

Documentation for the DIGPAK & MIDPAK Developers Kit v1.50

by

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DIGPAK & MIDPAK DEVELOPERS KIT
EXISTS IN THE MAIN LIBRARY AS:

DMKIT.ZIP

Document first draft: January 3, 1994

second release: March 8, 1994

third release: March 25, 1994
fixes to SB16.COM
and first release
AWE32 driver.

fourth release: April 19, 1994
BETA VESA release.

fifth release: January 1, 1995
DIGAUTO, auto-detect DIGPAK
TMIX - The new digital mixer!
RECORD - audio recording tool
PEND - now has volume control too!

sixth release: January 13, 1995
Flat model TMIX now supports
MOD files!!!!

seventh release: January 16, 1995
Added protected mode GUS
support.

IMPORTANT NEW FILES FOR BETA VESA RELEASE:

PASWAVE	COM	6,825	ProAudio Spectrum VESA Driver
SBWAVE	COM	7,091	Creative Labs SoundBlaster VESA Driver
OPL2	COM	6,567	OPL2 VESA MIDI driver (early beta, music implementation very incomplete.)
MPU	COM	4,656	MPU401 VESA MIDI Driver.
DIGVESA	COM	5,792	DIGPAK VESA Driver
VESADIG	ADV	6,288	AIL VESA Digital Driver
VESAMID	ADV	12,352	MIDPAK & AIL VESA MIDI Driver

VESAMID ADD

MIDPAK MIDI Descriptor file.

You must load the VESA drivers in your autoexec.bat, or whatever prior to using the DIGPAK & MIDPAK VESA drivers which talk to that beta VESA interface.

IMPORTANT NEW FILES FOR v1.5 DMKIT RELEASE:

PEND.EXE Now let's you modulate volume on the fly.

RECORD.EXE Records audio and writes it to disk in real-time.

DIGAUTO.COM This is an auto-detect DIGPAK driver. It fully autodetects the 5 most popular sound cards. It can only be used as a TSR, not as a demand loadable driver.

TMIX.EXE The 4 channel digpak digital mixer. Way cool.

MIX1-8.SND These are test sound effects for the DIGPAK digital mixer. These sound effects are owned by John W. Ratcliff and you do not have usage right to these sound effects in any fashion. These sound effects are copyright (c) 1995 John W. Ratcliff

TUNE.MOD Demonstration MOD file, for the protected mode MOD player.

ORPHAN.ZIP This zip file contains timer based, and other DIGPAK drivers for sound cards which now appear to be effectively obsolete in the market place. Not all of these drivers have been kept up with more recent revs of DIGPAK, and shouldn't be relied upon, without thorough testing for your application. Few, if any, will work in protected mode.

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The Audio Solution
747 Napa Lane
St. Charles, MO 63304

DIGPAK : DOS based digital sound drivers.
Written by John W. Ratcliff (CIS:70253,3237)
Copyright (c) 1994, The Audio Solution.
\$500 per/product distribution license fee.

MIDPAK: DOS based MIDI music player.
Written by John W. Ratcliff and John Miles
Copyright (c) 1994, The Audio Solution.
\$500 per/product distribution license fee.

=====
What is DIGPAK and MIDPAK?
=====

DIGPAK and MIDPAK are a set of drivers which provide a device independent API layer under DOS real-mode and protected mode that supports virtually all sound cards. DIGPAK allows playback of digital

sound and MIDPAK allows the playback of General MIDI music on ALL sound cards (including Adlib, SoundBlaster, and other non-MIDI devices through the best MIDI emulation package available.) DIGPAK and MIDPAK operate either as DOS TSR's or can be demand loaded and dynamically linked by your application. (The preferred method).

Unzip this file, with sub-directories, into a directory called THEAUDIO and point your PATH statement to the directory. Once you have done this you can go to any directory on your machine containing MIDI files or sound files and type MENU to use MIDPAK and DIGPAK to peruse them.

DIGPAK & MIDPAK are for use by professional DOS developers who need to incorporate sound and music in their products across a wide range of hardware devices. These tools are not for the layperson, or beginning programmer. All programming examples and interface specifications are presented in the C and 8086/80386 assembly languages. If you are not familiar with digital sound, MIDI music, and C and assembly language programming then this programmers kit is probably not for you.

This kit supports both DOS real-mode as well as DOS protected mode interface layers. All assembly language source code must be assembled with Borland Assembler (in IDEAL mode) and the C code may be compiled with any C compiler. The real-mode C code presented here was developed with Borland C 3.1 DOS IDE and the flat-model C code was generated under Watcom C386 v9.0.

=====
Who developed DIGPAK & MIDPAK?
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DIGPAK and MIDPAK were developed by John W. Ratcliff, a game developer for Electronic Arts. These drivers were created to allow me to incorporate sound and music in my game Seawolf for Electronic Arts. MIDPAK uses the MIDI drivers developed by John Miles of Miles Design.

=====
What's the quickest way to look at the software?
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Run SETUP to configure both DIGPAK and MIDPAK for your sound card. Then type MENU to play some music and sound. After running SETUP you can also run TEST, TEST16, or SEGUE, to run the demo programs.

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Who uses DIGPAK & MIDPAK?
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The list which follows are just some of the companies which use the DIGPAK and MIDPAK drivers in their DOS based entertainment products.

Electronic Arts	Epyx
Activision	Fun Univ Netwk
Spectrum Holobyte	Home Brew Software
The Software Toolworks	Humongous Entertainment
SSI, Strategic Simulations Inc.	ICOM Simulations
Milliken Publishing Company	Interplay
Commodore Computer	IntraCorp
Virgin Games	Kram
Compu-Teach	Legacy Software
Knowledge Adventure	Macmillan/McGraw Hill
Gametek	Magnetic Images
Access Software	MECC
Alive Software	Merit Software

Azeroth Publishing
Bethesda Softworks
C.R.A.P.O., Inc.
Concepteva
Cooper, R.J. & Assoc.
DC True
Dennis Cunningham
Three-Sixty Pacific
Destiny Software
Edmark Corpoartion
Simutronics
Stragem
T&t Research
Waterford Institute
Wesson International

Microleage Sports Assoc.
Ninga
Norsehelm Productions
Objects, Inc
Optimum Resource
Presage Software Co. Inc.
Quantum Quality Productions
Redwood Games
Saddleback Graphics
Safari Software
White Wolf Productions, Inc.
XOR Corporation
Trilobyte
Masque Publishing
Iterated Systems

and many more...

=====
What products use DIGPAK & MIDPAK?
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Below is just a very PARTIAL list of the product that use DIGPAK & MIDPAK drivers.

Guardians of Eden	Access Software	MidPak
Return to Zork	Activision	DigPak
Mechwarrior II	Activision	DigPak
Animal Quest	Alive Software	DigPak+MidPak
Magic Crayon	Alive Software	DigPak+MidPak
VGA Jigsaw	Alive Software	DigPak+MidPak
Inspector Gadget:	Azeroth Publishing	DigPak+MidPak
Terminator 2029	Bethesda Softworks	DigPak
Le Ponctueur	C.R.A.P.O., Inc.	DigPak
Bilou	Concepteva	DigPak
Switch Progressions	Cooper, R.J. & Assoc.	DigPak+MidPak
Switch Quik	Cooper, R.J. & Assoc.	DigPak+MidPak
Stepping Stones Bonus	Compu-Teach, Inc.	DigPak+MidPak
Shadow President	DC True	DigPak
T-Zero	Dennis Cunningham	DigPak+MidPak
Battle Cruiser 3000AD	Three-Sixty Pacific	DigPak
Creepers	Destiny Software	DigPak+MidPak
Millie's Math House	Edmark Corpoartion	DigPak
KidDesk	Edmark Corporation	DigPak
Fun Univ Ntwk Intfc	Fun Univ Netwk	DigPak+MidPak
Wheel of Fortune	Gametek	DigPak+MidPak
Gateworld Trilogy	Home Brew Software	MidPak
PuttPutt's FunPack	Humongous Entertainment	DigPak+MidPak
PuttPutt Joins Parade	Humongous Entertainment	DigPak+MidPak
Fatty Bear	Humongous Entertainment	DigPak+MidPak
PuttPutt Goes to the Moon	Humongous Entertainment	DigPak+MidPak
Beyond Shadowgate	ICOM Simulations	DigPak+MidPak
Battle Chess 4000	Interplay	DigPak
Grandmaster Chess	IntraCorp	DigPak+MidPak
Space Adventure	Knowledge Adventure	DigPak
Dinosaur Adventure	Knowledge Adventure	DigPak
Realms of Avarton	Kram	DigPak
Mutanoid Math Challenge	Legacy Software	DigPak+MidPak
Mutanoid Word Challenge	Legacy Software	DigPak+MidPak
Sights & Sounds	Macmillan/McGraw Hill	DigPak

Places to Play	Magnetic Images	DigPak
Oregon Trail Deluxe	MECC	DigPak+MidPak
Tom Landry Football	Merit Software	DigPak+MidPak
MicroLeague Baseball IV	Microleague Sports Assoc.	DigPak+MidPak
MicroLeague Football II	Microleauge Sports Assoc.	DigPak+MidPak
Microleage Cards	Microleage Sports Assoc.	DigPak
Math Zone	Milliken Publishing	DigPak
Marvin The Moose	Milliken Publishing	DigPak
Milliken Storyteller	Milliken Publishing	DigPak
Math Sequences	Milliken Publishing	DigPak
Cribbage Master	Ninga	DigPak
Ragarok (Valhalla)	Norsehelm Productions	DigPak
Layout for DOS	Objects, Inc	DigPak+MidPak
Stickybear Townbuilder	Optimum Resource	DigPak
Contraption ZAck	Presage Software Co. Inc.	DigPak+MidPak
Spaceward Ho PC	Presage Software Co. Inc.	DigPak+MidPak
Solitaire's Journey	Quantum Quality Productions	DigPak+MidPak
Pickle Wars	Redwood Games	DigPak+MidPak
Guzzle Puzzles	Redwood Games	DigPak
My Paint	Saddleback Graphics	DigPak
Space Chase 1,2,3	Safari Software	MidPak
GemStone III	Simutronics	DigPak+MidPak
Cyberstrike	Simutronics	DigPak+MidPak
WorldAtlas	The Software Toolworks	DigPak+MidPak
Chessmaster 3000	The Software Toolworks	DigPak
BodyLink	Stragem	DigPak
Pools of Darkness	Strategic Simulations Inc.	DigPak
Gateway to the Savage	Strategic Simulations Inc.	DigPak
DNA Parrot	T&t Research	DigPak
Monopoly Deluxe	Virgin Games	DigPak
Waterford Mental Math	Waterford Institute	DigPak+MidPak
ATC/Tracon	Wesson International	DigPak
Empire Deluxe	White Wolf Productions, Inc.	DigPak+MidPak
NFL Challenge	XOR Corporation	DigPak
Chess Maniac 5,000,001	Spectrum Holobyte	DigPak+AIL
The 7th Guest	Virgin/Trilobyte	DigPak+AIL
Seawolf	Electronic Arts	DigPak+MidPak
KaleidoSonics	Masque Publishing	DigPak+MidPak
Gambit	Electronic Arts	DigPak+MidPak
Warlords II	SSG	DigPak+MidPak

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 What type of 'commercial products' does the license fee apply to?
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Any piece of software which uses the DIGPAK & MIDPAK drivers for which the developer collects a fee REQUIRES a license. Yes, this INCLUDES shareware proudcts as well as those that sit on the shelf at a computer store. This also includes distributable multimedia demos, for which the multimedia authors were paid a fee to create. If you are bidding on a multimedia project and intend to use MIDPAK and DIGPAK, then be sure to include the \$1,000 license fee in your budget!

If you are making money because of the value that these drivers add to your product, then we deserve a license. There are several man-YEARS of engineering work in these drivers, as well as continued expenses to maintain them. The license fee serves as little more than a 'maintenance' fee for us to keep the drivers up to date, as well as run the BBS for people to get continued improvements and updates.

Do NOT use DIGPAK and MIDPAK if you are not prepared to pay the license

fee. Every single one of the products and companies listed above have paid this same license fee for the right to distribute the DIGPAK and MIDPAK drivers.

=====
Can I get a DIGPAK and MIDPAK license for a development tool?
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NO!! The license for DIGPAK and MIDPAK is for multimedia, entertainment, and educational products which need support for interactive sound and music. Development tools based on the DIGPAK and MIDPAK drivers are NOT allowed!! If you want to create a development package that utilizes the DIGPAK and MIDPAK drivers then you must contact me directly to discuss such an arrangement. You are NOT allowed to resell, DIGPAK and MIDPAK drivers under any conditions as a developers toolkit. This includes any sort of multimedia authoring toolkit. The reason for this should be obvious. You would be in effect re-distributing DIGPAK and MIDPAK drivers license free, to other developers, and this is not allowed. That's not to say we can't come to an agreement, but you cannot obtain a license for any type of developement or authoring system using DIGPAK and MIDPAK drivers.

=====
What do I do if I want to add sound and music support by don't want to pay a license?
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Call Mystic Software at 1-510-865-9189. The Worx toolkit from Mystic software does not require any license fee and is a very nice development package. Though it does not support as many sound cards as DIGPAK & MIDPAK, it is a very servicable development tool.

=====
What if my shareware product has a free portion, and then a registered portion?
=====

Then no license fee applies for the FREE version. If you are developing public domain tools and utilities that support DIGPAK & MIDPAK, and they are truely FREE, then no license fee applies. If that public domain tool is a development aid, tool, or authoring system, then the DIGPAK and MIDPAK portion of that tool MUST contain this COMPLETE document and make it extremely clear that the distribution license fee still applies to anyone using that authoring tool.

=====
If I use both DIGPAK and MIDPAK in a product how much is the total license then?
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\$500 for DIGPAK and \$500 for MIDPAK, for a total of \$1,000. Even if you sell 100,000 copies of the product, the license is still only \$1,000. Unfortunately even if you sell just 100 copies, the fee applies as well.

=====
How do I pay my license?
=====

Write a check payable to The Audio Solution, and include with it a copy or your product. Mail the check to:

The Audio Solution
John W. Ratcliff
747 Napa Lane
St. Charles, MO 63304

Shortly thereafter you will receive a signed copy of the license agreement. Once you have paid the license fee, the agreement is considered in effect and you may distribute your product with the drivers. You must, however, pay the license fee PRIOR to your product being shipped.

DIGPAK & MIDPAK are copyrighted software components. If you distribute The Audio Solution drivers without having a signed license agreement you will be in violation of our copyright. Your product could be required to be immediately removed from retail distribution. I don't think this is going to be a problem.

If you don't think DIGPAK & MIDPAK add \$1,000 of value to your product, then do not use them, period. Use the Worx Toolkit from Mystic, or write your own sound code. But DO NOT use these drivers unless you intend to pay the license fee.

All DIGPAK drivers combined equal almost 20,000 lines of assembly code. And the same is true for all of the MIDPAK drivers. John Miles and myself have invested over 4 years creating and maintaining these drivers. We are making this developers kit widely available to the developer community as a service to the industry. It is our goal to make these excellent development tools available to everyone. But we have bills to pay like anyone else. As a self-employed entrepreneur I do not get a paycheck, health insurance, paid vacations, or any of the other amenities that salaried employees have. If people use these tools to enhance their product and generate revenue, then I feel strongly that I should be paid a license fee for these drivers.

=====
I'm a shareware author and I can't afford \$1,000 until I get enough registrations. What do I do?
=====

Send me a copy of your shareware product on my BBS along with a piece of e-mail explaining your situation. In most cases I will issue a SHAREWARE LICENSE AGREEMENT that will require payment of the FULL license fee once you have received 500 paid registrations for your product. If you don't receive 500 registrations, then you will not have to pay the license fee. But once you have received 500 registrations you MUST pay the license fee. As a shareware author I'm certain you understand not wanting to be ripped off, and likewise I would expect you to pay your license for the DIGPAK and MIDPAK drivers in good faith. You must come to an agreement with me prior to the release of your shareware package.

=====
I'm doing software development for the disabled. Even though I have to charge a fee for the software to cover expenses, we are a non-profit organization. Could I be exempted from the license fee?
=====

In general yes. I would like to provide exemptions to anyone using DIGPAK and MIDPAK to create software to help the disabled. However, you will still need to receive a signed license agreement with that exemption. Please contact me ahead of time (via Compuserve or my BBS), and let me know about what you are doing. When your project is complete you will receive a signed distribution license agreement, with the exemption. Simply send me a copy of your product and a check for \$1 to cover the license fee. This DOES NOT include EDUCATIONAL SOFTWARE created by any FOR PROFIT organization.
=====

What kind of digitized sound format does DIGPAK support?

None. DIGPAK is a low-level API layer. It simply insulates the programmer from having to talk DIRECTLY to the hardware. The data you pass to DIGPAK is the same data you would have been passing to the sound card itself. DIGPAK requires raw 8 bit unsigned PCM data in the first 1mb of address space in under 64k lengths. Stereo 8 bit support is provided with interleaved left channel/right channel 8 bit samples. Support for 16 bit digital sound in DIGPAK is provided through raw 16 bit SIGNED data. Why signed? Because every single 16 bit PC sound card I have encountered supports 8 bit unsigned PCM and 16 bit signed PCM. The DIGPAK drivers, in almost every case, simply passes that chunk of audio data out to the DMA controller.

Interpreting .WAV files, .VOC files, or .ANYTHING files is a higher application level problem, one that you will have to provide support for yourself. Since I always use audio data in RAW format by bringing it over from the Macintosh I have no use or need for various sound file formats.

If you don't know what 8 bit unsigned PCM, 8 bit interleaved sound, and 16 bit signed sound means, then you will have to ask around on the networks or read some books. Though I have insulated the user from the ugly details of the hardware layer, I can't insulate you from knowing about sound programming. That you will still have to do on your own.

How do I play many sounds at once?

DIGPAK supports only a single channel of sound at once, which reflects the nature of almost every single PC sound card on the market. To play multiple sounds at one time requires that you 'mix' digital sound samples in real-time. Under protected mode DIGPAK I have a digital mixer that keeps a constantly running stream of audio data, up to 16 channels in 16 bit 11khz stereo in real-time taking almost none of the machine's CPU.

With this release (v1.5) there is now a full 4 channel digital mixer for DIGPAK, look at the demo application TMIX

How do I get technical support?

You ask around. Look at the list of products above. DIGPAK and MIDPAK work. Many other programmers as well as myself have been able to do tremendous things with the DIGPAK and MIDPAK programming interface. Just look at any of the PuttPutt products from Humongous Entertainment, or the music and sound in The 7th Guest (which doesn't directly use MIDPAK but uses the same MIDI driver and patch bank). Programming a computer is extremely difficult. That's why I have provided and will continue to provide lots of sample source code for DIGPAK and MIDPAK.

But I cannot provide one-on-one technical support. I have to write my games too, and I have found out that just answering hundreds of people's programming questions is a full-time job I'm not capable of keeping up with. First of all DIGPAK and MIDPAK licenses barely cover the cost of keeping the BBS up and running. Nobody wants me to charge even MORE for the drivers.

I haven't sold the DIGPAK and MIDPAK programmers kit for over a year. By making the DIGPAK and MIDPAK programmers kit widely available electronically I hope to make lots of people educated in the use of the DIGPAK and MIDPAK

programmers interface. Thus help will be available on the Internet, CompuServe, and other places in the electronic community.

=====
What about VESA?
=====

The multimedia sound card industry is highly political. I am fully supporting the VESA standard for sound and music. But it's not going to happen overnight. It will take at least the next 18 months before you will be able to get the kind of sound driver support under VESA that is currently available with DIGPAK and MIDPAK. Additionally DIGPAK and MIDPAK act as a value added API layer on top of VESA. Especially MIDPAK which provides extensive support for midi parsing, and interrupt service control.

=====
How do I use DIGPAK drivers?
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The DIGPAK drivers all have the filename extension of .COM. Starting at byte offset 3 from the beginning of the file is the ascii string 'DIGPAK'. The default DIGPAK driver should always be copied to the filename SOUNDRAV.COM. DIGPAK drivers hook user interrupt vector 66h, which is documented briefly in the book 'PC Interrupts: A Programmer's Reference To BIOS, DOS, and Third-Party Calls' by Ralf Brown and Jim Kyle, published by Addison Wesley.

You configure a DIGPAK driver by running the program SETD.EXE.

The complete API documentation for DIGPAK is in the file DIGPKAPI.DOC. The C link layer for DIGPAK is through the C prototype header file DIGPLAY.H and by linking to the object module DIGPLAY.OBJ produced from DIGPLAY.ASM.

A DIGPAK driver can be loaded as a TSR simply by typing it's name. You can load the default sound driver, as a TSR, by typing 'SOUNDRAV' and hitting enter. You can unload that driver by typing 'SOUNDRAV U'. The preferred method of using a DIGPAK driver is to demand load it in your program. This is done by including the header file LOADER.H in your program and linking to LOADER.C.

Simply look at the sample program TEST.C which fully demonstrates loading both DIGPAK and MIDPAK and plays both music and sound effects.

=====
How do I use MIDPAK drivers?
=====

The SETM program will configure MIDPAK appropriately for your sound card configuration. SETM creates the three file components for MIDPAK. They are MIDPAK.COM, MIDPAK.ADV, and MIDPAK.AD. MIDPAK.COM is the MIDPAK driver itself, which provides the API functionality through user interrupt vector 66h. MIDPAK loads into INT 66h as a layer ON TOP OF DIGPAK. Meaning if you want to use both DIGPAK and MIDPAK at the same time, you first load DIGPAK, and then load MIDPAK. The file MIDPAK.ADV is the AIL MIDI driver from Miles Design Inc. MIDPAK represents a subset of the full AIL specification. The complete AIL (Audio Interface Library) supports vastly greater interactive control over music. If you are interested in purchasing the complete AIL system you can call Miles Design at 1-512-345-2642. The AIL license includes full-source code

disclosure, real-mode, protected mode, and Windows DLL versions, and a \$7,500 one-time license fee (not for all three versions, but for each). Please don't call if you aren't prepared to pay the full license amount.

The last file is MIDPAK.AD. This is the instrument definition file for OPL2 and OPL3 base sound cards (adlib, soundblaster, etc.). This file is ignored on hardware MIDI implementation sound cards like the Sound Canvas, but is still must exist in the directory at load time.

This instrument file conforms to the general MIDI specification and was created by The Fat Man. There is a distribution license fee associated with the use of this MIDPAK.AD file! You must mail a copy of your product, a check for \$1, and include the following credit:

"General MIDI patches (c) 1994 The Fat Man and K. Weston Phelan"

The Fat Man
7611 Shoal Creek Blvd.
Austin, TX 78757
1-512-454-5775
BBS: 1-512-454-9990

Call the Fat Farm BBS to obtain more detailed information regarding the General MIDI license agreement.

Like DIGPAK, MIDPAK can be loaded and unloaded as a TSR. Simply type 'MIDPAK' and it will load and stay resident. Typing 'MIDPAK U' will unload the MDIPAK driver.

=====
What is 'eXtended MIDI'?
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MIDPAK, because it uses the AIL drivers from Miles Design, does not play MIDI files DIRECTLY. Your MIDI file must be converted into eXtended MIDI format. This is a pre-parsed MIDI file format created by Miles Design. The eXtended MIDI file format supports multiple MIDI sequences in a single file, that MIDPAK will let you switch to almost instantly using the PlaySequence command. You add multiple MIDI files to a single eXtended MIDI file (XMI) as follows: Say you have three song files call SONGA.MID SONGB.MID and SONGC.MID and wanted to put them all in one XMI file. You would do the following:

MIDIFORM SONG.XMI SONGA.MID SONGB.MID SONGC.MID

This places the three MIDI sequences into the single eXtended MIDI file SONG.XMI. They would be accessed in MIDPAK as PlaySequence(0) PlaySequence(1) and PlaySequence(2).

=====
What format should the MIDI data be in?
=====

On a true MIDI device like an MPU401 MT-32 or SoundCanvas, exactly what is found in the MIDI stream is passed to the device. So however that MIDI device responds to MIDI is what gets passed down. (Excluding SysEx messages).

But on an Adlib or SoundBlaster MIDPAK EMULATES a MIDI device. And that

EMULATION has certain restrictions.

Channels 2-9 are the melodic tracks.
Channel 10 percussions.

The patch set is in the general MIDI format.

I know very little about MIDI, and rely heavily on professional MIDI composers to provide my music. To get your MIDI music into MIDPAK compatible format so that it sounds GREAT, you can contact the following composers:

Wallace Music & Sound
Rob Wallace, Executive Producer
6210 West Pershing Avenue
Glendale, Arizona 85304-1141
1-602-979-6201

Computer Music Consulting
Donald S. Griffin
239 Richland Avenue
San Francisco, CA 94110
415-285-3852

The Fat Man
7611 Shoal Creek Blvd.
Austin, TX 78757
1-512-454-5775

These guys have all done numerous projects composing with AIL and MIDPAK. They know how to make an Adlib, SoundBlaster, and SoundCanvas sound AWESOME. But they are also professionals. Please DO NOT CALL any of these guys unless you are prepared to accept a bid for a project.

If you think the license fee for MIDPAK at \$500 is high, then wait until you find out how much a professional music score costs. Even for a small project you are talking several thousand dollars. So unless you have a legitimate music budget please do not call these guys.

I would recommend that you call Rob Wallace and get a bid on having all of your musical scores tweaked for the various sound cards.

=====
When I play my MIDI music with MIDPAK some of the music seems to be missing?
=====

Check your channel assignments. MIDI emulation on SoundBlaster etc, occurs on channels 2-9 for melodic tracks, and channel 10 for percussions. A lot of sequencing software saves MIDI out starting with channel 1. Channel 1 is ignored under MIDPAK's MIDI emulation. MIDPAK channel assignments were designed to emulate those of a Roland MT-32. Even though we have provided a set of General MIDI patch assignments, the channel assignments are still limited to 2-9 and 10 as indicated here.

=====
The music on MIDPAK sounds differently than inside my sequencer?
=====

Your sequencer is using a different set of patches than MIDPAK uses. Contact

any of the composers mentioned above to get your MIDI tweaked to sound good with the MIDPAK patches. BE PREPARED TO PAY A REASONABLE FEE FOR THIS SERVICE!! I strongly recommend getting your music done professionally. The composers listed above have great experience at making music sound good with MIDPAK.

=====
When I specify a volume change with MIDPAK nothing happens?
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MIDPAK's volume changes are relative to the base volume for that channel. If you didn't specify a base volume for each channel in your MIDI file then MIDPAK can't change the volume. You specify the base volume for a MIDI channel with a controller 7.

=====
Can I use the same MIDI file for all sound cards?
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No. But you can come close. Start by scoring for general MIDI, but it's best to tweak for SoundCanvas, General MIDI, OPL2/OPL3, and re-patch for MT-32. Base volumes are quite a bit different on each device, and different patches sound better/worse across these devices. The source code to the SETM (MIDPAK configuration program) is provided within (SETUP.ZIP) and depending on which sound driver the user selects you can copy different versions of your music.

=====
Why does MIDPAK hang under Windows?
=====

Because of a bug in Microsoft Windows it doesn't support all of the hardware interrupts on the machine. Specifically the CMOS real-time clock which MIDPAK uses. If you use the TMIDPAK.COM version of MIDPAK this will work under Windows but it might cause other conflicts with your application. One option is to use PMIDPAK.COM (polled MIDPAK) and to service the MIDI interrupt (at 120hz) yourself.

=====
What are all of these files?
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ADLIB.ADV	Adlib AIL MIDI driver.
ADLIB.ADD	Description file for ADLIB.ADV
ADLIB.COM	DIGPAK Adlib digital sound driver.
ADLIBG.COM	Adlib Gold DIGPAK sound driver.
ADLIBG.ADV	Adlib Gold AIL MIDI driver.
ADLIBG.ADD	Description file for ADLIBG.ADV
AGU16.XMI	Demonstration MIDI file by The Fat Man
AGU16.DES	MENU Description file for AGU16.XMI
ARIA.COM	DIGPAK sound driver for Sierra Semiconductors Aria cards.
ARIAXMID.ADV	Aria AIL MIDI driver.
ARIAXMID.ADD	Description file for ARIAXMID.ADV
GM2.BNK	General MIDI instrument file for ARIA (REQUIRED!)
BIGMOUTH.COM	DIGPAK driver for Talking Technologies BigMouth card.
CMIDPAK.COM	CMOS real-time clock version of MIDPAK>

COOL!.SND	Demonstration sound effect from Wallace Music & Sound
COOL!.DES	MENU Description file for COOL!.SND
CREDITS.XMI	Demonstration MIDI file from Wallace Music & Sound
CREDITS.DES	MENU Description file for CREDITS.XMI
CVXSND.COM	DIGPAK sound driver for Covox Speech Thing.
DESERT.XMI	Demonstration MIDI file from Wallace Music & Sound
DESERT.DES	MENU Description file for DESERT.XMI
DIGISP.COM	DIGPAK driver for Digispeech DS201.
DIGPKAPI.DOC	API Specification Documentation for DIGPAK.
DIGVESA.COM	DIGPAK sound driver for VESA compliant Wave interface.
DOS4GW.EXE	DOS 4GW DOS Extender used for Flat-Model DEMO programs.
EARTH.XMI	Demonstration MIDI file from Wallace Music & Sound
EARTH.DES	MENU Description file for EARTH.XMI
ECHOII.COM	DIGPAK sound driver for Street Electronics Echo II
FAT.OPL	MIDPAK General MIDI patch set by the Fat Man.
FLAT <DIR>	Contains full source to protected mode interface for DIGPAK & MIDPAK.
GENMID.ADV	AIL MPU401 General MIDI driver.
GENMID.ADD	Description file for GENMID.ADV
GF166.COM	DIGPAK driver for Gravis Ultrasound
GF1MIDI.ADV	AIL MIDI driver for Gravis Ultrasound
GF1MIDI.ADD	Description file for GF1MIDI.ADV
GU23.XMI	Demonstration MIDI file by The Fat Man
GU23.DES	MENU Description file for GU23.XMI
IBM1BIT.COM	DIGPAK PC Speaker driver 1 bit sound.
IBMBAK.COM	DIGPAK PC Speaker driver, foreground only.
IBMSND.COM	DIGPAK PC Speaker driver, limited background audio.
LANTSND.COM	DIGPAK driver for Lantastic Audio Adaptor from Artistoft.
LSIZE.COM	DIGPAK driver for the Life Size Sound Enhancer.
MAJESTY.XMI	Demonstration MIDI file from Wallace Music & Sound
MAJESTY.DES	MENU Description file for MAJESTY.XMI
MARIO.XMI	Demonstration MIDI file from Wallace Music & Sound
MARIO.DES	MENU Description file for MARIO.XMI
MENU.EXE	MIDPAK & DIGPAK Music & Sound browser.
MIDIFORM.EXE	Convert MIDI files into eXtended MIDI file format (XMI)
MIDPAK.ADV	Currently configured AIL MIDI driver.
MIDPAK.COM	Currently configured MIDPAK driver.
MIDPAK.AD	Currently configured MIDPAK patch bank file.

MIDPKAPI.DOC API Specification Documentation for MIDPAK.

MT32MPU.ADV AIL MIDI driver for MT-32/LAPC
MT32MPU.ADD Description file for MT32MPU.ADV

MULTISND.ADV Turtle Beach Multisound AIL MIDI driver.
MULTISND.ADD Description file for MULTISND.ADV
MULTISND.COM DIGPAK Turtle Beach Multisound driver.
(BETA, requires PRESETS utility to have been run,
see TURTLE.ZIP)

NEWS.XMI Demonstration MIDI file from Wallace Music & Sound
NEWS.DES MENU Description file for NEWS.XMI

NOSOUND.COM Functional DIGPAK driver that plays no sound. Responds
to all DIGPAK functions, for timing considerations but
takes little CPU. Sometimes preferable over the lame
PC Speaker drivers.

PAS16.COM DIGPAK sound driver for MediaVision ProAudio Spectrum 16
and Logitech Soundman 16. Full 16 bit sound support.

PASFM.ADV AIL MIDI driver for ProAudio Spectrum
PASFM.ADD Description file for PASFM.ADV

PASOPL.ADV AIL MIDI driver for ProAudio Spectrum 16, etc.
PASOPL.ADD Description file for PASOPL.ADD

PAUDIO.COM ProAudio Spectrum DIGPAK sound driver.

PCSPKR.ADV AIL PC Speaker driver (only responds to channel 2 of MIDI)
PCSPKR.ADD Description file for PCSPKR.ADV

PEND.EXE Flat model demo program, uses PostAudioPending calls
and auto-init DMA. To use type PEND PEND.SND after
you have configured a DIGPAK sound driver.

PEND.SND Demo sound effect for PEND.EXE

PMIDPAK.COM Polled version of MIDPAK. Application required to
provide timer services.

REAL<DIR> Demonstration source code in normal DOS real-mode.

REMOVE.BAT Batch file to remove configured MIDPAK and DIGPAK
sound drivers.

SB16.COM BETA DIGPAK sound driver for SoundBlaster 16.
Supports 16 bit stereo sound.

SBCLONE.COM DIGPAK sound driver for SoundBlaster Clones.

SBFM.ADV AIL SoundBlaster MIDI driver.
SBFM.ADD Description file for SBFM.ADV

SBLASTER.COM Creative Labs SoundBlaster DIGPAK sound driver.

SBP1FM.ADV AIL SoundBlaster Pro original MIDI driver.
SBP1FM.ADD Description file for SBP1FM.ADV

SBP2FM.ADV AIL SoundBlaster Pro current MIDI driver (OPL3).
SBP2FM.ADD Description file for SBP2FM.ADV

SBPRO.COM Creative Labs SoundBlaster Pro DIGPAK sound driver.

SC32MPU.ADV AIL MIDI driver for Roland Sound Canvas
SC32MPU.ADD Description file for SC32MPU.ADV

SEA.XMI Demonstration MIDI file from Wallace Music & Sound
SEA.DES MENU Description file for SEA.XMI

SEGUE.EXE Demonstration flat model program using SegueSequence.

SENSAT.ADV AIL MIDI driver for Tandy Sensation.
SENSAT.ADD Description file for SENSAT.ADV

SETD.SND Demonstration sound effect for DIGPAK setup program SETD
SETD.EXE DIGPAK setup/config program. Source in SETUP.ZIP
SETD.DES MENU Description file for SETD.SND

SETM.XMI Demonstration MIDI file for MIDPAK setup program SETM
SETM.EXE MIDPAK setup program. Source code in SETUP.ZIP
SETM.DES Description file for SETM.XMI

SETUP.ZIP Source code to SETM and SETD. Borland C 3.1 format.

SETUP.BAT Batch file to configure both DIGPAK and MIDPAK drivers.

SHYA!.SND Demonstration sound effect from Wallace Music & Sound
SHYA!.DES MENU Description file for SHYA!.SND

SKY.XMI Demonstration MIDI file from Wallace Music & Sound
SKY.DES MENU Description file for SKY.XMI

SMSND.COM Covox Voice Master II, SoundMaster I, DIGPAK driver.

SNDSYS.COM Microsoft Windows Sound System DIGPAK driver.

SOUNDRV.COM Default configured DIGPAK sound driver.

SOURCE.COM Walt Disney Sound Source DIGPAK sound driver.

STFX.COM ATI Stereo FX DIGPAK sound driver.

TANEXTX.COM Tandy EX/TX/SX/HX PC jr, DIGPAK sound driver.

TANSLTL.COM Tandy Sensation DIGPAK sound driver.

TEST.EXE Flat Model DIGPAK/MIDPAK demonstration program.
TEST.SND Demonstration sound effect.
TEST.XMI Demonstration MIDI file.
TEST1.SND Another test sound effect.
TEST16.EXE Flat model DIGPAK demo program of all DIGPAK play modes.
TEST2.SND Another test sound effect.

TITLE.XMI Demonstration MIDI file from Wallace Music & Sound
TITLE.DES Description file for TITLE.XMI

TMIDPAK.COM 8253 Timer Based MIDPAK.

VECTOR.COM Interrupt vector handler used by flat-model demo programs.

VMSND.COM Covox Voice Master I DIGPAK sound driver.

WSS.ADV AIL MIDI driver for Microsoft Windows Sound System.

WSS.ADD Description file for WSS.ADV