MIDI Project

My MIDI / Schober Project

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NOTE

The information below describes *my particular organ conversion*; although you are welcome to use the circuitry and ideas herein for your own purposes, you need not do everything exactly the same as I do. In some respects, your project may be simpler -- or more complex -- than mine, and you may want to or have to modify things. That's fine -- that is the great advantage of an open and fully documented system. For example, in my organ, there are four identical encoder cards, but they have three slightly different software variations, depending on their use. That's strictly because I happen to have some extra hardware in my organ and I need a little more versatility; most people using this approach would have the same software version in each card.

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INTRODUCTION

I am converting an old Schober Theatre Organ -- a 1960's and 1970's digital musical instrument that used all discrete components and was sold as a kit --- to a more modern 2000's-style system that uses MIDI and digital circuits. This and the following pages describe the project and document the hardware and software used.

My own organ conversion consists of the following; someone duplicating this project could simplify it by eliminating the second swell shoe, the Roland module, and some of the audio circuitry:

- The console cabinet, two keyboards (manuals), a pedal keyboard, various control switches, and the organ bench.. This is all that remains of the original Schober Theatre Organ all other Schober circuitry has been removed.. To this, I added a second swell shoe, plus the components listed below.
- New MIDI circuitry (the boxes labelled MD-1 and MD-2 in the diagram below) that converts the keyboard, pedal, swell shoe, and stop switch outputs to MIDI signals.
- A Roland MIDI module to generate a limited number of voices, such as a piano.
- A PC-compatible computer which runs a program called Hauptwerk, and which generates the vast majority of organ voices
- Audio circuitry to provide reverberation and appropriate audio processing, followed by amplifiers and speakers.

The following block diagram shows the basic data flow between the various modules in my system; not shown is the audio processing and reverb that is also part of the system.



Click on each item below to get further information on individual devices in the above block diagram. The MD-1 and MD-2 cards

http://www.users.cloud9.net/~stark/midi.htm

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are build-it-yourself printed circuit boards; all the info you need to build them is given in the referenced web pages.

- MD-1 cards A and C keyboard interface cards
- Keyboard cables C1 to MD-1 cards A and C
- MD-1 card B stop switch and combination button interface card (below accomp. keyboard) •
- Stop Switch and combination button cable C2 to MD-1 card B •
- Button cable C5 to auxiliary combination buttons (below solo keyboard) ٠
- MD-1 card D pedal interface card Pedal cable C3 to MD-1 card D •
- •
- MD-2 cards A and B including the swell shoe sensors and cables •
- Serial cable between MD-2's and MD-1 A and C
- All MIDI cables are standard, except for being cut to size
- 8->1 MIDI merge box commercial unit made by MIDI Solutions in Canada •
- CM32P obsolete commercial MIDI module, primarily for piano voice for theatre organ (but note the latest version of the WurliTzer organ for Hauptwerk 2 now includes a piano, so I may remove the CM32P.)
- PC organ simulation running one of several 'virtual organ' simulation programs
- Amplifier and speaker the actual audio system used

The photo shows how some of these components are mounted. The picture shows three MD-1 cards on the side panel (at the top of the photo), then one MD-1 and two MD-2 mounted below, the 8-to-1 merge box against the rear panel (at the right of the photo), and the Roland CM32P sound module closest to the camera.



CONCLUSION

As mentioned above, this is a work in progress. If you have any questions, comments or suggestions, feel free to contact me: email to stark@cloud9.net

Thanks!

Pete

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