You can enter patterns in any one of 5 designated pattern formats: Real Time, which records your piece as it's played, with the exception of velocity (volume), which is added separately; Step Time, which records both individual notes and chords as note events, while rhythm, loudness and legato/staccato articulation are added separately; Pitch Distribution, which only records the pitch information of the piece, and adds the other aspects separately; Drum Machine, which records pitches in real time within a sequenced loop as the loop is playing; Import MIDI File, a form of Real Time Record pattern, which contains multiple MIDI channels and uses a previously existing standard MIDI file. The maximum length for each pattern is 8,000 Note On/Off events and a total of 20 different patterns from a possible variety of 220 configurations are possible, all of which can then be played together or individually, with the option of Muting any single one or

number of them. Patterns can be changed by length, feel, offset (to delay the start of patterns during playback), transposition and % of note direction, note density and note order. You can varying the degree of controllable probability of playback, either from original, random or a scrambled order (random is constantly changing while scrambled reorders the original order once). These can be Cut, Copied and Pasted into other pattern locations, and patterns can also be examined and individually edited through their own Edit window, as well as recorded from within any open Edit window. The Note Manipulation window lets you change the order of notes in any number of patterns, along with varying Note Direction, Density and Transposition. The Cyclic Editor window lets you define Cyclic variations in Rhythm, Legato/ Staccato articulation, Accents, and Durations by assigning them any number of steps (16 max), each of which can be assigned a Value, Range of Values, and Continual or Non-Cyclic change. The MIDI Variables window has a dual function. You can define MIDI Output Channels for patterns, send MIDI Program Changes as well as Velocity, and assign any number of individual patterns to play on as many as 3 separate MIDI channels. The other feature offers complete control over all the program's myriad functions *directly* from your MIDI keyboard! There is also a Snapshot Bar which allows you to store any configuration of screen controls for further editing or instant recall during a Performance. This Performance is where M really takes off. Each window has a number of arrows which can be activated and grouped for *realtime* multiple control by the mouse, which becomes a Baton when used in the Global Control window. Moving the mouse in different directions in the grid portion of this window has a joystick effect on pattern playback. You can also take a "Movie" of this Performance—a sort of enabled macro recorder—which will record all events and save them to a standard MIDI file for export to your sequencer! The program is not copy protected, and runs in either color or mono. In short, this program is truly M-azing!

Dr T's Music Software 124 Crescent Road, Suite #3, Needham, MA 02194; (617) 455-1454.

LUDWIG ($35) FEATURES ELEMENTS of both a sequencer and an algorithmic composer, combining a total of up to 8 Tracks for recording and playback, each of which contains what the program



Barefoot Software's Ludwig

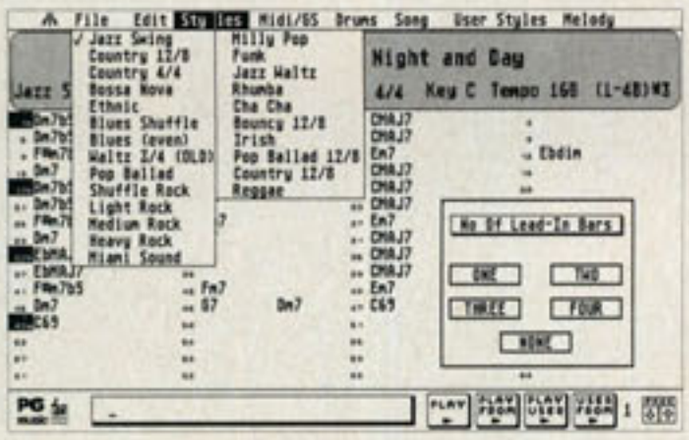
terms a number of Series. There is a Note Duration/Pitch Series with a total of up to 1,024 Cells per track, which function somewhat in the same way that a drum machines creates, loops and strings together patterns. Each Cell can contain up to 32 notes, which are stored with their initial Duration and Pitch values, along with its Operator, which acts upon the notes according to the type of Rhythm and Pitch Operator the user assigns to the Cell, and its Operand, which defines the degree or intensity of the Operator, such as Transposing notes up a 3rd. There are 30 different types of both Pitch and Rhythm Operators to choose from, which can determine such aspects as transposition and program changes. Each Track also has a Velocity Pattern Series, which can contain up to 32 Steps, and each Step can have one of 8 values, ranging from PPP (very quiet) all the way to FFF (very loud). All these elements stored within each Track's set of Series interact with one another and, once defined, the notes and melodies you've recorded in are all processed through these parameters—a veritable stew of musical possibilities—and come out practically anywhere! Ludwig reformulates your performance into something that can vary in degree of similarity or emerge as a totally new piece. Sequencers let you compose in a somewhat "safe" manner, while Ludwig invites you to take a leap into the unknown. You might find your musical ideas re-emerge in excitedly creative phrases or just offer you an excuse for a good laugh! The point here is that "accidents" sometimes lead to great discoveries! Ludwig is not copy protected, and requires a monochrome monitor. The program does not lend itself initially to an "instinctual" approach in navigating through its various features, but after reading through the well-written manual and gaining an overall understanding of its main functions, you will become quickly intrigued by what you thought it might do...that it otherwise does instead!

-Fadi Hayek

Barefoot Software Inc. 19865 Covello St., Canoga Park, CA 91306; (818) 727-7143.

BAND-IN-A-BOX ($88) IS A GREAT program for learning what musical feels, grooves and rhythms make Rock, for instance different from Reggae, and can be used as both an educational and useful tool for composition and playback. The program provides 24 basic styles that are built-in and lets you alternately load any of an additional 100 styles as well. Most consist of a basic instrumental lineup—bass, piano, and drums—while a number of them also add guitar, horn, or string accompaniment. The program covers a wide variety of popular musical styles, including jazz, blues, rock, funk, pop, reggae, latin and country. To create a song is as simple as typing in the chords, choosing a style for playback and clicking on "Play". Almost every function of the program can be accessed either through the mouse or the computer keyboard, making it easy

to keep the music flowing! Recent added features include the ability to edit a User Style to suit a particular musical requirement, and new Styles can also now be created by the user from scratch. Song playback parameters include: Begin and End markers for Chorus; Tags for Intros and Endings; Markers for Drum Fills and Turn-arounds; and Tags for switching to a new Style, Instrument or patch change at any measure. You can record Melodies or Solos, which the program intelligently adapts to match the presently loaded style, another recently added feature that expands the pro-



PG Music's Band in a Box

gram's versatility. Lyrics can be entered to follow along as the music moves through each measure on their own display section of the screen. General MIDI is fully supported, and for those older, pre-General MIDI keyboards there's a patch map which lets you initially set up where all your synth sounds actually are and then maps them automatically, so that each song you load uses your preferred version of the right instrument every time. This easily allows the exchange of your music with fellow enthusiasts who have synths which conform to General MIDI. Several patch maps are also provided for some of today's more popular synths which means less setup time and more music. A MIDI Window conveniently accesses MIDI parameters, and there's a special set of menu features that allow real-time control of a number of additional features offered by Roland's popular Sound Canvas module, such as panning, mute, instrument banks, reverb and chorus. Drum machine maps are also a snap, allowing you to switch between your drum machine and synth drum sounds. Users who also own a sequencer package can take advantage of Band-In-A-Box's ability to load and save sequences in Standard MIDI File format for exchanging with any sequencer program that supports using them. This provides a great way to quickly create your basic tracks by being able to choose the general kind of music style you have in mind for your song and then move your song from Band-In-A-Box over to your sequencer to add your own original ideas and arrangement, make additional changes and adding the finishing touches. Students will have little trouble learning the basics and creating songs almost instantly. You can experiment loading in your finished piece back into Band-In-A-Box and converting it into an actual Style file, allowing you to build your own library of grooves. Band-In-A-Box will not replace a dedicated sequencing package, but it's a good educational tool; the melody note and chord positions move over an actual piano keyboard display located at the bottom of the screen as the song is being played back, and each instrument has its own symbol. The student can drop the tempo down to its slowest point, giving them a useful tool for actually learn how to eventually play the song all by themselves. There's also a MIDI FakeBook of popular songs, complete with melodies and even lyrics in some cases. The program is not copy-protected, so you can run it off a hard drive, works in color or mono and requires at least 1 meg of memory.

-Leslie Jennings

PG Music 266 Elmwood Avenue Suite 111, Buffalo, N.Y. 14222; (416) 528-2368.

ST SOFTWARE

GOLDEN PATH	0.99
TRACKER	1.95
LAND OF HAVOC	4.95
HIPPOFONTS ST	4.95
PROTECTOR	4.95
MEAN 18 COURSEDSK 2	4.95
KINGS QUEST III HINT	4.95
221 B CASE LIBR. #2	4.95
ARKANOID	4.95
SENTRY	4.95
BUBBLE BOBBLE	4.95
PRO LIGHT	4.95
ALL ABOARD!	4.95
ZERO GRAVITY	4.95
ALCON	4.95
SPACE STATION OBLIV	4.95
TRANSPUTOR	4.95
KINGS QUEST IV HINT	4.95
QUADRALIEN	4.95
CRACKED	4.95
ABACUS INTERNALS DSK	9.95
SPELLBRAKER	9.95
AMAZON	9.95
PAWN	9.95
HEX	9.95
WINTER GAMES	9.95
WORLD KARATE CHAMP	9.95
WORLD GAMES	9.95
CHAMPIONSP WRESTLING	9.95
ULTRACALC	9.95
PIRATES OF BARBARY	9.95
1ST WORD	9.95
RENEGADE	9.95
PERFECT MATCH	9.95
ROADWAR 2000	9.95
VT100 EMULATOR	9.95
GOLD RUNNER	9.95
SUB BATTLE	9.95
SCENERY DSK 11 FLIGH	9.95
STATIONFALL	9.95
GUILD OF THE THIEVES	9.95
PHANTASIE III	9.95
SILICON DREAMS	9.95
METROCROSS	9.95
KNIGHT ORC	9.95
ADVANCED ART STUDIO	9.95
DEATHSWORD	9.95
JINXTER	9.95
IMPOSSIBLE MISSION 2	9.95
QUESTRON II	9.95
DIVE BOMBER	9.95
WARSHIP	9.95
GOLD OF THE REALM	9.95
FINAL ASSAULT	9.95
RAZRATS	9.95
STAR QUAKE	9.95
BATTLESHIP	9.95
KARATEKA	9.95
HIT DISK VOL 1	9.95
TECHNO–COP	9.95
SWIFTAR	9.95
OPERATION NEPTUNE	9.95
BOBO	9.95
CALIFORNIA GAMES	9.95
GAMES, THE (WINTER)	9.95
PRO SOCCER K.V ERON	9.95
TOWER TOPPLER	9.95
OPERATION CLEAN ST.	9.95
FOUNDATIONS WASTE	9.95
PHANTASM	9.95
HYPERDROME	9.95
OVERLORD (WWII)	9.95
ZYNAPS	9.95
STARRAY	9.95
BLACK LAMP	9.95
PINBALL WIZARD	14.95
BLACK CAULDRON	19.95
PERRY MASON	19.95
FAHRENHEIT 451	19.95
TIME BANDITS	19.95
SWORD OF KADASH	19.95
ALT	19.95
WISHBRINGER	19.95
LITTLE COMP. PEOPLE	19.95
SILENT SERVICE ST	19.95
PAINTPRO	19.95
HACKER II ST	19.95
DEEP SPACE	19.95
DATATRIEVE	19.95
BREAKERS	19.95
SPACE QUEST	19.95
SKYFOX	19.95
MR. BOSTON'S BARTEND	19.95
S.D.I.	19.95
ALTERNATE RLTY–CITY	19.95
MATCHPOINT	19.95
HOLLYWOOD HIJINX	19.95
BALLYHOO	19.95
MIDWAY BATTLES	19.95
AIRBALL	19.95
AUTODUEL	19.95
ALIANTS	19.95
XEVIOUS	19.95
LIBERATOR	19.95
JEWELS OF DARKNESS	19.95
BOULDER DASH	19.95
F–15 STRIKE EAGLE ST	19.95
WIZARDS CROWN	19.95
MORTVILLE MANOR	19.95
GNOME RANGER	19.95
MIXED UP MOTHER GOOS	19.95
SPACE QUEST II	19.95
WARGAME CONSTRCT SET	19.95
MOEBIUS	19.95
SKY FIGHTER	19.95
CARRIER COMMAND	19.95
PRIME TIME	19.95
GOLDRUNNER II	19.95
LEATHERNECK	19.95
UMS	19.95
TYPHOON THOMPSON	19.95
HEROS OF THE LANCE	19.95
SPACE RACER	19.95
POWRSTONE/ELF LORD'S	19.95
SUPERMAN (MAN OF STEEL)	19.95
DRAGONSCAPE	19.95
SPACE QUEST III	19.95
RVF HONDA	19.95
CHARIOTS OF WRATH	19.95
RED LIGHTNING	19.95
RAMBO III	19.95
MACH IV	19.95
SIDE ARMS	19.95
HILLSFAR	19.95
STAR COMMAND	19.95
STUNT CAR\TRACK RACE	19.95
MIAMI VICE	19.95
GALAXY FORCE	19.95
LORDS OF CONQUEST	19.95
SUPER CARS	19.95
BRIDE OF THE ROBOT	19.95
RINGS OF MEDUSA	19.95
BLACK TIGER	19.95
3D POOL	19.95
HOYLES BOOK GAME V1	19.95
DEMONS WINTER	19.95
HOYLES BOOK GAME V2	19.95
COLONELS BEQUEST	19.95
CONQUEST OF CAMELOT	19.95
OUTLANDS	19.95
CODE–NAME ICEMAN	19.95
CRASH GARRET	19.95
PLANET OF LUST	19.95
SPACE SCHOOL SIM	19.95
MANHUNTER NEW YORK	19.95
FLIP SIDE	19.98
RED ALERT	19.98
JOUST ST	19.98
SHUFFLEBOARD ST	19.98
BATTLEZONE	19.98
OUT RUN	24.95
WEIRD DREAMS	24.95
SUPERSTAR ICE HOCKEY	24.95
MIGHTY MAIL	29.00
PROCOPY	29.95
TRIVIA CHALLENGE	29.95
CAD 3D 2.0	29.95
HARDBALL	29.95
GEOMETRY I	29.95
BIOLOGY II	29.95
GRIDIRON FOOTBALL	29.95
BIOLOGY VOL. 4	29.95
FIRST LETTERS & WORD	29.95
CYBER CONTROL	29.95
SPECTRUM 512	29.95
ALGEBRA II VOL.1	29.95
ALGEBRA II VOL.2	29.95
TEST DRIVE	29.95
SOLOMON'S KEY	29.95
SPACEPORT	29.95
NOT A PENNY MORE, NO	29.95
3D GALEX	29.95
FROST BYTE	29.95
FORMULA 1	29.95
BIOLOGY VOL. 1	29.95
BIOLOGY VOL. 3	29.95
GEOMETRY VOL. 2	29.95
PHYSICS VOL. 2	29.95
OFF SHORE WARRIOR	29.95
BIONIC COMMANDOS	29.95
SPACE HARIER	29.95
IKARI WARRIORS	29.95
SUPER HANG–ON	29.95
BERMUDA PROJECT	29.95
ELIMINATOR HEWSON	29.95
CYBER SCULPT	29.95
CYBER TEXTURE	29.95
NEBULUS	29.95
PURPLE SATURN DAY	29.95
BATMAN	29.95
LED STORM	29.95
DEJA VU II	29.95
ISS	29.95
LAST DUEL	29.95
GHOSTBUSTERS, REAL	29.95
AIRBORNE RANGER	29.95
COSMIC PIRATE	29.95
TIGER ROAD	29.95
COLOSSUS CHESS X	29.95
RUNNING MAN	29.95
SAVAGE	29.95
WILLOW	29.95
NIGHT HUNTER	29.95
PUFFYS SAGA	29.95
RICK DANGEROUS	29.95
INDIANA JONES ACTION	29.95
PIRATES	29.95
RED STORM RISING	29.95
FAST LANE	29.95
STRIDER	29.95
SLAYER	29.95
EMPEROR OF THE MINES	29.95
VERMINATOR	29.95
ONSLAUGHT	29.95
MIDWINTER	29.95
CASTLE MASTER	29.95
DAN DARE III	29.95
BLUE ANGELS	29.95
VIKING CHILD	29.95
TIME SOLDIERS	29.95
EAST VS WEST BERLIN	29.95
PSYCHO	29.95
PARADROID 90	29.95
NITRO	29.95
MAGIC FLY	29.95
RICK DANGEROUS II	29.95
TORVAK THE WARRIOR	29.95
MEAN STREETS	29.95
TYPHOON	29.95
NIGHT SHIFT	29.95
INT ICE HOCKEY	29.95
HILL STREET BLUES	29.95
GODS	29.95
MERCS	29.95
TIE BREAKER	29.95
MEMORY MASTER II	29.95
SPIRIT OF EXCALIBER	29.95
FAMILY CUR. JR. HIGH	29.95
FAMILY CUR. REVISION	29.95
FAMILY CUR. PLY & LR	29.95
TRINITY ST	29.98
SHUTTLE II	29.98
GFL FOOTBALL	34.98
EASY DATA	37.98
MICH. BBS 3.0	39.95
AEGIS ANIMATOR	39.95
ROCK N' ROLL	39.95
TREASURE TRAP	39.95
ATARI ST WORD PROC.	39.95
ATARI ST DATABASE	39.95
ATARI ST PER FINANCE	39.95
ATARI ST HOME PROD.	39.95
FAMILY CUR. CREATIVE	39.95
DB MAN	49.95
UCSD PASCAL TDI	49.95

And More

Order by mail, phone, FAX, whatever means you can. But, be sure to include your complete shipping and billing name, address, phone, payment format, and quanity and description of the products you want.

Prepay by Visa, Mastercard, cash, Money Order, Cashiers Check, Personal Check (takes longer 'cause they gotta clear), Wire Transfer, Gold Bricks, or any other legal means we can think of.

Or COD, lease, finance, or get a really rich friend to buy it for you.

We charge a flat rate of $5 dollars prepaid, or $10 COD, for UPS ground service to any US destination except Hawaii and Alaska. Otherwise, actual shipping cost (by weight) will be charged. This makes it simple to order without any guess work. It also provides incentive to buy lots of stuff, since it doesn't cost anymore shipping.

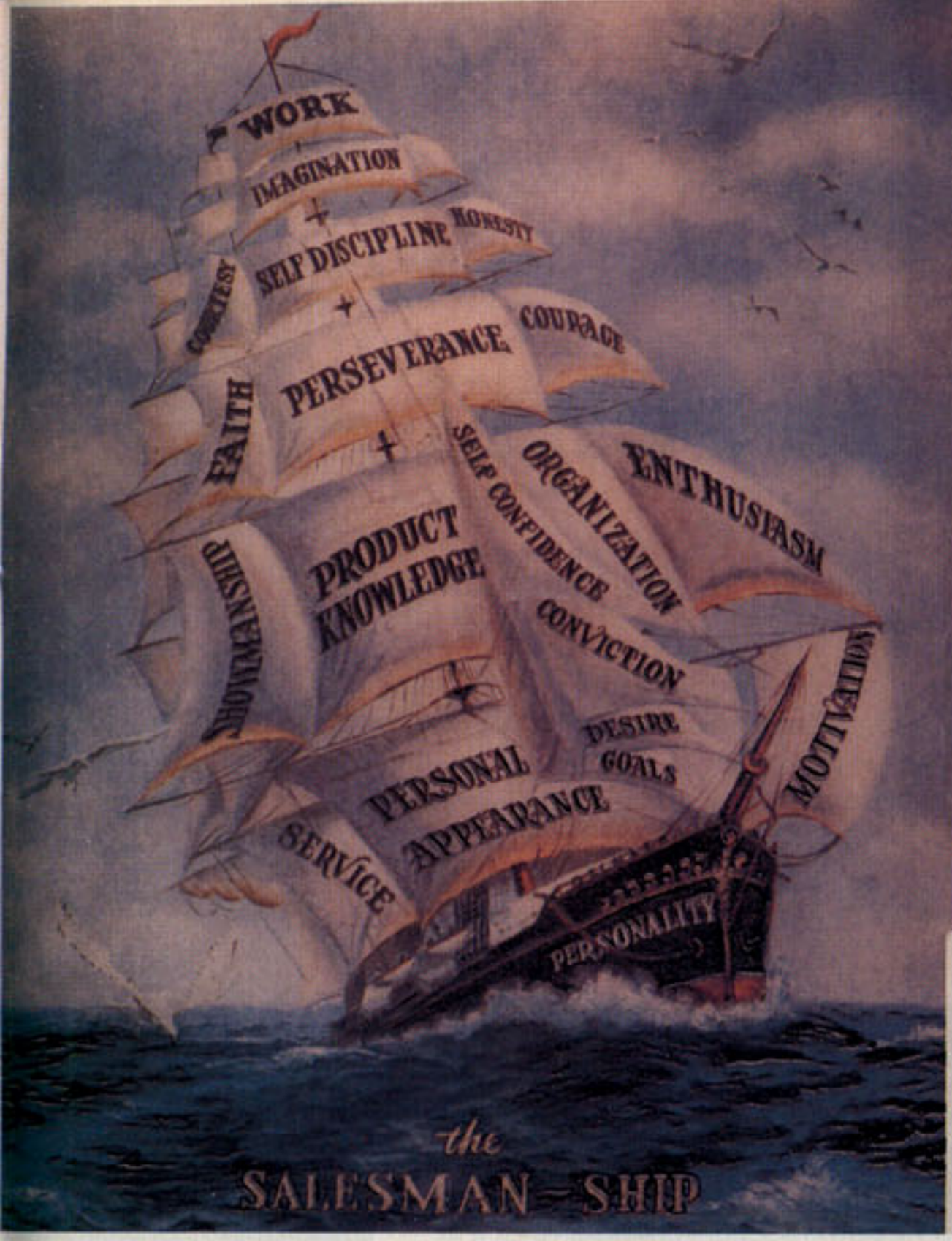
Phone
(408) 995–5080

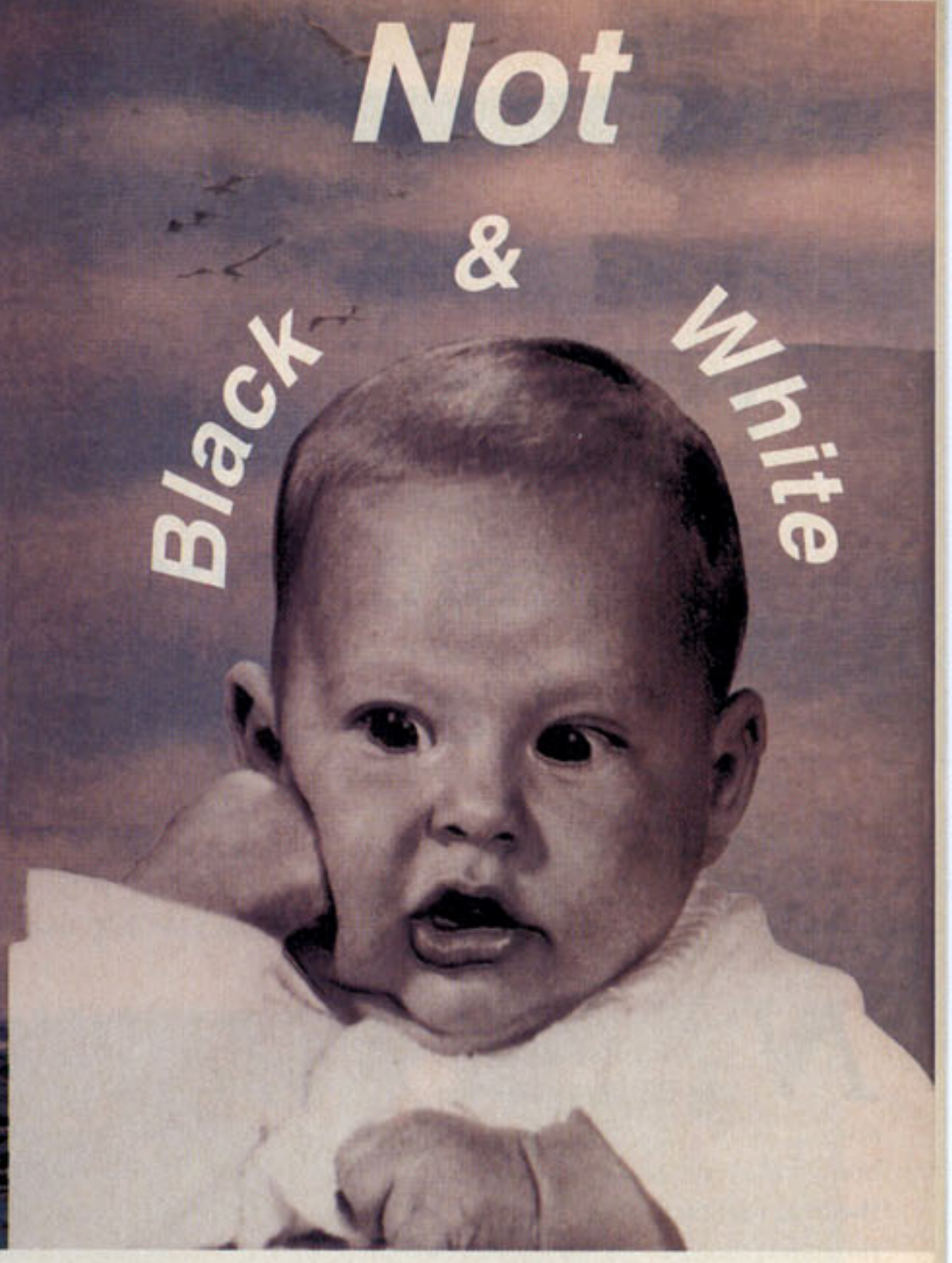
SAN JOSE COMPUTER
THE ATARI SOURCE
1278 Alma Court, San Jose, CA 95112

FAX
(408) 995–5083

HOURS

10 AM TO 7 PM TUES.–FRI.
10 AM TO 5 PM SATURDAY
CLOSED SUNDAY AND MONDAY





TT RAM EXPLAINED

The unique architecture of the TT 030, both hardware and operating system, is the key to its tremendous speed advantage over other, more expensive, platforms. Basically there are two kinds of RAM in a TT, system RAM, and NIB RAM. The system RAM is special because it has two buses hardwired to it, a special 64 bit internal bus, and the 32 Bit system bus. The special 64 bit bus is dedicated to drive the video "TTVIDEO" chip. This bus, together with the on chip buffering of the TTVIDEO chip yields real high performance video access. Plus, it takes the video traffic off the system bus. The system bus is free to move big chunks of data around, or for the CPU to access data to process. Note, the The CPU doesn't get involved with updating the video or moving data around. It delegates the job to the TTVIDEO and memory controllers. So, even at 32 MHz, the CPU is bored unless it's fed lots of things to compute! The other kind of RAM is called NIB RAM (nibble mode as opposed to PAG mode RAM). NIB RAM is especially useful for DMA block transfers to, and from the hard drive or VME, because it can increment its address form one word (2 bytes=1 word) to the next, to the next, etc. So, whole blocks of contiguous data can be accessed with one command. Basically, the memory controller acts like a 3 ring circus ringmaster, commanding what acts occur in what ring, and making sure the trampeze acrobat doesn't fly into the elephant act as all three rings perform at once (this is called autovectored processing). The memory controller delegates the "move the elephants over there," command to the DMA (direct memory access) chip which in turn tells the NIB RAM, hard drive, etc. where to start, which way to go, how far, and "go for it." The hard drive and NIB RAM have the bus to themselves as they write/read double words (two 16 bit words or four 8 bit bytes =32 bit wide system bus) on each clock cycle. Conventional PAG type RAM requires the bus to provide the addressing data (RAS & CAS) for each access. This requires 4 clock cycles per access. Anyway, NIB mode RAM can be addressed like PAG mode, and PAG mode can hold contiguous block data. But, to optimize performance, certain configurations make more sense than others for a given application.

APPLICATION OF TT POWER

Didot Pro. CD combines images, line art, Type, Color, Postscript Type 1 fonts, Calamus fonts, Vector graphics, CVG, DVG, RVP, TIFF, TIC, TIH TIM, EPS, GEM, GMA, IMG, QFAX, ISH, ISS, BUT NO LSD (unless the VME MATRIX card is defective), into your comprehensive layout. Full featured page layout including built in autotracer. Fonts can be edited on the fly like any other vector object. Final screen separation, and rasterization at 2400 DPI can be done on the design platform. This enables preview of final screen on the monitor or proof printer (like an electronic loop, 300 DPI proof of a portion of the 2400 screen to maintain dot ratio), all in minutes instead of hours. Special hand opimized screens pioneered by Lynotype–Hell, that are free from the usuall aboritions inhierent in postscript screening technology, are included in Didot! If you bring me a ISS file (final screen file) on your Syquest or optical cartridge, I can shoot it to film on My Lynotype imagesetter and process the film on My new Pako processor, all in minutes. One trip, one stop, final film in your hands, ready for the pressman. If you are to far away to come in, you could upload a DIP file, or output postscript for a conventional service bureau. When you grow tied of paying lots of money for 24 Hr. "rush" charges to a postscript sevice bureau, add an imagesetter to your system for complete in–house capabilities. Then you could charge others lots of money for a few minutes of computer time. The features go on and on, and more modules are added all the time. I knew all these years (13 so far) of "hanging in there" with Atari would pay off someday!

Dr. Fiorella Terenzi— Music from the Stars... and an Atari Falcon030

By James Grunke and Peter Donoso

NEARLY THREE THOUSAND years ago, a section of the *Upanishads* (a collection of ancient Vedic writings from India) embodied answers to questions concerning the beginnings of existence and its reflection throughout the creation—encompassing both the earth and the heavens with all of its luminous inhabitants. Close to 29 centuries later, Dr. Fiorella Terenzi's recent release on CD, entitled *Music From The Galaxies* may well prove to be a scientific reaffirmation of those ancient Indian sages' observations. The singular force at the heart of everything is attuned to the greater cosmos; that aspect from which everything traces its birth and owes its continued existence, originates as a vibration, and that vibration which manifests itself in the material world at the core of all things that are brought into being... begins as a sound!

Fiorella Terenzi struck upon the idea of combining her passionate expertise in the fields of Astronomy, Radio Astronomy, Cosmology and Astrophysics with her other enduring passion for music. Drawn by her love for the grand design of the starry-canvased skies that captivated her as a child, she set both eyes and ears towards searching for a worthy galactic subject that would aid in proving her theories. She was finally rewarded when she found signals radiating from a galaxy referred to simply as UGC-6697—180 million light years away and possibly already devoid of life for several million years.

Radio Astronomy uses an ultra sensitive receiver which is able to pick up the faint and subtle radio wave emissions which can be isolated and traced to a particular section of the heavens. Those receivers register these waves by the levels of intensity, as well as their frequency, both of which are very crucial components in puzzling out the elements of an individual galaxy.

Since different chemicals give off different frequencies, astronomers can learn a lot about the characteristics of these distant places through the study of these emissions. The resulting radio waves are then translated to paper as graphic drawings which can be better studied for any additional scientific data. At least, that's been the standing traditional system of interpretation up until now. Dr. Terenzi has some rather different ideas to apply to her analysis.

"The idea came to me originally when I was 20 and taking a Radio Astronomy course at the University of Milan, where I obtained my doctorate in Physics with a specialization in Astrophysics. I began to realize that there were some strong analogies between music and radio waves. They both contain elements that are expressed in degrees of frequency and intensity. Musical notes have amplitudal intensity that produce varying degrees of loud and soft sound, and which are generated on specific frequencies that determine their pitch and tonality. Radio Astronomy involves the study of radio waves that can be found to originate from practi-

cally every galaxy; different stars and galaxies have different frequencies. So having these radio waves, there must be some way to convert those signals into something we recognize as sound; some way to listen to the Universe with our ears the way we otherwise are use to viewing it with our eyes.

"Man has always insisted on an image, but I felt drawn to search for a sound. It stood to reason that I should be able to convert radio waves into sound, perhaps even into music. And that was when I started my research on Acoustic Astronomy."

During her studies as a visiting researcher at the University of California in San Diego, Dr. Terenzi continued the development of her ideas. Formulating and refining new methods in pursuit of her Acoustic Astronomical theories, she began to logically refer to this emerging new discipline as "Radio Computer-Music Astronomy"—the utilization of computer music techniques to process radio-astronomic data. After processing the large and complex volume of data received from a number of powerful observatories situated around the world, she was faced with the daunting task of distilling this huge amount of radio data down to an end product which could still find expression within the boundaries of human hearing.

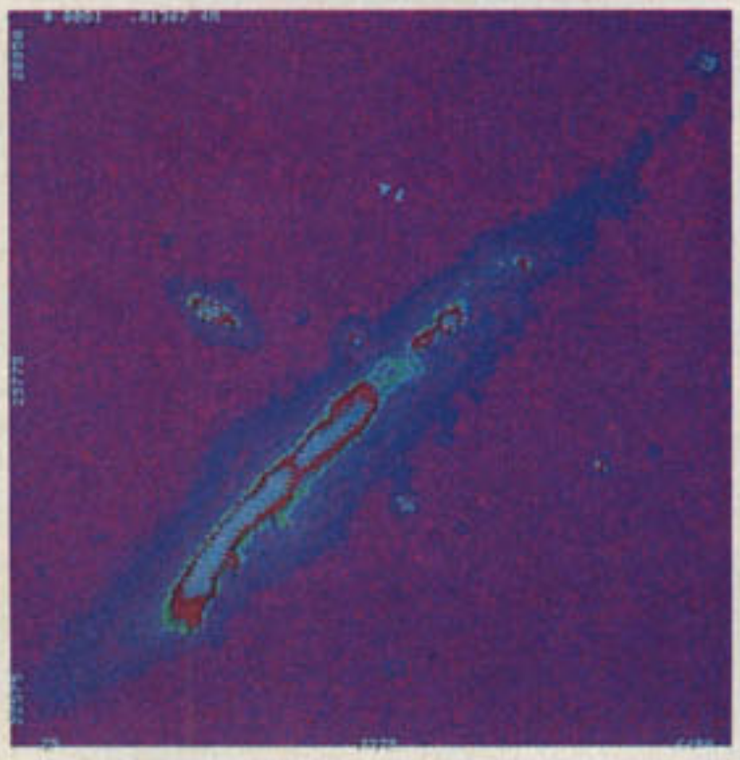
Using a UNIX-based DEC VAX mainframe for a portion of her conversion, Dr. Terenzi first reduced the frequency of the galactic radio waves from billions of Hertz to the more defined bandwidth of human hearing, using a maximization criteria in order to keep the most significant portion of the galactic waveform within this human range.

She then processed the converted data from the original radio-telescope signals through a complex algorithmic sound synthesis language written in

Lattice C, called **cmusic**. Employing this sound synthesis software, the resulting raw data translation emerged as converted digital sound which was then saved to a variety of storage medium, including hard disk and DAT tape, and played over a set of audio system speakers via digital-to-analog converters.

Now that this very complex sound had proved its usefulness in her scientific research, Terenzi began to explore its potential for musical applications, leading her to include the same digital sound translation from the original galactic raw data on her *Music From The Galaxies* CD release.

Her Atari Mega4 computer enabled her to compose music based on the final translation of this processed data—music which incidently seems to be generating great response from a growing number of new fans ever since its initial release on Island Records. Sitting at the piano, Terenzi would listen to these undulating recordings which most people would probably consider as having only



A graphic representation of UGC-6697—one of Dr. Terenzi's favorite musical galaxies.

a vague resemblance to anything musical. To her ears, however, the recording exhibited undeniable, distinct characteristics of tonality, harmonies, even small melodies. The subtle complexities —the very pulse of this far-off galaxy—inspired and moved Terenzi's hands to float and drift over her MIDI keyboard, slowly drawing together and building passages that would meld with this original music of the spheres.

"My Atari was literally instrumental in helping me to compose with a galactic palette of sound. Running Notator as I listened to the pulses of sound emanating from the tape, I began to recognize some musical elements here and there, and would use the computer to record these small musical parts as I heard them come and go. I was then able to play the melody back on my sequencer in tandem with the sounds of this galaxy, to see if the melodies, chords and arrangements were successfully blending with those of the actual galactic source.

"When I first started to search the galaxies in pursuit of my theories, I was looking for a celestial object that was irregular, exhibiting a kind of violent activity, with lots of expression. Usually most of the celestial objects are very quiet and don't change much over time. The pulsar, a special kind of star, actually pulses, emitting a signal on a consistently regulated basis, like every second. Even though it was an interesting source of inspiration (Terenzi may assign a pulsar to the role of "cosmic drummer" on her second album), it seemed to me at the time that the results would be too predictable to warrant using this particular galactic source on its own. I wanted something more random, more chaotic, and the galaxy I came across was perfect. UGC-6697 happens to have a companion, which is spinning in close proximity to it, so where they collide there is an emission of gas, the formation of new stars—it is a very active and creative galaxy."

Fiorella Terenzi's diverse passions were nurtured by an assortment of cultural and social elements. She discovered music as a child while learning to sing hymns in her local church choir. Later on she also became interested in the flute and then the piano, but they remained on the outer edges of any devoted pursuit until she entered the Corsi Populari conservatory in Milan. Here she began to seriously study piano, composition, harmony and opera.

Her starry-eyed romance with the heavens first captured her heart as she sat and watched the Italian skies every evening through the eyes of her grandmother, whose love for the firmament awakened a growing sense of wonder in her favored granddaughter. When Terenzi began her attendance at the University of Milan, she discovered to her delight that although there wasn't actually a department of Astronomy, she could peruse a degree in Physics that allowed for a specialization in Astronomy, as well as Radio Astronomy and Astrophysics. One discipline was quite enough to qualify as an added elective, but to successfully complete the study of all of them? Well, why not! They were all related to her love of space.

What does Terenzi anticipate learning from working with the newest Star in Atari's Computer Power System, the Atari Falcon030; and does she plan taking it on any galactic flights in the near future?

"Oh, boy! The Atari Falcon030 certainly has some wonderful possibilities for general applications of sound synthesis language, with the additional possibility of being able to synthesize those sounds using the DSP chip. I think that being able to analyze actual analog signals is a very useful feature for gathering data from many different sources, both here on earth and in space.

"I could potentially also bring in images—a real simulation of what's going on in the galaxy. Being able to display the radio objects with all their emissions while accompanying them to music would be an incredible sensation, a great interactive use—bringing music and the universe together through the medium of the Falcon computer.

"As a potential educational tool, you could display your radio object, which would be filled with different colors, very bright colors—blues, reds, yellows —and each color would be assigned to a spacial emission. Green, for example, is sometimes associated with visible light

emanating from young stars; blue with cold, neutral hydrogen emissions at 1420 MHz. It would be nice if a student could click on a color in the emission, and end up triggering a different sound for each different color selected.

"The DSP and sound capabilities of the Atari Falcon030 could assist me in the pursuit of my studies of the microtonalities, harmonies and timbres of the galactic sound sample. Of course, back on earth I would also incorporate it into my concerts and tours of planetariums, museums, universities and theaters for a number of applications. I could control my sound and lighting equipment via MIDI and sync them with visual displays and animations, along with sound based or triggered displays of realtime sound waveforms moving over a background of a galactic photograph or video. For my lectures, I could structure my presentations with slides, images and sequenced sounds which could accompany a visual display of the actual galactic sound samples. Really, from what I can see, it seems the possibilities are practically endless!"

Her eyes rest quietly on some far off distant point as they mirror the smile that plays wistfully across her face. As Fiorella Terenzi—the musician—the field of technology and music is every bit as open and welcoming as to Dr. Terenzi—the Physicist and Astronomer.

Perhaps Terenzi the artist understands better than most how creativity holds the key to attracting more women to technologically-based arts and sciences. MIDI, music—computers; the stars, the atom—again, computers; tools, canvases, music tablature—yet again, computers. All vibrations that result in one sound or another: creation, birth— life.

"I'm experimenting with Techno music now, a very fast beat—you are familiar with it? It is very pulsing, like the pulsar. There is a connection between everything in the microcosm and the macrocosm, and the Atari computer offers me one very versatile form of transportation between these two worlds. In the end, everything can be traced back to a sound. Whether it's House music or the music of our macro-House—the cosmos—the dance is the same. My Atari computer is like a telescope; it casts its eye to the universe for composing and capturing a momentary aspect of the greater unknown. I can use it to compose with galactic sounds and be visually creative with my work as well."

Sounds… *Cosmic!*

MIDI Mappers, Managers, and Utilities

THE GENERAL MIDI SPEC encompasses the entire range of MIDI's capabilities, including the actual language which it uses to communicate in hexidecimal form, but a majority of users remain primarily interested in MIDI's functions, and usually go no further than the day-to-day MIDI features they use in conjunction with their gear and software programs.

Fundamentals such as understanding the concepts of MIDI channels and MIDI note numbers, what Control Change numbers correspond to Volume, Sustain, Vibrato and Note On/Note Off are usually all that concern most beginners, but if you're one of those musicians who are curious about all the other ways in which MIDI can be used to configure your music and shape your sound, then you may want to explore MIDI's other capabilities through a number of software programs.

The term *MIDI Mapping* refers, in part, to the use of MIDI's Re-channelizing, Transpositional and Control Change functions. Some hardware MIDI patchbay units offer re-mapping features, allowing you to split your keyboard into a number of zones, each of which can be assigned to a separate MIDI channel and shifted up or down in octaves or any note increment in between. They will also allow you to filter certain MIDI functions out, and apply velocity cross-fading (enabling one sound to suddenly change or trigger additional sounds, depending on how hard or soft you play the keyboard) as well as a variety of MIDI-generated effects. These capabilities are all inherent in MIDI, so it stands to reason that you can also access these features through software.

Some programs offer these functions to either increase your keyboard controller or sound module's capabilities during live recording, or enhance the flexibility of hardware-based sequencer units, since you can't have your software-based sequencer and mapper program running simultaneously. Others are primarily oriented for playing live or performing on stage, while still others can be used in a variety of situations, and combine the above mentioned features with sequencer-oriented functions that allow you to assign single notes to trigger chords, scales, arpeggios and short sequenced passages.

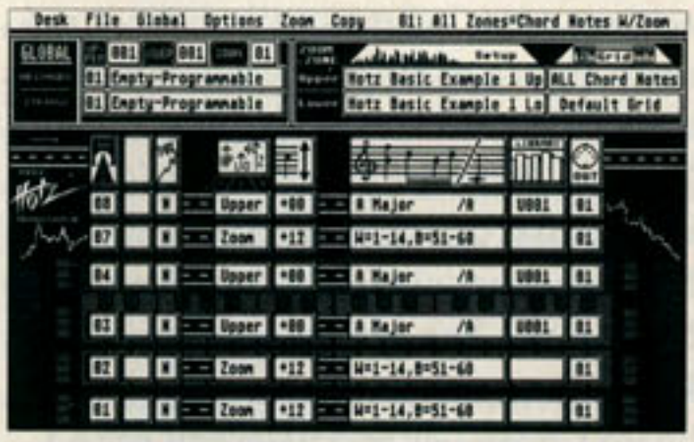
Any of these programs can greatly expand the creative aspects of composing or function as one or more additional sets of hands, allowing you to play and perform pieces that you normally wouldn't otherwise be able to do at all, and produce some pretty amazing music in the process. They shouldn't be viewed as utilities that do-it-all for you, because there's no substitute for a good foundation in music theory, but rather as a way of allowing you to explore new musical horizons and add to your own creativity. You may be surprised how much you find out about all of MIDI's many features in the process, so don't be surprised at the number of times you might hear yourself say, "I didn't know MIDI could do that!."

-Peter Donoso

Translator, Mappers, & Managers

HOTZ MIDI TRANSLATOR SOFTWARE Ver. 3.7 ($299.95) is in reality the engine that was originally developed to drive the Hotz MIDI Translator Controller (otherwise known as the Hotz Box), a sophisticated unit using Force-Sensing Resistor (FSR) touch-sensitive pads arranged in a variety of available configurations. The one we use has 6 large groups, two of which are a representation of a 3 octave standard piano, integrated among 8 smaller groups of pads, and all of which allow the user to assign them in ways that can trigger a totally new universe with *each key*! If this all sounds like a rather abstract, spaced-out description of this product, you should understand that it's not that easy to impart the actual experience. Hearing and playing the unit is what really gives you confirmation of this otherwise esoteric sounding statement's true meaning as you find yourself being able to create these emotionally moving walls of musical sound that fly by at 90 miles an hour and then modulate to wash languishingly around you like ripples on the surface of still water. The Translator software and Hotz Box work together to enable the user to do what no mapper, or *any* other product available on the market today for that matter, can do—provide the user with a truly transparent instrument that never forces them to stop one aspect of making music in order to begin another, or have

to wait for a passage to finish completely before borrowing any part of it to start a new one—all in split-second realtime! Inventor Jimmy Hotz, who developed and refined this amazing product over a number of years with the help of Tom Bajoris' programming skills, wanted to offer a host of this unique instrument's same capabilities to anyone with a MIDI keyboard, or any other MIDI controller for that matter. The Translator software shares certain GEM functions, such as drop-down menus, but the program also features a number of unique parallel translation areas that are separately assigned to chord structures, scales, conductor/arranging functions and transformation of specific MIDI data strings, with editable scaling tables for all of the previously mentioned individual functions. These are then all interwoven within the MIDI data stream in a way that allows them to perform like parallel processors, enabling results that are not otherwise possible to obtain with MIDI alone. One immediately noticeable result of this is how the program provides the user with a means of transcending the usual approach to playing a keyboard. The true significance of this becomes apparent as you begin to discover how your relationship to the standard western 12 tone scale, as well as the universes of micro-tonal scales that lay in between, will be changed virtually forever. An equally eye-opening experience is the realization of your previous limitations for musical performance as otherwise defined by the human physical form. Once limited to a mere two hands and ten fingers, you are able to achieve mythical, multi-appendaged capabilities. Passages are elevated to the level of musical "Structures" on a grand scale that integrate elements of arpeggios, scales and voicings, which can be then further defined by processing them through an "Emotional" Structure, of which the user has a full 32 global banks of pre-constructed structural definitions to select from. The Translator boasts the largest library of chords and scales available in a single reference in the world! This impressive library offers the possibility of literally over two *billion* Chord/Scale voicings using as few a 16 pads, with over 65,534 voicings contained in one Chord Structure alone. The means of arriving at this astronomical figure is actually derived from taking the 128 upper and 128 lower chord scales—equaling a grand sum of 256 chord/scale tables that comprise the program's basic library—*times* the 12 standard key signatures *times* 12 possible alternate root notes *times* the 65,534 voicings, for a grand total of near 2.5 billion different voicings of each chord/-scale table. Amazingly, this figure doubles for each additional Pad added to the layout. In addition, any of 32 Grids will double that number again! Among the many awesome ways to manipulate sound is an ingenious Dual-Bank Processing feature which gives



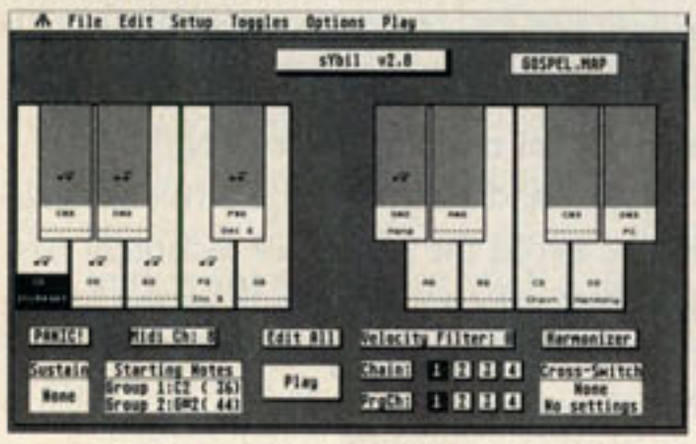
Hotz MIDI Translator Software

you living, breathing harmonies. This form of intelligent harmonic generation, reminiscent of the Allman/Betts duets during the height of the Allman Brothers Band's golden years, is in marked contrast to the alternative offering of processing solo melody lines through a commercial harmonizer and the inevitable resulting rigid series of unchanging parallel notes. One might look to a humble statement made by Jimmy Hotz himself for a glimpse into yet another surprising aspect of this program's elusively infinite nature. "The Hotz Box came to me as a revelation. It required a step of faith to bring that into reality. I had this idea for 5 years before I started and it took me another 4 years of sweat and living on the edge to bring it forward to where it is today. The unique ways in which the Translator software and Hotz Box Controller accomplish what they do has finally been granted an actual Patent, but even though I'm the so-called 'inventor', I truly feel I have been entrusted with a gift that will forever change the way we play music and alter our understanding of what is possible." Usually when something sound too good to be true, it often is. The Hotz Translator software is a rare exception. Experiencing what this program can accomplish and the music that it enables you to create really is indescribable.

Hotz MIDI Technology 1415 Third Street Promenade, Suite # 301, Santa Monica, CA 90401; (805) 492-5553.

SYBIL ($99) IS A DISTINCTIVELY DIFferent program that frees musicians from the limitations that may be otherwise be incorporated into any MIDI Controller, including Keyboards, Guitars, Wind Controllers, Vibe/Percussion Pads and even Pitch-to-MIDI Converters. The accent here is on *realtime* interaction that maximizes your MIDI "chops" and playing style while managing to avoid the pitfalls of technical jargon that may sometimes litter the MIDI jungle. More simply put, SYBIL is a MIDI party machine! The main screen contains a graphic display of a somewhat oversized 16 Note piano keyboard which defaults at C1 to G1 for the left-hand section and G#1 to D#2 for the right, but can otherwise be user-defined to suit any starting Note. Alternately, there's also a feature which toggles the screen to show a graphic display of 16 Pads that are laid out in 2 rows of 8 each, for those players who are using a set of Percussion Trigger Pad Controllers, but apart from the difference in graphic representation, all features of the program are otherwise available in both screens. Although Sybil chooses to work with a mere 16 notes out of a possible 128, don't be deceived by what may

initially seem to be a pretty limited choice—it's *how* Sybil works its magic on these 16 notes that *really* makes the difference. After setting the program's MIDI In channel to match your Controller's MIDI Out channel, it allows you to define a Low Note for your range, starting anywhere from C1 to C9. You can also assign the screen Keyboard or Pad display to be Split at a pre-fixed point into 2 separate ranges of 8 notes each, with a different starting Note and Range for the second half. Regardless of whether you assign one successive range of 16 MIDI Notes or a Split that uses 2 different sets of Note ranges, all notes are then displayed on their respective graphic display. Now—here's where the fun begins! Enter up to 4 notes that are Triggered by playing one Key or Pad. Choose a separate MIDI Channel, Volume and Gating setting for each Note. Assign Velocity Crossfading or Harmonize 2 additional Notes of any interval to any other Note. Affix a Toggle to any key that can alternate between one of a number of programmed



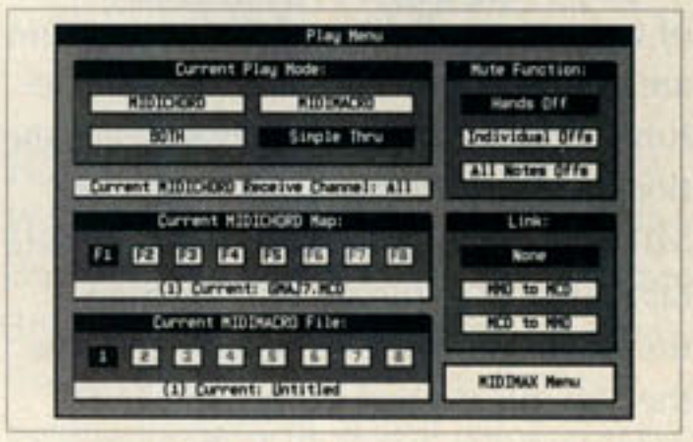
Sybil

configurations: Chain a number of Keys or Pads together to form massive chords; Sustain a group of Notes by their Split Region; Transpose Notes by interval or succession of intervals; Cycle through four sets of up to 16 MIDI Patch Changes. These are just some of the awesome things Sybil can allow you to do—the actual number of possible events and configurations are mind boggling! Save these settings as Maps that can be recalled and use Sybil's Spreadsheet window to Edit, Cut, Copy and Paste any Note in any Cell in any Map. Set the PC Map window to define up to 4 columns of 16 Patch Changes. Go MIDI crazy! Explore the outer limits of MIDI's capabilities and leave behind your limited use of ten appendages while still remaining somewhat within the physical borders of musical sanity. Although the program was originally intended to enhance a live performance, composers might find the program to be a surprisingly useful tool for creating new songs and more interesting arrangements. In short, with Sybil at your side you can most bodaciously MIDI party on, dude!

-Fadi Hayek

GHS P.O. BOX 136, Battlecreek, MI 49016; (616) 968-3351.

MIDIMAX VER. 3.1 ($49.95) CAN SIGnificantly expand the capabilities of your MIDI system, and offers some rather unusual features to help you achieve amazing musical results. A primary aspect of the program centers around its ability to easily create MIDI Macros. These are strings of MIDI commands that can be sent out over any MIDI channel(s) and triggered by any MIDI event.This means you can: hit a key or program change on your Keyboard Controller and have MIDIMAX turn it into a Master Program change that will send different patch changes for each MIDI channel; Re-map any Continuous controller to any other controller, such as changing your Modulation Wheel into a MIDI Volume controller; change the feel of your keyboard with flexible velocity scaling; even control MIDI lighting. Another powerful feature is MidiMax's use of Chord Maps. Single notes can generate chords of up to 18 notes, making you sound like an entire orchestra all by yourself using real-time, multi-voice, multi-channel modal harmonization! The program effects instant switching between 8 MIDI Chord Maps, either manually or via any MIDI trigger, such as a Patch Change, Note on the Keyboard or Pedal. An unlimited number of Keyboard Splits are possible, as many as your Keyboard has Notes! MidiMax also can turn your ST into an intelligent Thru box which will filter MIDI events such as a Program Change or Aftertouch either to, from, or out any MIDI channel! A Bulk Load/Save feature lets you easily switch between a number of configurations, each of which transfers a MIDI Macro buffer along with 8 MIDI Chord buffers, an MIDI Chord Editor has 38 fields for entering Note and Channel information in either an individual Trigger or Global



MidiMax

section, along with a host of additional buttons for defining entered data and determining additional parameters. There are different boxes for entering and editing MIDI Macros, and a Play menu allows for activating or silencing various Macros and Chords from the ST keyboard or mouse, although these can also be recorded as MIDI Macros and triggered from any MIDI Controller. The program also conveniently runs as a Desk Accessory, allowing you to use MidiMax from within your sequencer program! MidiMax allows truly endless possibilities for MIDI controlling.

CodeHead Technologies P.O. Box 74090, Los Angeles, CA 90004; (213) 386-5735.

MIDIBOSS ($75) ENABLES ONE click of the mouse, or key press on either your ST keyboard or MIDI Controller, to reconfigure MIDI settings and/or download new patches to all your synths, otherwise saving you hours of trying to recreate all the settings that made your sequence sound so great the first time!

Save and edit 128 different patches, each of which can send Patch Changes, MIDI Volume and Mute/Solo settings for each of 16 assigned MIDI channels, as well as a 32K Sys-Ex dump for each of 16 synth modules. Load and Save an individual Patch or up to 2 Banks of 64 Patches each, along with groups of Devise Names, Bank Patch Names and Sys-Ex requests for each Patch. Patches can be renamed, and a built-in Notepad feature adds up to 5 lines of text to be saved along with your Saves, which can also be sent to your printer along with individual Patch Parameters and Patch lists. A separate Menu button allows access to every menu option when the program is run as a desk accessory, a neat idea! Double clicking on a patch name brings up a second screen where individual synths can be named and assigned a MIDI Channel, Volume, Mute and Solo. Most impressively, a Map Edit window with a Thru or Zone Mapping configuration can be stored for each

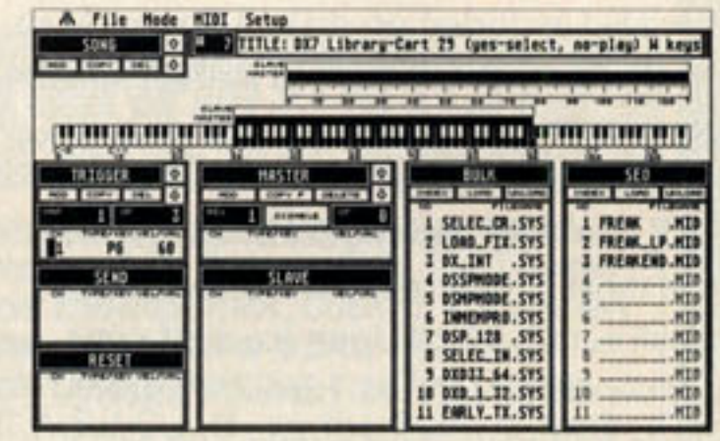
MIDIBoss

Patch, so that even the most limited Controller can do multi-Splits and Overlaps, as well as send multiple Velocity, Note, Controller and Program Change maps. There are a number of Help screens, including one that outlines MIDI's more basic functions and specs, along with a Clipboard to Edit, Copy and Swap patches. A menu of MIDI Filter and Port options and a MIDI Thru feature add to the roster of configurable items, proving MIDIBOSS to be a valuable program for any musician who has more than one MIDI module and wants to keep a firm hold on all of them... without losing it all!

-Fadi Hayek

Johnsware 5802 42nd Avenue, Hyattsville, MD 20781-1632; (301) 927-1947.

SLAVE DRIVER VER. 2.1 ($199) IS more geared for the performing musician, although certain aspects of the program can be utilized in the studio. One of the common problems with playing on stage alongside a sequence is there's little room for "cutting loose" in other than the pre-defined structure of your 16-bar solo. Slave Driver offers the performer or lone home recording studio musician a way of engineering some realtime flexibility while playing along with a pre-programmed band. You can use the program to avoid paying the otherwise expected admission price of a fixed feel, tempo and structure, and actually enjoy the show from the comfort and convenience of your MIDI keyboard controller. The smallest grouping of MIDI data is referred to in the program as a Master/Slave relationship. I might mention here that this terminology is derived from defining the original MIDI condition of "slaving" one unit's MIDI internal clock to another MIDI instrument with external clock syncing capability, such as a drum machine to a computer sequencer, hence the play on the term "Slave Driver", and all further references springboarding off this concept are merely a fun play on this original "slang" description. A MIDI message that's sent by your Master controller is assigned, or Slaved, to a pre-defined MIDI message, or group of messages (up to 255) by the program, which Slave Driver can then interact with and/or direct back out on any number of MIDI channels. Several Master/Slave groups can be active at once and stored as a Map, which contains a Send list that defines the environment Master/Slaves will function under. Sys-Ex bulk dumps, MIDI messages and standard MIDI File sequences can be included, and the program loads, plays, starts, and stops these, while also allowing you to stretch extended solos through a defined loop, or even arrange sections on the fly! An accompanying Reset list sent at the end returns all settings to pre-defined defaults. Maps are activated and changed by a specific MIDI event, referred to as a Trigger, and each Song can have up to 255 Maps. Songs can be arranged into a Set, and a total of 255 Songs can be held in memory. The Trigger, Send, Reset, Master and Slave fields can all receive input by any of three methods: mouse, ST keyboard, Controller, or any combination of all 3. A Bulk window shows dumps loaded from the program's Bulk Librarian and a Sequence window lists the sequences assigned to each song. There's an assignable Panic button and many other useful features, but here's the best part: leave your monitor home by setting your keyboard or module's LED/LCD text display screen to receive and scroll the names of your songs, as well as various transmitted commands! Models currently supported for this feature include: Alesis' D4 drum unit, Roland's "D" series of keyboards and rack modules and Yamaha's DX/TX series. The next update, due the first half of '93, will offer Future Slave Driver which will help anyone to "master" their future gigs, offering them true freedom from being "slaved" to a mere sequence!



Slave Driver

-Fadi Hayek

Mind Over MIDI 302-9131 Capella Drive, Burnaby, B.C. V3J 7K4; (604) 444-4424.

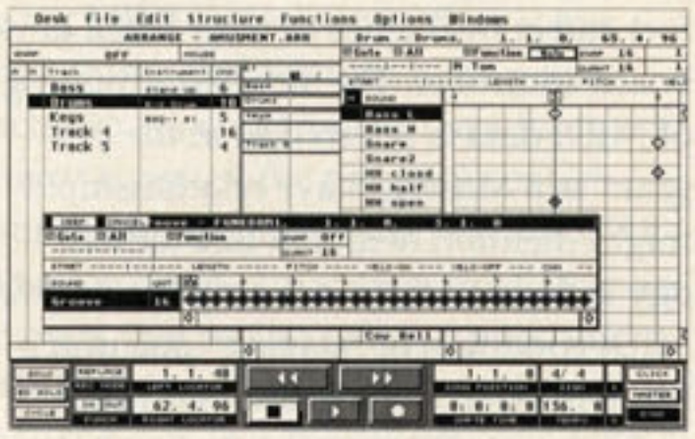
THE MAPPER UNIVERSAL DRUM CONVERTER ($56) is a clever and practically indispensable piece of software for any musician who's ever had to deal

with the sometimes exhausting task of trying to adapt a sequence created with one set of MIDI note assignments for various drum sounds to their own set up of MIDI drum sound note assignments, computer sequencing software or their own keyboard's on-board sequencer. The Mapper supports conversion of sequences from Cubase, Notator, and original 24, as well as any standard MIDI file format, and a number of preset Source/Destination Maps for the most popular MIDI keyboards and modules are also included on disk. A Source Map contains a list of standard drum categories with 100 of the most commonly referred to names, which The Mapper will scan and automatically match with the most closely related names in the Destination Map. Upon loading your sequence, all located Tracks/Patterns/-Parts will have their names and MIDI channel numbers listed and sorted. After selecting the MIDI channel containing your drum parts, all Tracks/Patterns/Parts on this MIDI channel will be converted to the selected Source and Destination Maps. If no match is found for a unique instrument, the user can manually assign it to a specific name. After the conversion process is finished, a copy of your original sequence is created with the newly assigned drum notes. The Mapper also has a Play Thru Convert feature which can come in handy for automatically re-mapping your chosen drum module's sounds to your controller's usual Key positions. Whether you run a recording studio, use more than one MIDI module source for your drum sounds in your home studio or simply like to swap sequences with your friends, The Mapper can really be a great time saver.

Corrigan Marketing 114 Lakewood Circle, Smyrna, TN 37167; (615) 459-2960.

Midi Utilities

DNA GROOVES ($113) ARE SETS OF Quantize Templates for Steinberg's Cubase Sequencer. Each DNA Set contains 36 variations of an original Groove —a rhythm that's been accurately captured from a piece of actual recorded music. This music is analyzed and broken down into its rhythmic elements, after which the feel is extracted in the form of a quantize template which can be loaded directly into Cubase for immediate use on your sequence. Each rhythmic variation is processed under three categories: Pulse Motion, Beat Motion, and Fills. To create a comprehensive set of templates to fit most musical applications and tempos, each rhythm is divided into 12 pulse divisions, resulting in 432 different Groove Templates per disk. Never before has so many options for processing rhythm been available to musicians. By the end of 1992, there will be more than 30 DNA



DNA Grooves

disks, each of which contains 432 different templates for a combined total access of well over 10,000 different groove templates, any of which can be used to customize and process your music. When the No More Static module becomes available for Cubase, the capability for aspects of controlling tempo combined with DNA Grooves will prove to be a formidable and sophisticated music composition system. DNA Groove disk are available at all music retailers. Also coming soon '93 from WC Music Research are DNA Beat Blocks sampling CD's with over 500 live recorded loops by such world renowned drummers as Stubb Lefield, the renowned funky master drummer with godfather of Soul, James Brown.

-Fadi Hayek

WC Music Research P.O. Box 675, Station K, Toronto, Ontario, Canada M4P 2H1; (416) 444-6644.

SYSDAT ($60) IS A BACKGROUND downloading bulk dump librarian with full transmit and receive capabilities which can run as a standard desk accessory or program, and has been specifically crash-proofed to enable running it in conjunction with otherwise MIDI-unfriendly accessories and programs. Sys-Ex files can be stored and loaded on an instrument basis as well as a set of songs, allowing flexibility for both individual synth owners and larger multi-synth MIDI setups. Files can be copied, swapped and moved within each window or between groups, and extensive editing of the actual data for each file is also available. Mind Over MIDI's Remote MIDI multi-tasking system is supported for using with the company's present modules, as well as a number of soon to be announced releases.

-Fadi Hayek

Mind Over MIDI 302-9131 Capella Drive, Burnaby, B.C. V3J 7K4; (604) 444-4424.

ENTERTAINMENT SOURCE LIBRARY -BAND EDITION ($75) from Cumberland Software contains 25 standard music industry contracts in ASCII text format for importing into any word processor or desktop publishing program. Samples include booking agent, recording, management and publishing contracts, which can then be altered or amended to suit a particular situation.

This is a useful and valuable product for anyone who has made a career out of music or is interested in getting a look at what the various kinds of standard contracts may look like.

Corrigan Marketing 114 Lakewood Circle, Smyrna, TN 37167; (615) 459-2960.

MC COMPUTERS SOFTWARE

Your One Stop ATARI Sales & Service Since 1985.

Your computer is more than just a dedicated sequencer.

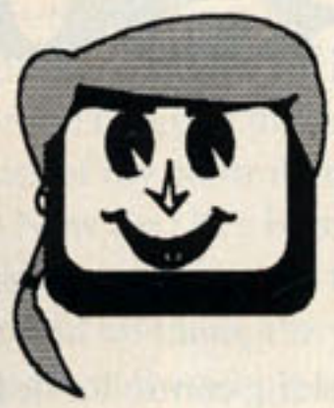
We are *the* Atari specialists to show you how.

Make flyers, create mailing lists, keep track of expenses, process lyrics, music training & more.

IT'S PARTY TIME
OPEN HOUSE

January 30th, 10am to 7pm

Seminars, Refreshments, Door Prizes, Artists, Free Classes, Talk to the Pros, Schmooze!



We *are* the answer to your Computer & Music Software & Hardware needs...

We have competitive pricing and provide the best after sale support with hands on help.

CLASS SCHEDULE

Mid-Cities Computers are now providing classes to our clientel. Subjects to be covered are; Basic Computer Skills, Tips & Secrets., Beginning & Advanced Edit/SmpteTrack., CUBASE: A Songwriters Guide, Notator Secrets, A.D.G. Method to Better MIDI Music, Beginning & Advanced Desktop Publishing, You, Your Business & Your Atari., C.A.D./ C.A.M. on the Atari, & More.

Sign Up NOW Seating is Limited

Classes Starting FEBRUARY 6th.
4 week course, Call for Details

Financing, Layaway Plans, In-house Repair and Service and now our new on site Computer Learning Center .

These are just a few of the services we offer. Come and experience the Mid-Cities difference.

C:\ MC SYSTEMS\ ACCS.\ SALE*.*

25434 best parts in 1 location

***FAST* Atari SLM605 LaserPrinter**	**$ Special**
Deskjet 500 Laser Quality	$ 399
Deskjet 500C Budget color	$ 599
Deskjet 550C 2 Ink Carts In 1	**$ 725**
Atari TOS I.4, 6/2 Chip Set	$ 59
Atari TOS 2.06 Chips	$ 59
TOS 2.06 Extension Card(s)	$ 149
21Mb PLI FLOPTICAL(Complete)	**$ 485**
21Mb Floptical Disks only	**$ 24**
MC Systems 50 MB Hard Drive	**$ 435**
MC Systems 120 MB Hard Drive	**$ 585**
MC Sys 44 MB SyQuest w/Cart	$ 599
NEW MC Sys 105 MB SyQuest t	$ CALL
Xtra RAM SIMM Board	$ 79
Supra 9600/2400 Fax & Modem	**$ 145**
ICD AdSpeed STe 16MHz	**$ 225**
Fast Tech. T-25MHzAccelerator	**$299**
Spectra GCR w/ROMS (MAC)	**$379**

MIDI & MUSIC

E:\ MIDI\MUSIC\SALE *.*

54368934 best notes in 1 location

Band in A Box Pro. v.5	$ 69	**Platinum UpGrade from Gold**	**$ 110**
Cubase 3.01	**$ 479**	***NEW* GenEdit 2.0**	**$ 139**
Cubase Lite	$ 116	EZ Score Plus(Auto-Notation)	$ 99
Cubase Studio Pac(Midex)	$ 1055	**Digital Master EX 4tk Dig Rec.**	**$3999**
MasterScore 2.0 (Notation)	**$ 395**	Notator 3.15	$ 499
SmpteTrack Platinum	**$ 399**	C-Lab Export	$ 145
Edit Track Platinum	**$ 199**	**Take Note (Music Educ.)**	**$ 59**
EditTrack Gold	$ 79	Hyberswitch (Multi-Tasking)	$ 24
SmpteTrack Gld. w/SMPTE	$ 349	StereoMaster Sampling (STE)	$ 64

BUSINESS!!

ENTERTAINMENT

F:\ PRODUCTIVITY\ SALE*.*

19234 best prgs. in 1 location

Warp 9 v.3.73 (in stock)	$ 32
***NEW* Diamond Edge**	**$ 49**
***NEW* Card File 4**	**$ 29**
Stalk the Market (stocks)	$ 65
Disk Lable Maker	$ 24
EdHak 2.3	**$ 22**
Lattice C 5.5	$ 199
HiSoft Basic 2	$ 129
Devpac 3.0	**$ 117**
PowerNet (Networking)	$ 68
TurboNet (Nodes)	$ 22
***NEW* UltimateVirus Killer**	**$ 27**
Flash II	$ 37
SuddenView (reads All)	$ 22
XBoot 3	$39

MC.SYSTEMS

MC HARD DRIVES

PRODUCTIVITY

D:\ DTP\ SALE*.*

41234 best software tools in 1 location

PageStream 2.2b(Postscript)	**$ 199**
Calamus SL (full color)	$ 650
Cal-Assistant (on-line help)	$ 23
***NEW* Invision**	**$ 105**
Compo~Script (Postscripter)	$ 275
PageAssistant(on-line help)	$ 31
WordPerfect for Atari	**$ 179**
Caligrapher GOLD	**$ 179**
Type 1 Fonts (100's of them)	**$ 10**
Migraph OCR (IMG.to Asci)	$ 269
MegaPaint 2 Pro.	$ 169
Avant Vector (Bit-2-Vector+)	$ 479
Arabesque Professional	**$ 129**
Convector Pro.(Bit-2-vector)	**$ 105**
Sihlouette (Bit & Vector)	$ 89
DeskJet Utilities Pack	$ 26
MegaKern	$ 68
ImageCopy	$ 21

D.T.P.& GRAPHICS

TRASH

MC COMPUTERS SOFTWARE (310) 867-0626

Mid-Cities Computers & Software 9406 Flower St. Bellflower, CA. 90706

Your "Totally User-Friendly" store
Call for our *NEW* **MC Catalog**

Profile On: JON ANDERSON

By Peter Donoso

JON ANDERSON, PROBABLY best known for his distinctive contributions as lead vocalist with the legendary band YES, is in fact a *mage adept* of numerous other musical worlds as well, contributing his talents to the film score for *Legend*, and the equally star-studded *Requiem For The Americas* album. Having become entranced by the myriad threads of textured sound that seemed to literally flow from the fingers of keyboardist/composer extraordinaire Vangelis, their first meeting proved to have all the makings of an enduring friendship. This inevitably led to a total of 3 albums released to date, each one woven together with increasing proficiency, each intertwined to create ever-evolving themes and movements on a well-meshed collaborative loom during the course of continued re-unions from their other respective engagements. Their latest result, *Page Of Life*, is due out as an early '93 release.

It was during the process of forming the motifs of their first musical tapestry that Anderson found his melodic senses awakening to directions and possibilities beyond the initial allure of newly-discovered sounds. He felt moved thereafter to develop a wider knowledge of compositional and piano skills, in the hopes of being better versed at expressing those beguiling little melodies that would often float by as his fingers passed over the keys.

Anderson had his first encounter with Atari computers after hearing hushed tales of another magician—inventor/musician Jimmy Hotz, who, it was whispered, was able to conjure wondrous musical structures, defying all description, that could be summoned effortlessly at his command through some instrument of his very own making. Anderson soon took flight to California and followed his ears to the very doorstep of the Hotz studio. There, amidst a host of incredible electronic equipment, Anderson had at last come to the end of his Quest.

"I know I can count on my Atari to be there every time."

"You have to picture this place—literally a dense forest of computers and MIDI gear—basking in the glow of these 12 Atari monitors that are running all sorts of various MIDI sequencing and utility programs. Scattered among these are a half-dozen oscilloscopes, all undulating at various speeds, and you have some notion of my first introduction to music-dedicated computers and the amazing Hotz Translator. I was never one for feeling really at ease with computers, but once Jimmy showed me how easy it was to use an Atari and all the incredible music that just came shooting and oozing out of this very unusual-looking controller he had hooked up to them, I knew I had stumbled upon an entire new universe of possibilities for expressing my own musical ideas. There is no question that this is the greatest musical instrument since the invention of the piano."

Co-incidently, Anderson was also in the process of formulating his own compositional controller—consisting initially of a number of drum percussion pads that would trigger various sound modules—which he dubbed his "Tree" system. After seeing some of the things the Hotz Controller could do, Anderson recognized an instant connection between his vision and the one that lay illuminated before him. Mesmerized by the scope and depth of both Hotz's knowledge and experience with computers and MIDI, as well as his formidable musical expertise, Anderson enlisted Hotz's aid on perfecting his Tree system. It naturally followed that soon after, Anderson had indeed set up his own Atari-based music system, consisting of an Atari 1040ST^{E} running the Hotz software, which he uses with both the Hotz Translator and his new Tree system setup, and an Atari MegaST^{E} for Notator. His new studio captured the interest of his daughter Deborah, who is in the beginning stages of getting material together for her own album, and his son Damion, quite taken by the Translator's flexibility and features, has found his own particular style of playing on the Hotz controller as well.

"Damion has a dance single out in

Europe now, and he has developed a different way of approaching the Translator. He plays it more like a Sampling kind of system. That's one of the things I find so interesting about Jimmy's unit. Different people can play it in all sorts of different ways to suit their style, or open doors that can lead them to whole new ones. Of course, I couldn't explore anywhere near the range of these possibilities on either of my controllers without my Ataris. Now that I've become fairly comfortable learning how to use them and get around on them, I'm getting ready to upgrade the whole system; shift up to the next level of Ataris, with faster processors and even more memory. My own work—my music—continues to be special to me, and I feel very confident about developing it and where I want to take it. I'd like to start getting into Holo-sound, this sort of dimensional surround-sound thing. There's some exciting new technology that's happening, and I'm eager to get a look at the new Atari Falcon030 as well. I hear it's quite a remarkable machine, with a fairly nice-size hard drive built right in the case. The amazing thing about Ataris is, if the hard drive should ever happen to crash, you can still have your system up and running right off of floppy disks. I mention this to people and occasionally, one of them will fall quiet still... then they'll ask me how is that possible? I explain to them that the operating system's built in to the computer. Some computer systems depend totally on their hard drives because there's so much code they need in order to run it. If their hard drive up and crashes—those nasty things that some system hard drives have a tendency to do—they might be able to run things off of floppy disks, but it'll take them a lot longer to get things done on them.".

Anderson feels the new YES album in production with fellow members Rick Wakeman, Chris Squire, Tony Kay, Alan White and Trevor Raben is, "turning out to be quite marvelous in the way it's all coming together; it's got that classic YES sound to it!" The album is due to be finished for a Summer of '93 release. In between sessions he manages to keep himself busy with a number of other exciting undertakings. Apart from the beginnings of a joint project with guitarist Steve Howe, as well as his exciting co-compositional venture on some new pieces with Jimmy Hotz, Anderson has also embarked upon a melding of east and west with spectacular productionist and New Age musical shogun, Kitaro. Having recently contributed 3 songs to this synth wizard's latest album, *Dreams*, which is out in stores now, Anderson has also written an original symphonic piece which the two will be performing together on an upcoming limited Asian tour. Will he be taking his Atari and Hotz Translator with him on the road?

"Absolutely. We did 2 performances recently at Radio City Music Hall in New York and they really went over great. I couldn't have pulled it off without either of them. I can honestly say I've yet to have a problem with my Atari. It's been real solid, and when you do the kind of ambitious shows that Kitaro stages, everything has to fall in when its time comes, to keep the mood and atmosphere of the visuals linked to the flow of the music. It's like a huge extra-terrestrial kind of orchestra, and each section plays an essential role in the over-all performance. I know I can count on my Atari to be there every time."

Scoring Software Round-Up

IT USE TO BE THE ONLY WAY you could get your song or score professionally produced was to employ a transcription specialist and commercial printer. If you happened to make your living as a professional Copyist or Arranger, burning the midnight oil was often the norm, staying up all hours of the night to get those charts, transcriptions or re-writes for transposition finished for that familiar client who absolutely must have them by dawn.

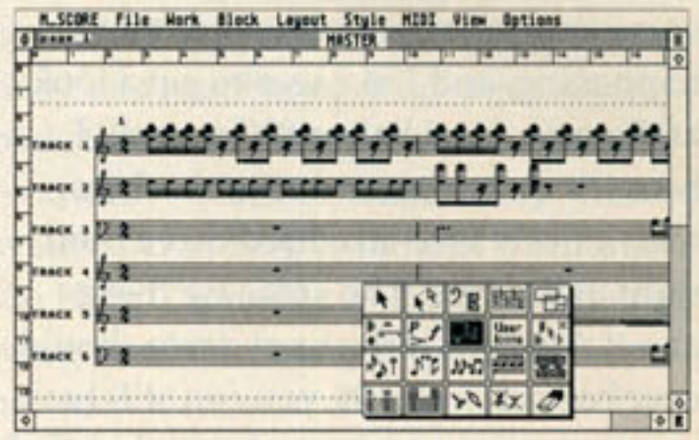
Any product offering the promise of delivery from this recurring fate is reason alone to make a professional run out and buy a scoring program, but these days any musician or composer who writes either songs or for film can also share the same advantages of being able to quickly assemble and view their printed work in record time. Some programs let you enter lyrics in a word processor, import them in ASCII format, and then easily and accurately set both titles and lyrics in a variety of attractive typefaces, while others offer full-fledged DTP capabilities.

Present day music notation endures as a viable and universal language for translating musical ideas, and computer based scoring programs can be just as useful a tool to the overall creative process as your favorite sequencer.

-Fadi Hayek

Stand-Alone Programs

MASTERSCORE II ($450) IS A DESKtop score Publishing program that handles the often complex task of scoring music with features and tools that are now commonplace in Desktop Publishing environments. Most of the program's functions are really as simple to use as any word processor. There's a flexible Macro Maker feature to help speed up commonly used functions, and the program even boasts Text Macro capabilities. A **Grand Staff Editor** window lets you create and layout templates that can be saved and reloaded for quick setup or additional adjustments. You can determine stave distancing and positioning, as well as identifiers, brackets and Drum staves here as well. After loading a sequence, a **Song Info** window appears listing all statistics, including Tracks and (if the sequence was originally created with a Steinberg sequencer) Parts, along with their respective Names and Lengths. These can all be edited here as well, allowing you to rename tracks, change their order and length, and assign any or all portions of your song for scoring. Select which parts to notate and Masterscore II instantly converts your sequence to traditional notation. Because of a difference in features and functions between various sequencers, some aspects of your score may get lost in translation. Masterscore II effectively provides the tools and means to restore these elements and fine tune your score for achieving a satisfying layout. Like Cubase, Masterscore calls up its own comprehensive Tool Box icon menu with a simple click of the right mouse button. Its Tools include a Clef tool for selecting various clef symbols, including drum notation, a Select Key tool for setting or making changes to the key signature anywhere in the score and a Stem Direction tool that lets you either position or change note stems (either up or down) manually or offers a calculation feature that will automatically determine the direction of a stem from the pitch, length



MasterScore II from Steinberg-Jones

and duration of notes. Transposition is also just a mouse click away. As with all of Masterscore II's Tools, you have a choice of blocking entire note sections or selecting individual notes for editing. You also have the option of using any combination of computer keyboard, mouse or MIDI Keyboard input to get your score just right, although using a combination of mouse and MIDI keyboard seems to yield the quickest results. Unlike other programs which may require you to align text to notes manually, Masterscore II instantly aligns the lyric word to the mouse-selected note you select, making alignment of multi-syllable words easier and more accurate because you can manually type in every syllable to its corresponding

note. The program supports the importing of ASCII files as well, and uses G-DOS to provide you with access to various fonts (4 G-DOS fonts are included). Masterscore II also has something to contribute to drummers. Page-Layout allows you to format your own sizes, as well as supporting preset layouts for paper sizes A3 through A5, B3 though B5, double, legal, Kanzlei and Folio, with a choice of output in portrait or landscape format. Printing can begin from any selected page, and can be interrupted without loosing track of the last page printed. Fully M-Ros (Steinberg's own multi-tasking shell environment) compatible, and therefore able to run along side Cubase, the program can import sequences in Cubase, Cubeat and standard MIDI file formats, as well as Steinberg's older Twenty four and Twelve sequencer formats. Even with the alternate choice of such an advanced combination sequencing/scoring program like Cubase available, Masterscore II can still be an ideal tool for classical composers, arrangers and copyists who, for the most part, don't use sequencing programs but require an instinctive and powerful scoring program that can achieve results quickly with little effort.

Steinberg-Jones 17700 Raymer Street Suite 1001, Northbridge, CA 91325; (818) 993-4161.

COPYIST DTP VER. 1.7 ($349) IS A very extensively featured scoring program with the kind of Desktop Publishing features that insure quality performance and remarkably good output. Although the program works primarily with sequences created and saved in KCS format—the prime engine for Dr. T's KCS Omega ensemble that together form a powerful sequencing workstation—it will also convert older KCS Level II, Master Tracks, Steinberg Pro 24 formats, as well as any other program which enables saving its sequences as a standard MIDI File. Copyist DTP supports scores of up to 100 pages with up to 16 Staves per page and uses GDOS for it's font management. A number of licensed Adobe fonts are included for use with your PageStream DTP program. The Score Editor allows notes to be entered using either the mouse or ST keyboard, or any combination of both; and individual Notes, Symbols, Staves, Lyrics and Text can be positioned any place on the page.

"Present day music notation endures as a viable and universal language for translating musical ideas "

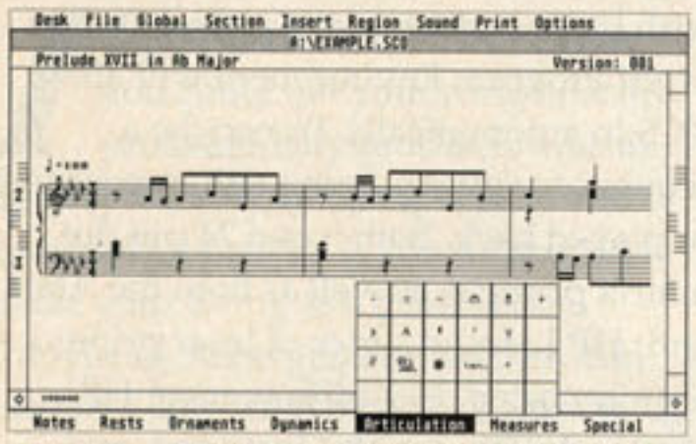
A clever Note/Text Clipboard allows the user to Copy, Move, and Paste any Symbols or Text on either the present page, or anywhere else in the manuscript, and a Delete function makes it easy to correct mistakes. Along with the standard set of Treble/Bass clef Staves, Copyist DTP also offers Choral Arrangement capability, with Alto, Tenor and Soprano clefs, as well as a Percussion clef for symphonic scores and arrangements. A related convenient and time saving feature allows for instant Transposition between any Part, by designating the source clef and clef to be changed to. The program enables you to specify traditional Guitar Chord symbols, which can also be cleverly expanded for Lute to accommodate display of both extended strings and fret positions. In addition to Notes and Text, both individual and groups of Bars, Measures, Staves or Pages can also be either Copied or Moved, and Pasted freely as well. Horizontal and Slanted Beams are available for positioning in either direction, and Arpeggios, Ties, Smooth Slurs, Dynamics and Trills are also easily placed. If you happen to need some esoteric Symbol that is not part of the standard library, Copyist DTP even has a user-definable Symbol editor and also offers an editable Macro feature to make short work of repetitive procedures. The program's Sequencer MIDI File transcription capabilities are quite impressive. Drum Parts can automatically be transcribed in Percussion Notation, individual configurations can be assigned to each Track—along with a number of Transcription Parameters—and Tracks can be assigned to any Stave or group of Staves, and also adjusted with independent quantization. Dr. T's Multi Program Environment will allow KCS to automatically Transcribe a sequence *while* it is being either recorded or played back. Both 9 and 24 pin dot matrix printers, as well as both the Atari and HP LaserJet series of laser printers are supported. In addition, most HP Plotter drivers are also included, and PostScript is fully supported as well. Scores can be saved as TIFF files for importing to Desktop Publishing Programs that support this format. Copyist Apprentice ($139) has most of the features of the Professional version with the exception of support for Laser Ouput, the Symbol editor, Macros and Part Extractions, and supports a maximum of 5 pages for each Score. If you're looking for a top-quality program that gives you a flexible environment with a long list of comprehensive options, Copyist DTP is the number to play!

-Peter Donoso

Dr T's Music Software 124 Crescent Road Suite #3, Needham, MA 02194; (617) 455-1454.

EASY SCORE PLUS ($85) PRODUCES a crisp, finished-looking, attractive score, and allows for inclusion of text and guitar chord symbols. Four basic layouts—Solo, Piano, Piano/Vocal or Trio—are available, and the program supports either Draft or Final mode with drivers available for the most popular 9 and 24 pin dot matrix printers. You can either use the Auto-Scoring function in the program to convert a sequence

originally created with SmpteTrack or EditTrack into an Easy Score Plus notation file, or use the MIDI Mover public domain file conversion program (included in the package) to import any standard MIDI file and translate it to Easy Score Plus format. The other option available for producing a score is to build one from scratch in either real or step time. Notes can be entered using the mouse, ST keyboard, or any MIDI instrument and screen re-draws are



Barefoot Software's Easy Score Plus

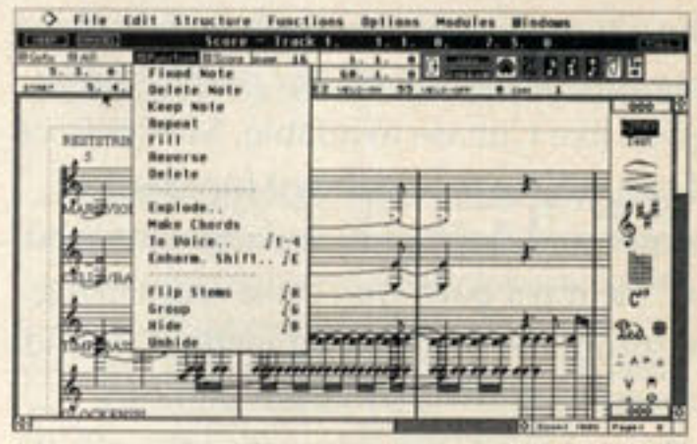
fairly quick, even without the ST's BLiTTER chip enabled. Easy Score also has the ability to map Cursor positioning as well as a number of Editing functions to your MIDI keyboard controller. Variable Stave Spacing is also available, covering all major and minor key signatures and a comprehensive Lyric Editor lets you place text anywhere on your manuscript. Additional Symbol capabilities include sophisticated Beam and Tie placement, instant Bar/Rehearsal Mark location, and variable Chord/Guitar symbols, additionally, both Copy and Delete functions are enabled for all features. All told, Easy score Plus offers more than 100 notation Symbols, including such finer touches as bow marks for strings. Screens can be captured in Degas format for importing into most DTP programs, and the program can also be used in conjunction with Hybriswitch, Barefoot Software's multi-switching, memory-driven environment, which can load and facilitate moving between as many as 10 well-behaved GEM programs. Easy Score Plus is great for those musicians looking for a simple yet versatile leadsheet or three-stave transcription program. Monochrome monitor required.

-Fadi Hayek

Barefoot Software 19865 Covello Street, Canoga Park, CA 91306; (818) 727-7143.

Integrated Sequencer/-Notation Programs

CUBASE ($499) PRODUCES EMINently readable musical notation from MIDI data, bridging the gap between an utterly logical machine and a traditional, deeply human form of communication, very much open to the expression of the writer and the interpretation of the reader. A formidable sequencing program on its own, Cubase's notational features combine a host of powerful logical tools with the elegant flexibility that lends the appearance of the human touch, accurately interpreting MIDI data intelligently, and the program packs enough editing power to let the user finish the job quickly and easily. The Score Module, which can be optionally loaded, depending on available memory, consists of both an Edit Mode, where the Score Edit window works as a normal score editor by displaying MIDI data as notation, and a Page Mode, where the Score Edit window is transformed into a completely open-ended score layout environment. The Edit mode offers a convenient Chord Display, which lets you see the chord that's being played either during playback or in realtime. You can quantize to a set note value, or leave Cubase to distinguish between tuplets and non-tuplets. A Grand Staff can be assigned multiple tracks or used for simpler piano scoring, provide beamless notation for vocals or intelligently handle polyphonic voicing. The Cubase Toolbox configured for this window employs Scissors and Glue Tube for Cutting and Pasting, a Pencil for drawing Notes, Symbols, Slurs, Crescendo/Diminuendo marks and a Layout icon which lets you fine tune your notation by compacting or widening measures anywhere in the score. All changes are immediately reflected in the MIDI output, and a last-level Undo option assists you in auditioning changes. The Score Editor also includes a MIDI Meaning feature that uses symbols to define velocity and length values. Each Symbol can then represent a different Velocity Range, automating the task of scoring expression. Cubase can also score for drums. By using the new Drum Map option you can assign notes to Drum notation. Switching to Page Mode, the user can vary the view size from extreme zoom to 1/4 of the original size. It also lets you define the number of Staves and the maximum number of measures per staff. With the Layout tool, you can move any and all of the score elements without affecting the MIDI output. The clever severing of these two elements keeps things looking



Cubase from Steinberg-Jones

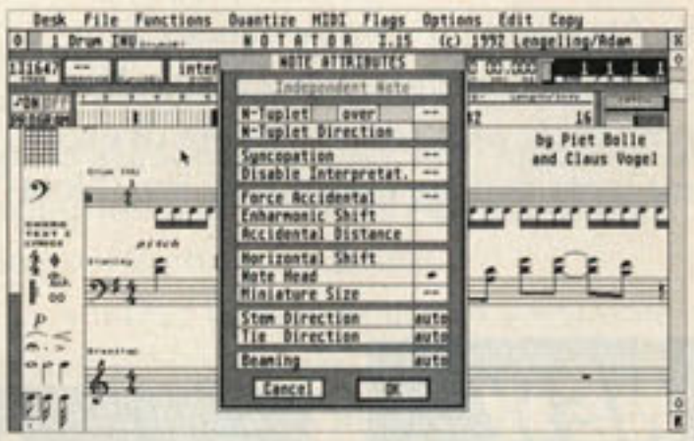
as well as sounding good, with no sacrifices on either part. Any element of the score can be hidden, which becomes invaluable for printing scales or producing alternative notation of rests and graphic notations. Cubase can even insert chord symbols in a choice of regular chord symbols or guitar fretboard symbols automatically, making short work of lead sheet production. Text can be inserted freely or on a one-syllable-per-note basis. In short, Score Edit can produce a score for any situation. Included with the program are drivers for every type of printer covering both a wide range of 9/24 pin dot matrix printers as well as Atari and HP lasers. Standard GDOS text fonts are supported, letting you choose from a wide variety of available fonts. The

Score Edit module is a well-integrated tool within this powerful sequencing program for the musician who prefers an exacting way of working within a sequencing environment.

-Fadi Hayek

Steinberg-Jones 17700 Raymer Street Suite 1001, Northbridge, CA 91325; (818) 993-4161.

NOTATOR ($699), AS ITS NAME implies, adds a number of impressive notation features to it's popular Creator sequencing environment, integrating the two in a seamless package that offers the user a wealth of tools and methods for shaping their music that will result in a very professional-looking score. The program's scoring section exists and interacts in realtime alongside its various graphic editors, establishing a mutual link throughout that ensures all changes made in either Notator's sequencing or scoring sections are instantly reflected throughout the program's variety of display and editing windows. This affords the user a versatile and flexible set of options that can shift between the more commonly used procedure of recording a sequence through the medium of a MIDI Keyboard and the ability to build a piece, complete with a host of dynamics and markings, while immersed in a traditional copyist's notational domain. Notator offers a number of formats that can basically be divided between piano, ensemble, and full orchestral formats that may incorporate any mixture of single and double Staves, for a total number of 32 Staves per page. The process of entering notes demands a very exacting skill which the user can master with practice and patience, by developing a sensitivity to the movement and workings of the mouse. In the course of this process the user will be constantly reminded of how precise Notator reacts to the subtleties of timing. The program intelligently adapts to the presently designated meter, and maintains an ideal of spacing that makes it easy for a sight reader or pianist to follow the score with little effort. If, for example, an eighth note is placed slightly before its intended destination, Notator will automatically create a tie linking it to the quarter note preceding it, relegating the overall score process to a balancing of techniques that combine the transparent insert/overwrite features of a word processor with the more exacting placement and positioned aspects of a desktop publishing program. Clicking on any note head contained within the score calls up a dialogue box, which will allow the user to manipulate the note in MIDI terms,



E-Magic's Notator

thereby providing additional flexibility between both worlds. Chords can be either assigned uniformly to be played by one sound module or split and assigned separate MIDI channels, effectively providing the means for faithfully creating and generating Ensemble and Chamber group parts. Notator is excellent for producing Piano scores, but specific spacing requirements for ensemble and orchestral scores are equally well met. Relative bar spacing among multiple Staves is automatically adjusted with graphic micro-shifting, which the program intelligently administers by taking an average note density among all staves on the page for each related bar and spaces them accordingly with professional results. A standard Symbol palette located at the lower left hand of the screen provides the majority of most commonly used scoring elements, while a larger library can be called up simply by moving the cursor below the bottom of the display, after which individual elements can then be transferred to the working palette for continued use. Using the right mouse button, a variety of Clefs and Key Signatures can be quickly cycled through after being positioned, and placement of such scoring elements as pedal point, pizzicato and diminuendo/crescendo marks (which can be either stretched or shortened) all produce relative dynamics within the sequence portion of the piece, affecting related MIDI data by establishing or adjusting associated note durations, velocity and sustain. Clicking on the Lyric menu selection calls up a cursor which tracks each note, assuring that every word appears at its proper musical occurrence. The Lyric editor will also auto-stretch or compress the score to accommodate syllable spacing requirements as well, and a Page View mode assists in establishing that proper relations are visually pleasing to the eye as well as confirming their correct musical placement. The actual process of printing your score is also well served by the program, which offers a Default printout option that provides both the opportunity to decide, for instance, how many bars per page should be printed, as well as an intelligent analysis that can save the user both paper and toner by catching mistakes, such as allocating too many staves to a page, before you commit your score to print. I find Notator to be a fine piece of logical equipment, one which I have found continually indispensible in meeting the needs of my varied musical compositional and transcription assignments.

-John Jainschigg

E-Magic—Distributed in the U.S. by:
Ensoniq 155 Great Valley Pkwy, Malvern, PA 19355; (215) 647-3930.

MULTITUDE PRO/NOTATION ($595) combines all the incredible aspects of Oktal's MULTItude PRO with an additional host of notation functions. These added features enable you to create, edit and print scores with true WYSIWYG (What You See *on screen* Is What You Get

on paper) capability. A realtime transcriber instantly converts the sequence into notation as it's being entered; and there's a function that allows you to define and remove any value of Rests that may appear as a result of quantizing. Total number of pages allowed per score are limited only by available memory, and a full consortium of Symbols can be flexibly applied. Auto-Beaming; with unlimited degree of angle; realtime dynamics placement and triplet rendering; andfull clef support are all available. A variety of Score formats are offered, and a Lead sheet format gives the user a choice of assigning up to 8 specified tracks, including percussion. Drum tracks are given a choice of Head symbols to apply for automatic formatting, and a formidable number of text features are also available. Text can be imported directly in a number of popular word processor formats, and then manipulated using such familiar wordprocessing features as tabs and indents. There's also a number of drawing tools that will be able to create lines, squares and circles of varying thicknesses, as well as the ability to import and incorporate the popular and versatile .IMG format file for positioning graphics anywhere on a page. The user can also select any number of specified Staves and Pages for custom format printing, and a special Preview Page feature will provide an accurate view of each page before committing it to print. MULTItude Pro/Notation supports both the Atari and HP family of laser printers, as well as most 9 and 24-pin Epson-compatible printers. A number of excellent fonts that are exclusively Pro/Notation related will be supplied with the program, although at the time of preparing this review Oktal had not yet confirmed (but it is fervently hoped) that the new Atari Speed-O GDOS format would also be incorporated for use with the program as well. In closing, the combination of MULTItude's Pro sequencer features with an equally formidable number of scoring and notation capabilities will certainly help MULTItude Pro/Notation maintain a strong footing in the arena of major sequencing-with-notation players.

-Peter Donoso

Oktal 315 Rene-levesque East, Suite 110, Montreal, Quebec, CANADA H2X 3P3; (514) 844-3428.

Cogswell College: Where Music and Engineering Compute

By Sue Baelen

IT'S NO SECRET THAT ATARI computers are a powerful instructional tool and especially well-suited to educational applications in a classroom environment. But when it comes to music education, an Atari computer combines a host of versatile features with a generous existing music software base. This offers a practical and affordable system that is easy to use and one which already has a MIDI interface built right into the machine.

Whether the class is just starting out with the elementary rudiments of music, or reviewing orchestration and scoring for a full big band or symphony orchestra, any model from the entire line of Atari ST^{E}/TT030/Falcon030 computers can prove an invaluable aid in helping people of all ages to learn how to read, write and play music. You can bet that the computer will be just as easy and fun to operate for the young adult or teenager as it is for an elementary school student. Not surprisingly, a number of courses and programs around the country have discovered just how important a contributing factor that dynamic is to the process of learning.

In Lorain, Ohio, Leslie Jennings attracts an assortment of children to his Saturday afternoon computer class. Jennings teaches them about music composition and theory using an Atari 1040-ST^{E}, a MIDI keyboard, and a separate drum machine—spicing up his weekly instruction with secrets on how superstars Madonna and Michael Jackson use computers to get all those great sounding parts on their albums.

Another unique image of computer music education can be found in Cupertino, California, 40 miles south of San Francisco at Cogswell Polytechnical College. Eric Peterson is Co-Chair of the Music Engineering Technology Program (MUSET) at Cogswell, a small private school dedicated to applied engineering.

Founded in 1887 as one of California's first colleges, Cogswell today has almost 400 students in attendance, and boasts an impressive 97% job placement rate for their graduates. Although you may not think of an engineering school as being on the forefront of music education, Cogswell College feels strongly about the compatibility between such seemingly divergent disciplines, as program founder Eric Peterson explains.

"We identified a need for engineers who could bring a musical understanding and sensibility to the industry. The MUSET program, which had its beginnings here in the summer of '88, now offers graduates a bachelor of science in engineering technology and a minor in music technology. It's the only such program in the country. Our graduates are looking to take their place in the development side of the music industry. The program includes training people to design and build not only the musical processes and systems of the future, but the musical instruments that will utilize these systems as well.

"Our students are engineers first and foremost, but they have a passion for music. Those priorities are important to us. Students come here to be great engineers. Working with music, they take all of the core engineering courses: physics, mathematics and computers, but they add to that a practical understanding of how technology is used in today's music production."

MUSET's faculty represents a broad spectrum of the music industry. Their staff members are music practitioners who can provide students with a first-hand understanding of the technology's applications. Cogswell's MUSET program got its official charter in the fall of '89, and Atari was there to help make a key contribution to the birth of its graduate program. The company donated eight 1040 STs and continues to be actively involved by arranging for hardware and software support.

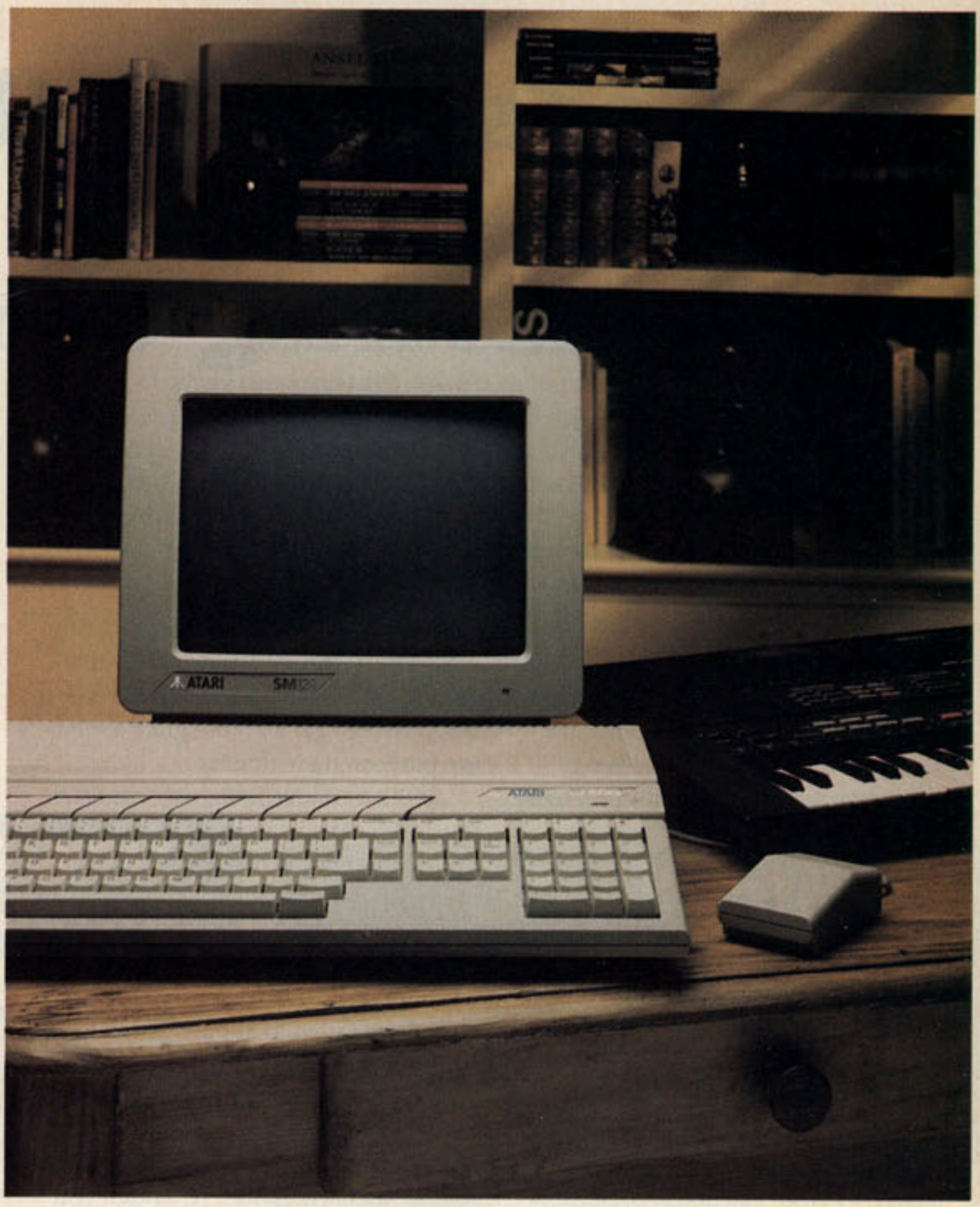
Eric focuses on the advantages of an Atari music-based system. "The Atari has many advantages. Its direct memory access (DMA) provides outstanding performance, and its timing advantages allow for direct SMPTE lock so we can avoid the less accurate MIDI time code.

In addition, the Atari is a versatile machine that serves as a great transition and learning opportunity. It gives our students the chance to gain a wealth of experience, including new and different applications that are of special interest from the technical side. Students and staff alike are very excited about the digital audio possibilities of the new Atari Falcon030."

Working with Atari computers, students learn about algorithmic composition, notation and advanced sequencing. That complements their other courses, which range from music fundamentals to techniques and disciplines, including: Synthestration - Using Synthesizers in Orchestration, Audio Recording, and Audio for Video Post-Production.

In addition to their courses, some of Cogswell's students take advantage of a work co-op program. This gives them an opportunity to gain valuable experience contributing to the development of the hardware and software tools they use in class.

"There's a wealth of businesses in the Bay Area focusing on music technology. That allows us to offer a wide variety of work experience. We have students working at Atari Corporation, Opcode Systems, Zoom Corporation and E-Mu Systems, to name just a few."



What does this mean for the future of the music industry? "Computer music has already had a great impact on the way music is composed, written and produced," explained Eric. "Professional musicians will continue to benefit from advancements in technology and applications, learning both new techniques for creating and packaging their music.

"Of course the traditional instruments and techniques will always be there and will be preserved, but popular instruments will continue to change to meet our modern living situations.

"You'll see instruments continue to conform to our smaller living spaces; they'll be smaller and more private, just like the drum pads that replace huge drum kits. In addition, the instruments will need to be usable with less learning time because the general public gets so much instant gratification form listening to ready-made music. People want it to sound like that when they play it too."

Professor Peterson sums up the goals and future of Cogswell College's unique program. "We're just starting to see our own audio publishing revolution. Just as desktop publishing made design and printing technology universally available, new music technology will make it possible for people to realize their own compositional ideas in an orchestral context—easily and inexpensively.

"Cogswell students and graduates will be designing, building and implementing those advancements every step of the way, and hopefully making the same kind of revolutionary contributions to music technology as we think the new Atari Falcon030 computer will be making to music in the years to come. Atari has been a very important part in our continuing efforts to provide students here with an engaging and exciting approach to a thorough and well-rounded curriculum of engineering and musical studies."

Atari Computer Dealer Directory

The following regional listing contains the names of Atari dealers in your area. Please patronize them, and mention Atari Explorer when you do!
Note to Dealers: Why not list your store in Atari Explorer's Dealer Directory? Call Darren Meer, Advertising Director, at (408) 745-2134, for details.

WEST

ATY Computer
3727 13th Ave.
Oakland, CA 94610
(510) 482-3775

Authorized Atari Business Computer Center. We specialize in ST, STe, TT, Portfolio, STacy. Full line of accessories and peripherals. Large selection of domestic and European software.

IB Computers
9244 SW Beaverton-Hillsdale Hwy.
Beaverton, OR 97005
(503) 297-8425

2511B West 11th Ave.
Eugene, OR 97402
(503) 485-1424

Atari Buisiness Computer Center. Full hardware and software selection for all Atari computers. Call for free price list.

Mid-Cities Computers & Software
9406 Flower St.
Bellflower, CA 90706
(310) 867-0626
(310) 920-8933 - FAX
Tues.-Fri., 10am-7pm, Sat. 10am-6pm

Complete range of Atari hardware and software including the STacy, STe, and Portfolio. Full computer repair and service center.

CENTRAL

Compu-Seller West
220 1/2 West Main St.
St. Charles, IL 60174
(708) 513 5220

ST/TT and XT/AT sales and service.

B&G Electronics, Inc.
15729 Madison Ave.
Lakewood (Cleveland), OH 44107
(216) 521-2855
Surrounding states: (800) 522-2634
24-hr. BBS: (216)-PEEK (7335)

Authorized Atari Business Computer Center. Full line of 8-bit and Mega ST software and hardware. Open Mon.-Sat. 10am-6pm, Tues./Thurs. til 7pm. Major credit cards.

Computer Discoveries
12801 Midway Road, Ste. 201
Dallas, TX 75244
(214) 484-9104

Texas' premier Atari dealer. We specialize in the Atari ST, Mega, and STacy computers. Software, hardware, parts, and quality service.

EAST

Computer Zone
28 E. Washington St.
N. Attleboro, MA 02760
(508) 699-0430

Large selection of Atari ST software. Atari 520ST and 1040ST systems. Software always discounted. Layaways available. Major credit cards accepted.

Dallee Electronics
4246 Oregon Pike
Brownstown, PA 17508-0280
(717) 859-6673

- Atari Business Computer Center.
- Factory Authorized Sales & Service.
- Atari TT's, STe's, Portfolio, Lynx, hardware, software, and accessories for all in stock!
- Visa/MC accepted.
- In by noon, out the same day!

Home Computer Store
12008 Bustletom Avenue
Philadelphia, PA 19116
(215) 934-6999

Authourized Atari repair dealer. Full line of software for the 8-bit and ST. Visa/MC/AE accepted. Open Mon.-Fri. 12:30-9pm, Sat. 10am-6pm. Mail orders gladly accepted.

Toad Computers
556 Balt. Annap. Blvd.
Severna Park, MD 21146-3818
(301) 544-6943 - Info
(800) 448-TOAD - Orders
(301) 544-1329 - FAX

One of the nation's primary Atari resellers and developers is also Maryland's only authorized Atari Business Computer Center. We're not your average bear. Stop by and see our complete selection of productivity, utility, and game software. Atari ST, TT, STe, Mega STe, Lynx, Portfolio, 8-bit, and ST Book supported. Open Mon.-Sat.

Index to Our Advertisers

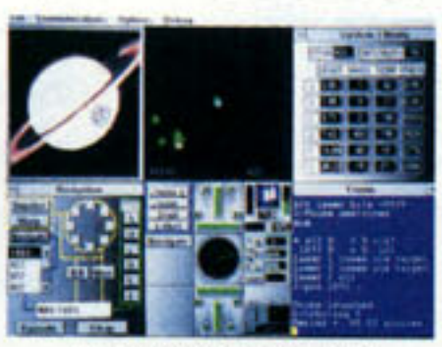
THIS OPPONENT IS PROGRAMMED TO BE CHALLENGING.

this one wants to rip your lungs out.

If you think you're good at games, then let's have some real fun. When you're online with GEnie® Multi-Player Games, you're playing real people, in real time. Some of the best players around the world. □ Splash a bandit in Air Warrior®, and you've just taken out eight other guys, who'll be back gunning for you. Blast a MechWarrior® in MultiPlayer BattleTech™, and who knows? Could be that jerk from the coast. Could be a mercenary who's looking for a few good friends. □ With GEnie, the possibilities are endless, the people are terrific, and even the prices are competitive. So put some new life into your joystick, and sign on. We'll see just how good you are. □ Sign up now: 1. Set your modem for half duplex (local echo) at 300, 1200 or 2400 baud. 2. Dial toll free — 1-800-638-8369. Upon connection, enter HHH 3. At the U # = prompt, enter XTX99312, Atari92 then press RETURN 4. Have a major credit card or your checking account number ready. □ For more information in the U.S. or Canada, call 1-800-638-9636.

AIR WARRIOR®

MULTIPLAYER BATTLETECH™



STELLAR EMPEROR™

KESMAI corporation

GEnie®

multi-player games

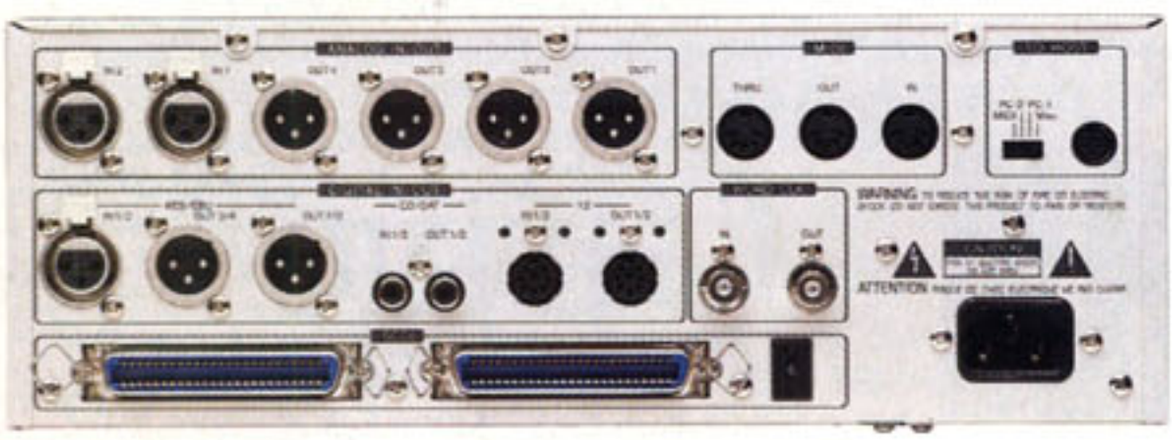
100% ORGANIC OPPONENTS

Digital Recording for Computers in the Real World.

If you're thinking about hard disk recording, you've probably heard that you'll need to buy a bigger, faster computer, with more slots and accelerators, that will end up costing you a whole bunch of money.

Until today!

The new Yamaha CBX-D5 Digital Recording Processor, developed in cooperation with premier hardware and software designers throughout the world, can be immediately interfaced with the most popular and affordable computers being used today. This impressive list includes Atari (ST, TT, and the new Falcon), Apple Macintosh (SE30, all II models, Quadras, and PowerBooks), IBM PS2, and even clones running Microsoft Windows 3.1.



detail of back panel

The CBX-D5 system was designed to let your computer compute and your storage devices store while the CBX-D5 handles the processor-intensive work. The CBX-D5 controls digital multi-track recording, analog-to-digital and digital-to-analog conversions, digital audio routing, digital signal processing and digital equalization, digital inputs and outputs in all standard formats, word clock synchronization, MIDI, and much more.

Cooperative design input from companies such as Mark of the Unicorn, DynaTek, and Steinberg made this all possible. The CBX-D5's modular format also provides a logical upgrade path with the ability to add more tracks, more storage, and more computing power without disrupting, scrapping, or obsoleting the rest of the system.

See the Yamaha CBX-D5 Digital Recording Processor in action at your local Yamaha Dealer or call 1-800-932-0001, extension 500 for more information.

Yamaha Corporation of America P.O. Box 6600 Buena Park, CA 90620 714-522-9011

YAMAHA