Tech Note No. 8

by Pete Stark

I thought this issue might be a good time to talk some computer lingo.

The Internet (note - this section is largely obsolete)

In addition to the Schober section on my own BBS (*which is now "off the air"*) there are two other organ-related discussion groups that you can access with your computer. One is on Prodigy; look for the MUSIC II bulletin board, then choose the Classical section, and look for ORGAN CHAT. I've given up my Prodigy membership (too expensive) but the last time I looked, there were some interesting messages there.

A second, and much more lively, discussion group is on the Internet. This one, though, is frequented largely by church organists, most of whom make frequent snide comments about electronic organs, which they call "toasters". Discussion centers mostly around real pipe organs (several members have pipe organs at home) and classical/church music, with an occasional reference to theatre organs.

This second group is an Internet mailing list called PIPORG-L. A mailing list works like this: somewhere there is a computer which maintains a list of subscribers (I think the one handling PIPORG-L is in Albany, New York). Anyone wanting to contribute to the discussion sends an e-mail (electronic mail) message to an address at this computer. The computer then turns around and e-mails a copy of that message to each subscriber on the list. I don't know how many subscribers there are on this particular list, but it doesn't matter -- the computer takes care of sending out the copies automatically.

The advantage of a mailing list is that you do not need full internet access; any computer service that allows Internet mail privileges is good enough. On the other hand, some services (such as Compuserve) charge by the message, and this can get expensive, because you can get anywhere from 10 to 50 messages a day.

With this many messages, there is also another caution. When I used Compuserve, I found that they would only let me accumulate 200 unread messages in my "mailbox". When I went on a week's vacation, my mailbox overflowed, and Compuserve returned all excess e-mail to its sender. As a result, the PIPORG-L computer promptly took me off the mailing list.

Subscribing is completely automatic; here is how. You send an e-mail message to the mail-list computer at listserv@albany.edu. The subject line can be anything, but make your message the phrase "Subscribe PIPORG-L" (without the parentheses.) You don't need to include your e-mail return address, because the listserv computer will get it from the return address on your message.

Within a day or so, you will get back an e-mail message from the listserv computer, requesting confirmation. It will either ask you to enter a series of numbers which it will give you, or ask you to re-enter the "subscribe" message. Either way, you're on -- you should begin getting stuff within 24 hours.

There are some options you can select -- for example, if you send the message "HELP", it will send you help info (one of the first messages you get will also be some help text with further instructions. Save these; if you decide to unsubscribe, you will need them!

Most important are the messages "SET DIGESTS" and "SET INDEX". The former will send

you all posts in each day's activity (often in 2 or 3 batches.) If your Internet provider charges by the message, this can save some money. The latter message will send you an index of the posts, giving their sender, length and subject line, but no text. If you want to read any of those in INDEX, you need to "order" them from listserv.

MIDI Stuff

I've recently corresponded with Chuck Reynolds, of Webster, New York, regarding MIDI interfaces. Chuck wrote that he had an extra set of Schober keyboards, and was thinking of modifying them to produce a MIDI output. He asked whether I know of any integrated circuits which might do the conversion for him.

Adding a MIDI output to my Theatre organ has been in the back of my mind, but first I'd like to get the rest of it working. A friend of mine is adding MIDI to an Allen organ, and from what I've heard, it's an impressive addition. Of course, his job is different ... he already has the Allen interfaced to a computer which also drives some actual pipes, so adding a MIDI output from the computer is a much easier job.

In my case, I have an extra set of contacts on each keyboard that were intended to drive the percussion section (on the solo) and the Schober Dynabeat (on the accompaniment keyboard.) So my thought was to simply add MIDI and feed it from these contacts.

"Simply" is probably not the right word for this, since adding MIDI is definitely not trivial. My approach will probably be a dedicated computer system, sort of in the nature of a single-board computer, which will do the scanning of the keyboard contacts and provide the MIDI output from there.

I don't know of any specific chips which can do the job; this is not a high-volume application, so it's unlikely some manufacturer would build such a chip. There are, however, several companies that make MIDI attachments for keyboards or organs. These are the ones I've been able to uncover:

J. L. Cooper Electronics, 12500 Beatrice St., Los Angeles, CA 90066. Telephone: (310) 306-4131 or Fax: (310) 822-2252.

Devtronix Organs, Inc., 1823 Avondale Avenue, Sacramento CA 95825.

Intermidi, P.O. Box 775, Carson WA 98610, 509-427-7999.

Maplins, PO Box 3, Rayleigh, Essex, England SS6 8LR. Their telephone number is 0702-554161.

Peterson, 11601 S Mayfield Ave, Worth IL 60482, 800-341-3311.

SAI, 27107 Richmond Hill Rd., Conifer CO 80433, 303-838-6346.

Artisan Organ Co., and Gulbransen Organ (don't have their addresses handy.)

I sent this info to Chuck Reynolds, and he wrote back that the Maplins unit appears the lowest priced, and that he is planning to order one. I hope he will send me some info when he gets it.

So what is MIDI?

I thought you'd never ask. MIDI, or the Musical Instrument Device Interface, is primarily an electrical connection which carries music data.

Think of MIDI as electronic sheet music. It carries the same information as printed sheet music -- the key, tempo, what notes to play when and for how long, and how loud. All this information is digitized and sent as binary data, much like the digital data sent from a computer to a printer.

Because of its similarity to sheet music, there are computer programs that can convert back and forth. For example, if you have an IBM clone computer and a page scanner (a scanner is a device which looks a bit like a copy machine. You insert a page into it, but instead of copying it onto another piece of paper, it looks at the page and converts it into a digital picture), a program called Midiscan (about $200) allows you to insert a piece of sheet music into the scanner, and convert it into a MIDI file. It's kind of neat, but not perfect. For one thing, just like the copies from a copier are a bit fuzzier than the original, so the output from a scanner contains some fuzziness. In addition, Midiscan (like optical character recognition programs which read text) makes some errors of its own. I am now waiting for version 2.0 of Midiscan which, hopefully, will be better than the current version that I have.

Likewise, there are quite a few programs which can take MIDI information and convert it into a printed page, though again with varying degrees of success. I've tried scanning sheet music into MIDI, and then printing it back out, but the output looks very different from the original (although it would generally sound the same.)

MIDI is basically a digital way of sending music information from one device to another. The cable, connector, and data format are standardized, so it is possible to mix and match components from different manufacturers, though there are sometimes inconsistencies.

In the simplest case, a MIDI signal might come from a keyboard. Casio, Yamaha, Roland, and others make keyboards, in various price ranges, which have a MIDI OUT jack on the back (the real cheap keyboards don't.) The cheapest MIDI keyboard I know of is made by Reveal; it costs about $80, but has miniature keys and only about three octaves, I think. In the cheapest keyboards, each time you press a key on the keyboard, the MIDI OUT signal sends a digital code which says "key number xx went down." When you release it, there comes another signal which says "key number xx went up." More elaborate keyboards also carry a velocity code, which tells how fast the key went down and therefore how loud it should be played, as well as possibly other data, such as what instrument you want played.

This MIDI signal usually goes to the MIDI IN input on a sound module. This module generates the actual sound from the key-down and key-up codes. Older sound modules use a synthesizer to generate fake instrument sounds, while more modern units use samples of actual instrument sounds to produce a more realistic sound.

Sound modules are available separately, but most keyboards can generate their own sounds, and so contain their own built-in sound module. If the keyboard also has MIDI jacks, it can play an external sound module at the same time as it generates its own sounds, or else an external device can make the keyboard play without your touching the keys. Or both at the same time.

There are several ways to make things more interesting. For one, you could use one keyboard to play several sound modules. For another, you can plug a sequencer between the keyboard and the sound module. The sequencer could be a self-contained device, but more often it is a computer running a sequencer program. The sequencer allows the MIDI input to be stored either in memory or on a disk, as well as edited; then the MIDI data can be sent out to a sound module and played later.

So where does MIDI come into the Schober world? Although the Schober organ is a sort of sound module, attaching a MIDI input to it would be very difficult because of the way it is keyed (if you had Devtronix generators, then the job would be easier, but still messy.) Nor would you want to do it, because modern sound modules produce some very good sounds; it would be silly to try to play the organ from another keyboard or from a computer.

But attaching a MIDI OUT jack is feasible -- if you have an extra set of keyboard contacts. Then you could play an external sound module at the same time as the organ, and take advantage of some of the modern sound modules. That's what this is all about. Let me know whether this is something you'd like me to write more about.