PowerBook: MIDI Problems and Workarounds (6/95)

Article Created: 29 October 1992
Article Reviewed/Updated: 13 June 1995

TOPIC --

Some PowerBook owners have had problems using MIDI because PowerBook computers
have difficulty reading long data streams through their printer and modem ports.
This can cause dropouts in MIDI music sequences during playback.

This problem is mostly evident when recording System Exclusive dumps, in which
libraries of information, such as sound patches, are recorded to a PowerBook.
Playing system exclusive information (or other data) from a PowerBook, however,
is not an issue.

This article provides:

• Overview of the problem
• Workarounds
• References and tips
• Utilities that improve compatibility

DISCUSSION ---

Overview of the Problem

The serial communication problems on PowerBook computers affected two groups of
users:

  - Telecommunication users who communicated primarily in the 2400-19,200 bps
    (bits per second) range. Their problems were addressed by the changes
    incorporated into System 7.1.

  - MIDI users who communicate at 38,400 bps. MIDI communication problems
    persist due to the much higher bps speed, and the fact that, in most
    cases, no error detection or correction protocol is used.

Because of design changes, the PowerBook 200 series computers do not have these
MIDI problems. MIDI problems experienced by Macintosh IIvx users were addressed
in version 1.0.1 of System Enabler 001. This Enabler is not required under
System 7.5, since it is part of the system software.

The problems had to do with the transfer of large amounts of MIDI data TO a

PowerBook. It has been resolved in the PowerBook 200 and 500 series, but is still present in PowerBook 160 and PowerBook 180.

In the PowerBook 200 and 500 series, the Power Manager disables interrupts for much shorter periods than in the PowerBook 100 series, removing the possibility of missing any interrupts from the Serial Communications Controller (SCC) chip.

Normal Recording and Playback Are Possible

With the majority of PowerBook computers and MIDI sequencers (a software-based version of the analog multi-track tape recorder), "standard" operations are possible. Such operations include recording, playback, instrument change, volume, pitch bend, and panning.

Data such as polyphonic aftertouch and pitch bend, the usual culprits (they require large amounts of data to express) do not cause a problem. The problem does not occur when sending single patches to a PowerBook 100 series computer.

The problem occurs when one is performing system exclusive functions such as dumping banks of data or samples (samples are much larger, usually, than any bank of patches) to a PowerBook 100 series computer.

A Workaround for System Exclusive Data

While large data dumps are at this time not possible with PowerBook 100 series computers, there is an alternative method. Instead of sending an entire bank of data, sending the information in smaller groups (one patch at a time) is possible. While this is inconvenient in comparison to sending the entire bank of info at once, it does allow system exclusive data to be transferred successfully.

It is common to have a desktop Macintosh in the home or at the office, and to use a PowerBook for live performance or for out-of-home recording work (such as at a professional studio). Patch and sample editing (which sometimes require data dumps from a MIDI device to the PowerBook) is rarely done on stage or during recording sessions. Sound editing on stage is usually impractical. As for studio work, it is much more economical to take care of pre-production tasks, such as sound editing, at home, or at a professional pre-production facility, which is almost always billed at a lower rate than recording time.

So, away from the studio, you can still easily transfer your banks, samples and sequences to your PowerBook 100 series computer via floppy, SCSI disk mode, or Personal AppleShare.

Then, once in the remote location (recording session, on stage, etc.) with your PowerBook 100 series computer, you will be able to send patches, banks, samples, and sequences to any MIDI devices with no problems.

Clearly, this is only an interim solution, but it does show that many PowerBook 100 series computer MIDI users can still get a great deal of functionality from their setups in the meantime.

References and Other Tips

The June 1992 issue of "Keyboard" magazine has a well-written article by
Geoffrey Ryle on using the PowerBook 100 series computers and MIDI. The missing
files problem he mentions was solved by using System 7 Tuner version 1.1.1 with
his Macintosh. The functionality of System 7 Tuner version 1.1.1 was included in
System 7.1, so Tuner is not necessary with System 7.1 or greater. In addition,
the PowerBook 200 and 500 series computers do not have these problems.

Remember to always use System 7 Tuner version 1.1.1 with Systems 7.0 and 7.0.1
to ensure optimum performance and to avoid any missing files problems. Before
adding Tuner 1.1.1, it is advisable to back up your hard disk-based data,
initialize the disk using Apple HD SC Setup (use Maximum Macintosh in most
cases), install or restore your System Software, drop Tuner into your System
Folder, and then restore your data. This is also a risk-free way to optimize
your hard disk.

Utilities That Improve Compatibility

Two software utilities greatly enhance compatibility between PowerBook 100
series computers and MIDI programs. Until MIDI software developers provide
upgrades that address the idiosyncrasies of PowerBook ports, these two programs
are very useful to PowerBook 100 series computers/MIDI users:

  - Apple's MIDI Management Tools version 2.0.2

    Software that consists of a small system extension and an application.
    This software will be posted to Apple software updates and ftp sites
    in the near future.

  - Opcode's MIDI Mangler

    A shareware control panel. A program component of MIDI Management Tools,
    called Patchbay, lets users graphically connect the MIDI sequencer program
    to the correct PowerBook 100 series hardware port. The program is
    self-explanatory and easy to use. MIDI Mangler frees the printer and
    modem ports, allowing MIDI signals to pass freely through them.

This article was published in the "Information Alley":
Volume II, Issue 4, Page 6

Article Change History
13 Jun 1995 - Added Info Alley information; made several technical updates.
30 Mar 1995 - Reviewed for technical accuracy, combined two articles.
03 Jun 1993 - Noted Apple's MIDI Management Tools are available from APDA.

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Keywords: kpbook,kalley

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19960215 11:05:19.00

Tech Info Library Article Number: 10971