American Guild of Organists
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Boston

Workshop

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To MIDI or Not To MIDI, That Is The Question?

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assisted by

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A Brief History

I - Organ Voices

II - Non-Organ Voices

III – Sequences

Musical Instrument Digital Interface (MIDI)

A brief history

Back in the late 1970's, when digital music was in its formative years, synthesizers could produce only one sound at a time. It a musician wanted to play two sounds at once, he needed both hands and two synthesizers. For every additional voice, another keyboard and synthesizer was needed. A few companies, guided by Roland Corporation (now Rodgers' parent company) got together to fix this limitation. They developed a digital language called MIDI that has grown to revolutionize music.

What does MIDI do?

MIDI, which stands for Musical Instrument Digital Interface, is a computer language that conveys musical instructions. For example, when a MIDI keyboard is played, messages are sent which describe what notes are played, how long each note is played, at what volume and intensity the notes will be played, and much more. This information is sent to other MIDI instruments or devices where it is converted into music. All kinds of electronic instruments, and even acoustic instruments, such as pianos, guitars and windblown instruments, can be equipped with MIDI capabilities. MIDI sound modules, keyboard and sequencers are all considered musical instrument since they all contribute to the creation of music.

What equipment does it take to use MIDI?

Fundamentally, one MIDI device is a "master," or controller and another is a "slave." The master sends musical information to the slave and it responds by producing music as instructed. Organs equipped with MIDI can be called "controllers." They can trigger electronic keyboards and pianos, sound modules, sequencers (recorders), and more. With MIDI, all these devices can be played or controlled right from the organ console.

There are MIDI devices that have little or nothing to do with music, such as lighting systems and audio mixers. So after a hymn, preceding the sermon, the organist could press a MIDI-programmed piston on the organ console and automatically dim the lights in the choir loft area and turn on the lights at the pulpit. Even the preacher's microphone could be controlled from the organ console!

MIDI Technical description

Synthesizer (synthesized sounds) became Sound Modules (digitally recorded sounds)
Recorders (analog) became Sequencers (digital)

16 independent channels

External MIDI channels do not couple

Internal MIDI channels act like regular organ stops and work through couplers

128 is the magic number.

128 programs

128 variations (MSB, Most Significant Byte)

128 variations on the 128 variations (Least Significant Byte)

128 degrees of volume, velocity, pan, chorus and reverb

Octave shift – Normal, Up 1, Up 2, Down 1, Down 2

MIDI Coupler Settings

Each coupler also has a number of parameters that provide great flexibility in the way a sound is controlled. These parameters are:

Parameter	Description
Tone	Specifies the sound or effect controlled by the MIDI coupler
Channel	Specifies the MIDI channel used by the coupler (**MIDI GT A** is changeable)
Octave	Specifies the octave of the sound; octave can be shifted up or down
Velocity	Specifies whether a sound has a fixed velocity (or attack), or whether the velocity is affected by movements of the expression shoes or the force of fingers when actual notes are played
Pan	Specifies the location of a sound within the stereo field
Foot Switch	Specifies whether a sound responds to the foot switch control and what effect is used (Sustain, Sostenuto or Soft)
Reverb	Specifies the amount of reverb for the sound
Chorus	Specifies the amount of chorus for the sound
Expression	Specifies the type of volume message used to control the level of the sound
Volume	Specifies the volume balance between MIDI couplers
Tone Name	Specifies the sound module type, and therefore the mapping of Tones to Tone Names

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Balance

I - Organ Voices

MIDI organ voices are digital recordings (samples) of ranks from world famous pipe organs. An accepted practice with most builders is to install some digital voices on pipe organs, for example 32' Pedal stops and Célestes. This is the basis for the Pipe/Digital Combination Organ. MIDI is a practical way to expand specifications by adding digital stops to any organ, pipe or electronic. More stops for the money and more control over those stops. Today's pipe organ samples are far superior to those in the past, due to more sophisticated recording techniques and equipment, higher sampling rates with higher resolutions.

Organ Tone Families

Principals • Flutes • Reeds • Strings

Can adjust volume and other parameters 128 degrees on a per stop basis
Add reverb on a per stop, per piston basis
Octave shift - 32' stops, down 1 octave to 64', down 2 octaves to 128'
Digital samples at 16', 8', 4' pitch (especially good for organs with limited couplers)

II - Non-Organ Voices

Orchestral samples from London Philharmonic Orchestra and London Master Chorale (1997), Prague Symphony (2005)

Two sources – Voice and Instruments

Human Voice – Digital recordings of human voice
Female • Male
Soprano, Alto, Tenor, Bass
Boy's Choir,
Girls Choir

Digital Voice – digital computer creations
Space Voice, Galactic Falling Choir, Scat, etc.

Instruments of the traditional orchestra – Digital recordings of actual instruments played by professional musicians
Woodwinds – Piccolo, Flute, Oboe, English Horn, Clarinet. Bassoon
Brass – Trumpet, Trombone, French Horn, Tuba
Percussion – Tuned & Untuned
Strings – Violin, Viola, Violoncello, Double Bass

The modern orchestra – digital computer creations
Warm Pad, Soundtrack, Atmosphere, Goblin Drops, Bottle Blow, Morning Lite, Fantasia, Mr. Mellow, Stage 73, Phazweep, Staccato Heaven, Voyager Brass, Fat Strings, Massed Horns, Soaring Horns, Bowed Glass, Halo Pad, Ice Rain, Reverse Cymbal, Seashore, Birds, Thunder

Transcriptions

"It is futile for any organist, on even the finest and most comprehensive of instruments, to think he can reproduce the individual nuances of the orchestra. Nevertheless, certain transcriptions are often useful to relieve the monotony of too much original music as written for the instrument." Edwin H. Lemare (1931)

"These [Wagner] transcriptions are presented, not with the idea that the organ is an orchestra, or that it is intended to imitate one, but with the belief that all great music is above and beyond its medium of expression and need to be limited to any one form."
Samuel Baldwin (1908)

"I am utterly opposed to the playing of orchestra works on the organ. While the rendition of orchestral pieces on it, in an attempt to reproduce the orchestral color of the original scoring, is, to my mind, deplorable enough, the playing of such works as the William Tell or Semiramide overtures is especially out of keeping with the character of the instrument." Alexandre Guilmant (1898)

The Modern Organ provides the player the use of digital recordings of sounds from the orchestra and human voice for the authentic performance in "realtime" of transcriptions and original music written in an orchestral medium.

Preparing the organ

1) Orchestra is enhanced by using some organ tone
2) Organ is enhanced by using some orchestral tone
3) It takes times, it is worth the effort

Playing in "real-time"

1) Choosing the right compositions
2) Picture the instrument
3) Play in the range of the instrument
4) Expression
5) Set volume, velocity, pan, reverb, octave shift

III – Sequences

Sequencing involves playing with pre-recorded tracks. There isn't much commercially available for classical organ, but there is a lot of sequences for orchestra and other instruments, like piano, woodwinds, horns, etc. It is a fascinating field, however, to be able to play the orchestral parts of an organ concerto, for example, into a computer using a software program and then playing the concerto in real-time on the organ with the tracks. It is most effective when the speakers for the orchestra are separate from those of the organ. It is not natural to hear an orchestra playing from an organ chamber, but a wonderful aural image when the orchestra plays through speakers on the stage floor and the organ plays from the chambers above.