

Interactive Audio and MIDI 2



Pat Scandalis

Chairman MPE Committee - MIDI Association

CEO/CTO moForte Inc

This Presentation Can be Found at:

<http://www.moforte.com/news>

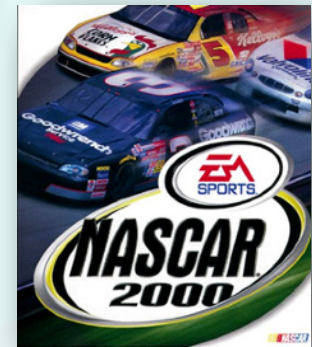
The screenshot shows the moforte website's news section. The header includes the moforte logo (Audio Modeling) and navigation links: About, GeoShred, moForte Guitar, News & Media, Subscribe, and email-contact. There are also three social media icons: PRO (green), PLAY (blue), and Control (orange).

The main content area features three news items:

- Interactive Audio and MIDI 2**: A white article card with the IASig and MIDI Association logos. It lists Pat Scandella as Chairman MPE Committee - MIDI Association and CEO/CTO moForte Inc. The date is IASig San Francisco, March 21, 2024. Below the card, it says "IASig San Francisco, March 21, 2024" and "March 21, 2024".
- Jordan Rudess NAMM/24 Interview**: A video article card with a photo of a hand on a MIDI controller. It includes the date "February 28, 2024", "No Comments", and the URL "https://youtu.be/bvagXLJ_Hg".
- MPE and the New MPE Profile for MIDI 2.0**: An orange article card titled "MIDI Association NAMM 2024 Hall A, Booth 10302 Thursday Jan 25, 1:00pm". It lists a panel: "Panel: MPE and the New MPE Profile for MIDI 2.0" with members: Pat Scandella (CEO/CTO moForte Inc.), Emanuele Parravicini (Product/CTO Audio Modeling), Jordan Rudess (Founder/CEO Drum Theater & Producer Shred Music), Roland Lamb (Founder and CEO Peat), Geert Bavin (Director of Software Development Moog Music), and Eric Saterian (CEO MIDI Music). The date is "January 24, 2024".

About Pat

- 40 years in the Silicon Valley as an Engineer, 30 years doing Audio.
- Researcher in Physical Modeling at Stanford/CCRMA (1994)
- Co-Founder Staccato Systems (1997), early Game Audio Company doing Physical Modeling based interactive game sounds.
- CEO/CTO of moForte
Chairman of the MPE Subcommittee MIDI Association



MIDI 1 in Games

- Adaptive Music - MIDI used to change music in real time based on the player's actions.
- Interactive Sound Effects - Statistical triggering of sound effect “grains”.
Crashes, explosions ...
- Music based Games
- Game Music Production

About MIDI 2

- MIDI 2 changes MIDI from a monologue to a dialog.
- This enables negotiation between MIDI senders and receivers.
- Higher resolution, more channels, greater interactivity.
- MIDI 2 includes MIDI 1 for compatibility.
- Already implemented for Linux, Android, Apple, Windows in 2024

Techie Stuff

- MIDI 2 negotiation based on
 - Profile Negotiation
 - Property Exchange
 - Process Inquiry.
- New Universal MIDI Packet includes MIDI 1 messages.
- 256 channels, 64k velocity levels, controller resolution is 4B, 16k registered controllers, 16k assignable controllers, per-note controllers

Profile Negotiation

- Profiles are defined sets of rules for how a MIDI device sends or responds to a specific set of MIDI messages to achieve a specific purpose or suit a specific application.
- For example- be a piano, use MPE, respond to orchestral articulation messages, etc.

Property Exchange

- Property Exchange is used to Discover, Get, and Set individual properties including device configuration settings, a list of controllers and destinations, a list of programs with names, etc.
- While Profiles are macros that configure an entire device, Property Exchanges are micro-queries & responses in human readable (JSON) format
 - "name": "PIANO 4",
 - "lfoSpeed": 10,
 - "lfoWaveform": "triangle"

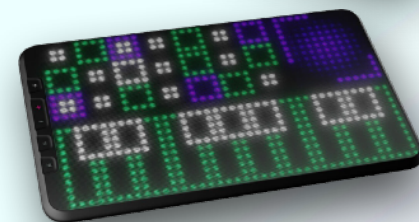
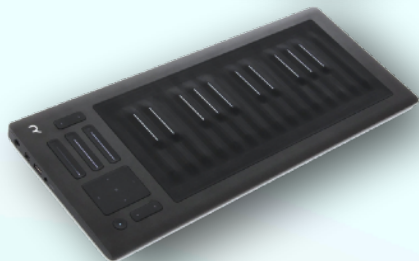
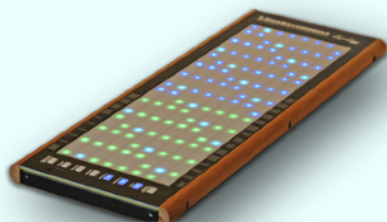
Process Inquiry

- MIDI-CI Process Inquiry allows one device to discover the current state of supported MIDI Messages in another device including:
 - System Messages
 - Channel Controller Messages
 - Note Data Messages
- For example:
 - Which Program is currently active?
 - Which Notes are currently actively playing?
 - What is the current song position of a sequence?

MIDI 2 Possibilities

- Multi Player Adaptive Music - MIDI 2 used to change music in real time based on the multiple player's actions (negotiation)
- Multi Player Interactive Sound Effects
- Music based Games for MIDI 2
- Game Music Production
- Next Generation Interactive Game Controllers

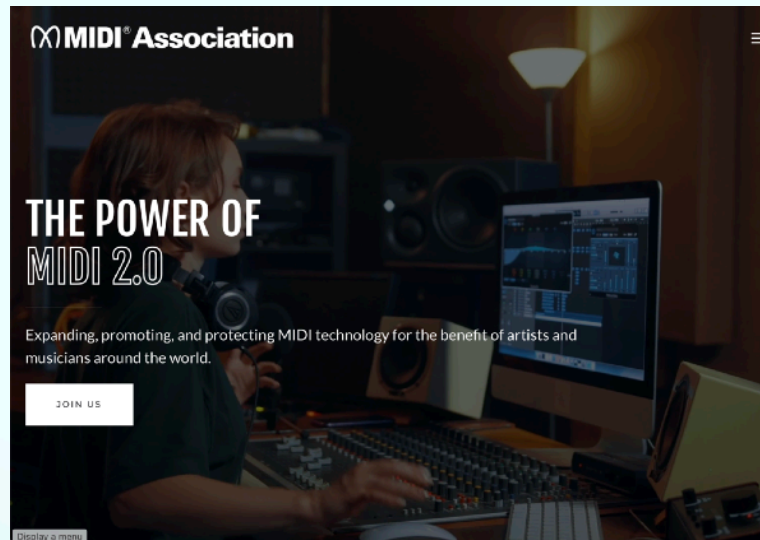
Example, 3D Music Controllers Based on MPE



- Haken Continuum
- Lumi Keys
- KMI K-Board Pro 4
- Ere Touch
- Sensel Morph
- Osmose
- Artiphon INSTRUMENT 1
- Joué
- GeoShred
- Seaboard
- LinnStrument

Where to Get More Info:

midi.org



- All MIDI 2 specs are available on midi.org
- Joining midi.org (free) gives you access to the MIDI 2 specifications. You don't need to become a MIDI Association member access the specifications.