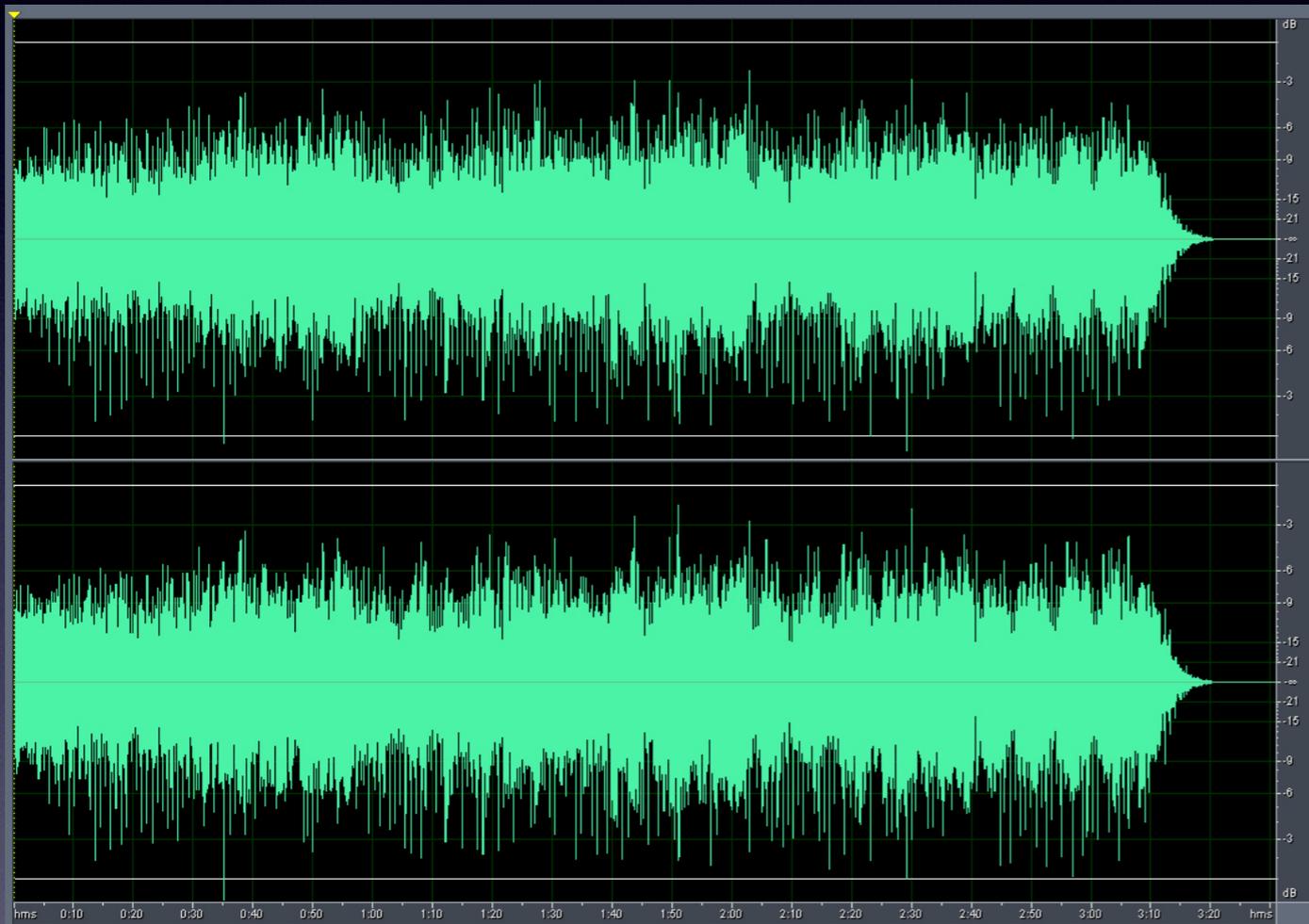


24 / 48

ATELIER AUDIO NUMERIQUE
DNA2 - ESAMC2 - 2017 / 2018

AUDIO / MIDI



arranged by
eingerichtet von
Max Bonnay

Eight Pieces from „Musica ricercata“

Acht Stücke aus „Musica ricercata“

György Ligeti
• 1923

Sostenuto (♩ = 66) I

loco *sim.*

Misurato (♩ = 106) *string. poco a poco sin al Prestissimo*

pp *misurato (poco pesante)* *pp*

cresc. poco a poco (sin al ff)

© 1997 Schott Musik International, Mainz

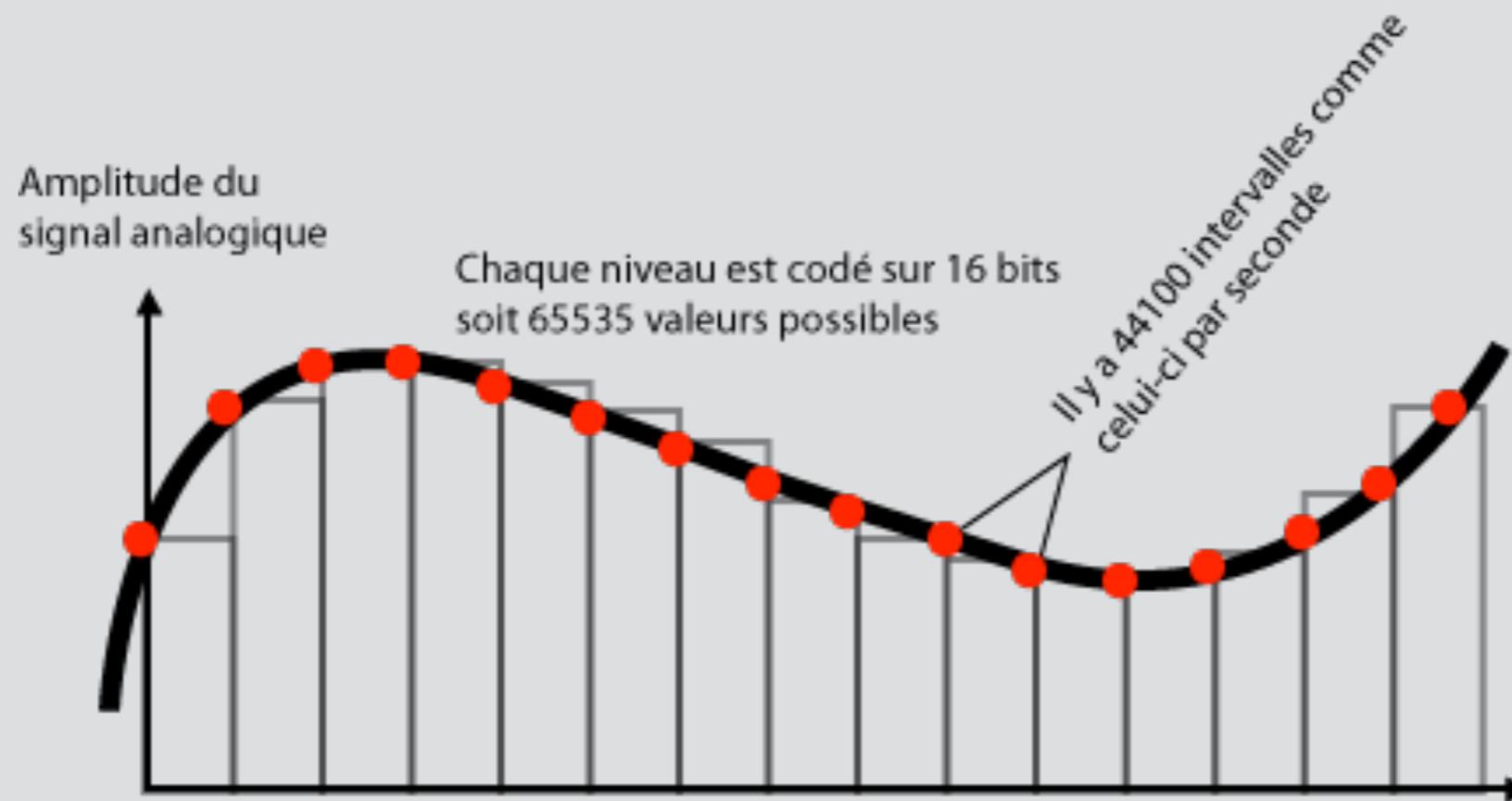
Das widerrechtliche Kopieren von Noten ist gesetzlich verboten und kann straf- und zivilrechtlich verfolgt werden.
Unauthorized copying of music is forbidden by law, and may result in criminal or civil action.

AUDIO : numérisation du son
MIDI : aucun son n'est enregistré

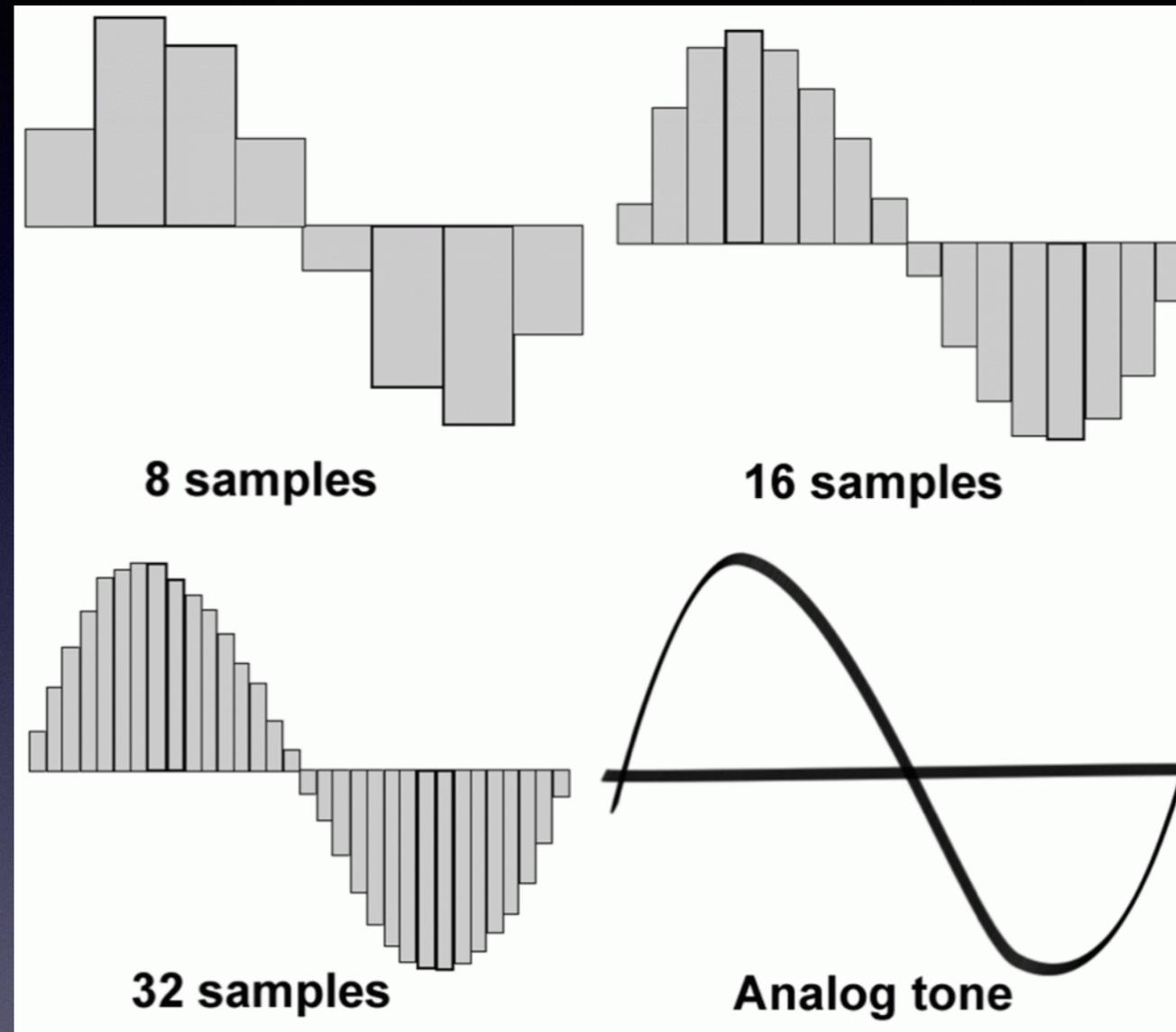
24 bits / 48 kHz

*Un enregistrement numérique audio en **haute résolution** est doté d'un taux d'échantillonnage de **24 bits - 96 kHz** ou plus. Sa qualité audio est nettement supérieure à celle d'un CD.*

*Le format audio standard d'un **CD** étant échantillonné à **16 bits - 44,1 kHz**.*



CD Audio : 16 bits - 44,1 kHz



*Fréquence d'échantillonnage
(nombre d'échantillons par seconde)*

8 dpi



1 pouce = 2,54 cm

16 dpi



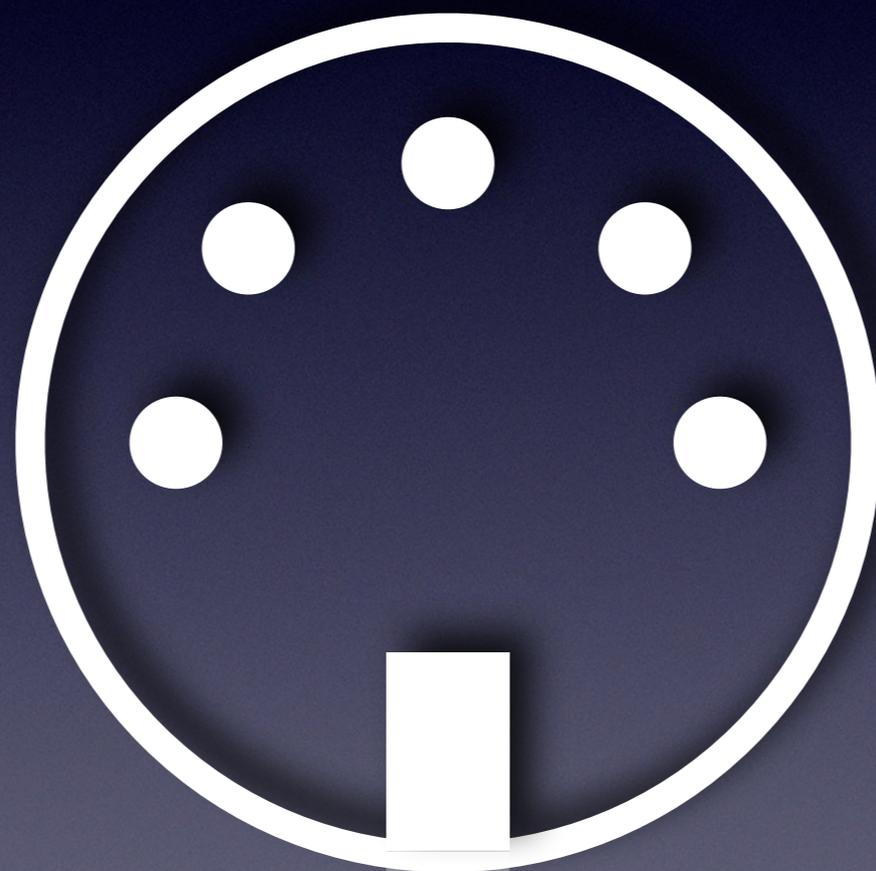
1 pouce = 2,54 cm

*Fréquence d'échantillonnage graphisme
(nombre d'échantillons par pouces)*

Utilisation	Fréquence d'échantillonnage	Quantification
Studio	48 - 96 - 192 kHz	24 bits
CD Audio	44,1 kHz	16 bits
DVD	48 kHz	16 bits
DVD Audio	44,1 à 192 kHz	16 à 24 bits

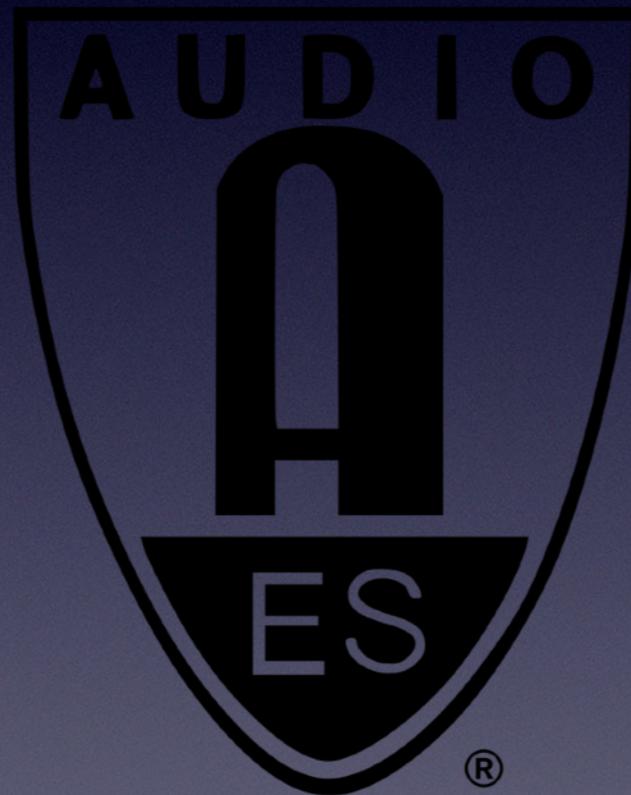
La norme MIDI

Musical Instrument Digital Interface



La norme MIDI

Congrès de l'AES (Audio Engineering Society) 1981



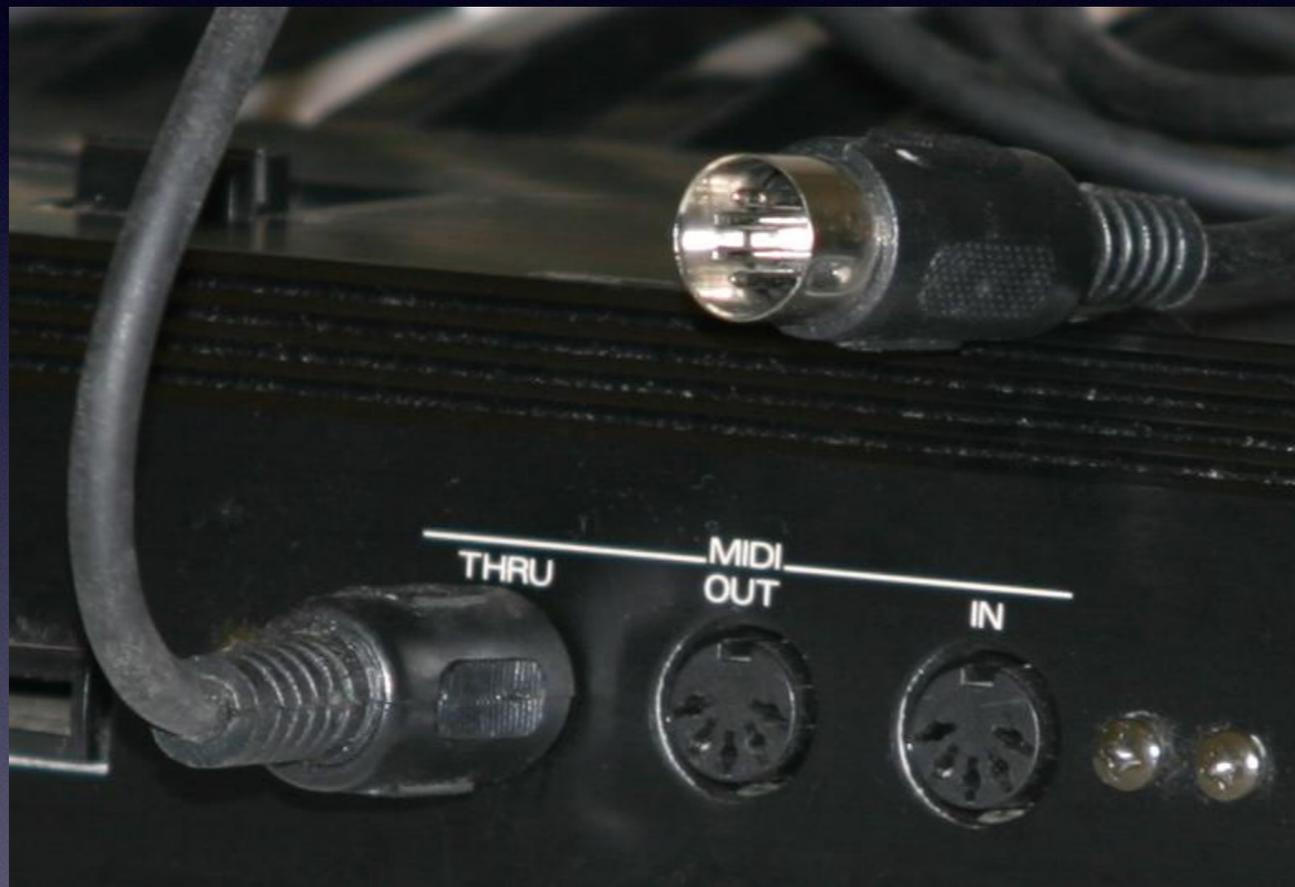
Dave Smith (Sequential Circuits) // Oberheim // Roland

La norme MIDI



**NAMM 1983 : première démonstration publique
Sequencial Circuits Prophet 600 / Roland Jupiter 8**

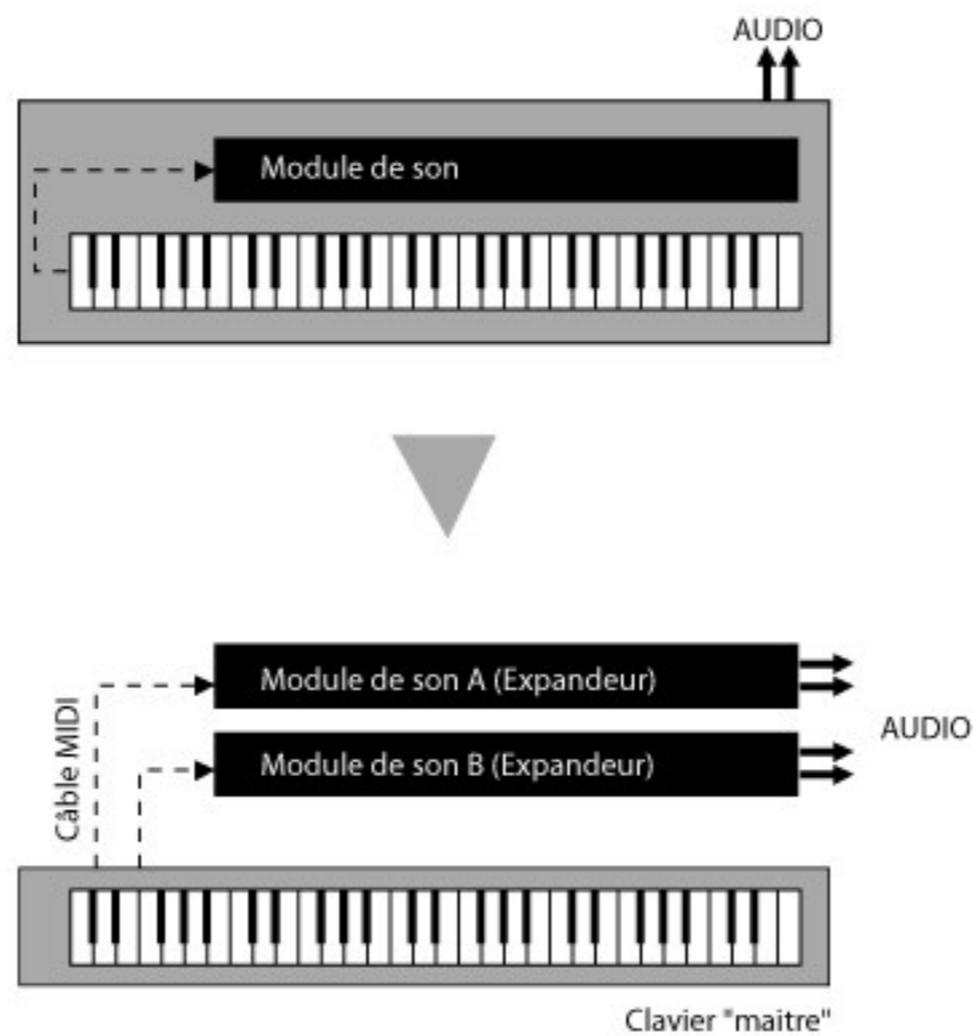
Messages MIDI



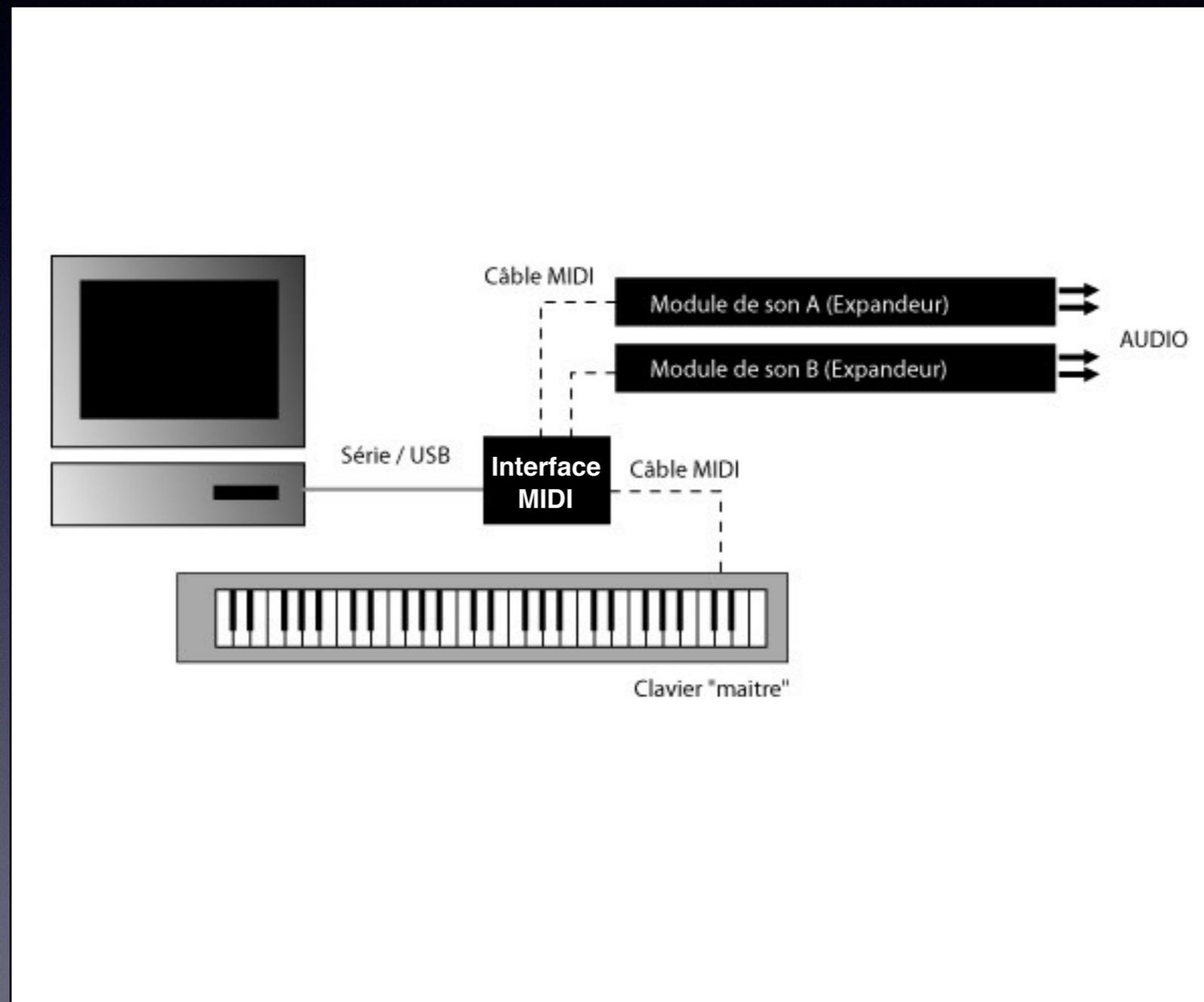
0 à 127 - 16 canaux

- Note On - Note Off
- Vélocité
- After Touch
- Pitch Bend
- Modulation
- Program Change
- Control Change
- Synchronisation (MIDI Clock)

La norme MIDI



MIDI -> MAO

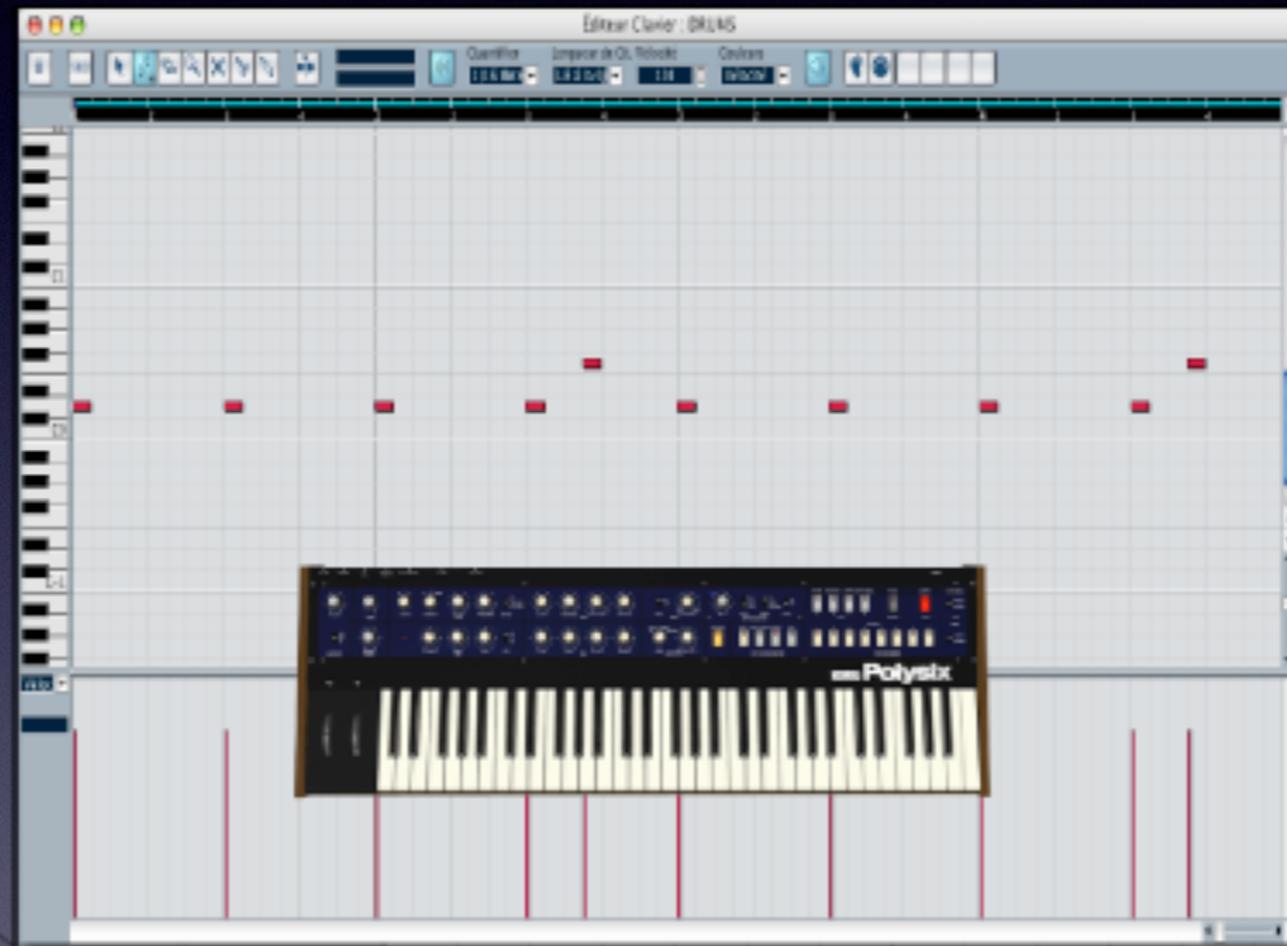


MIDI -> MAO



Atari 1040 ST (1985)

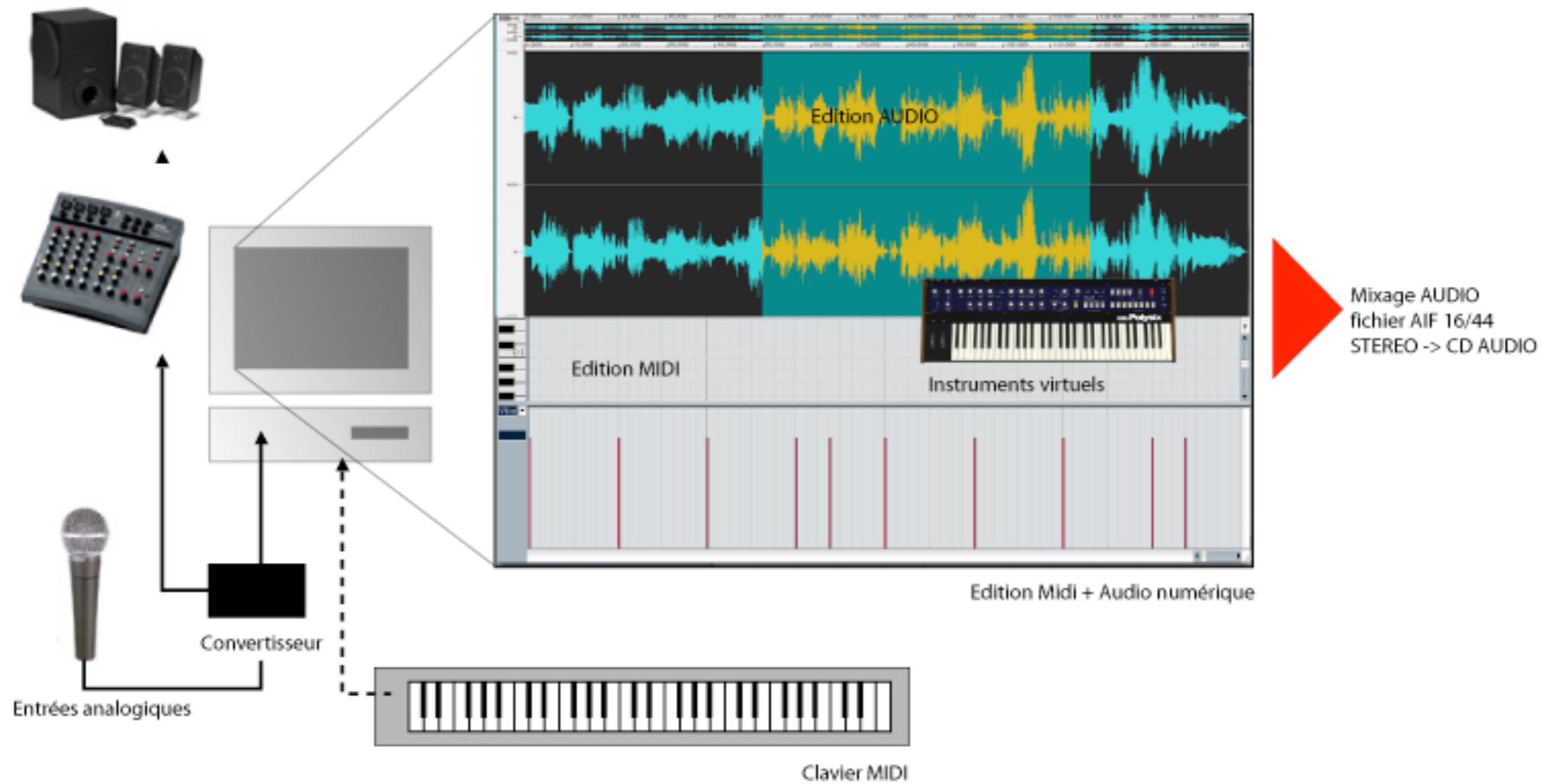
MIDI -> MAO



Audio -> MAO



MIDI + Audio



Controleurs MIDI actuels

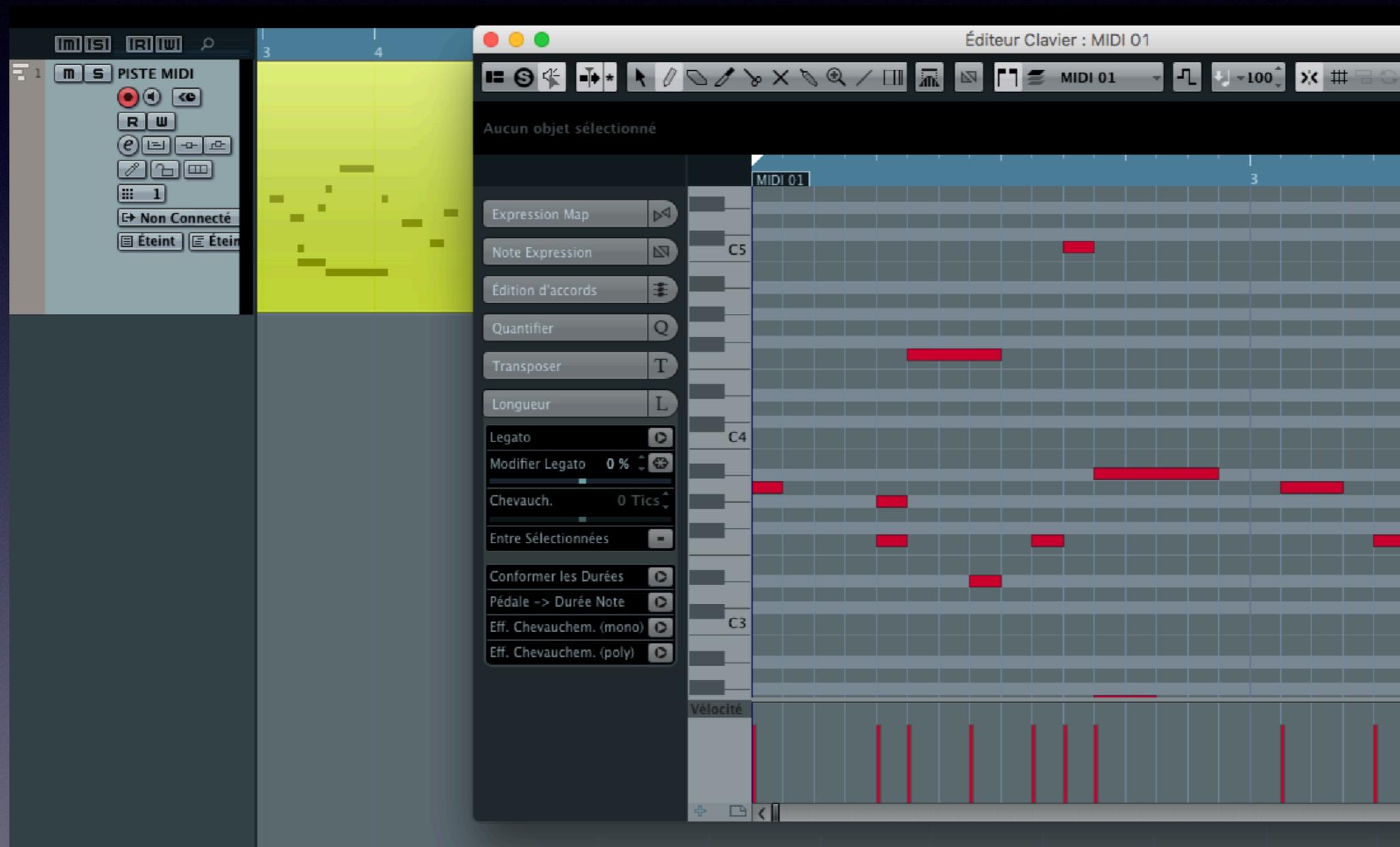


AKAI Advance 25



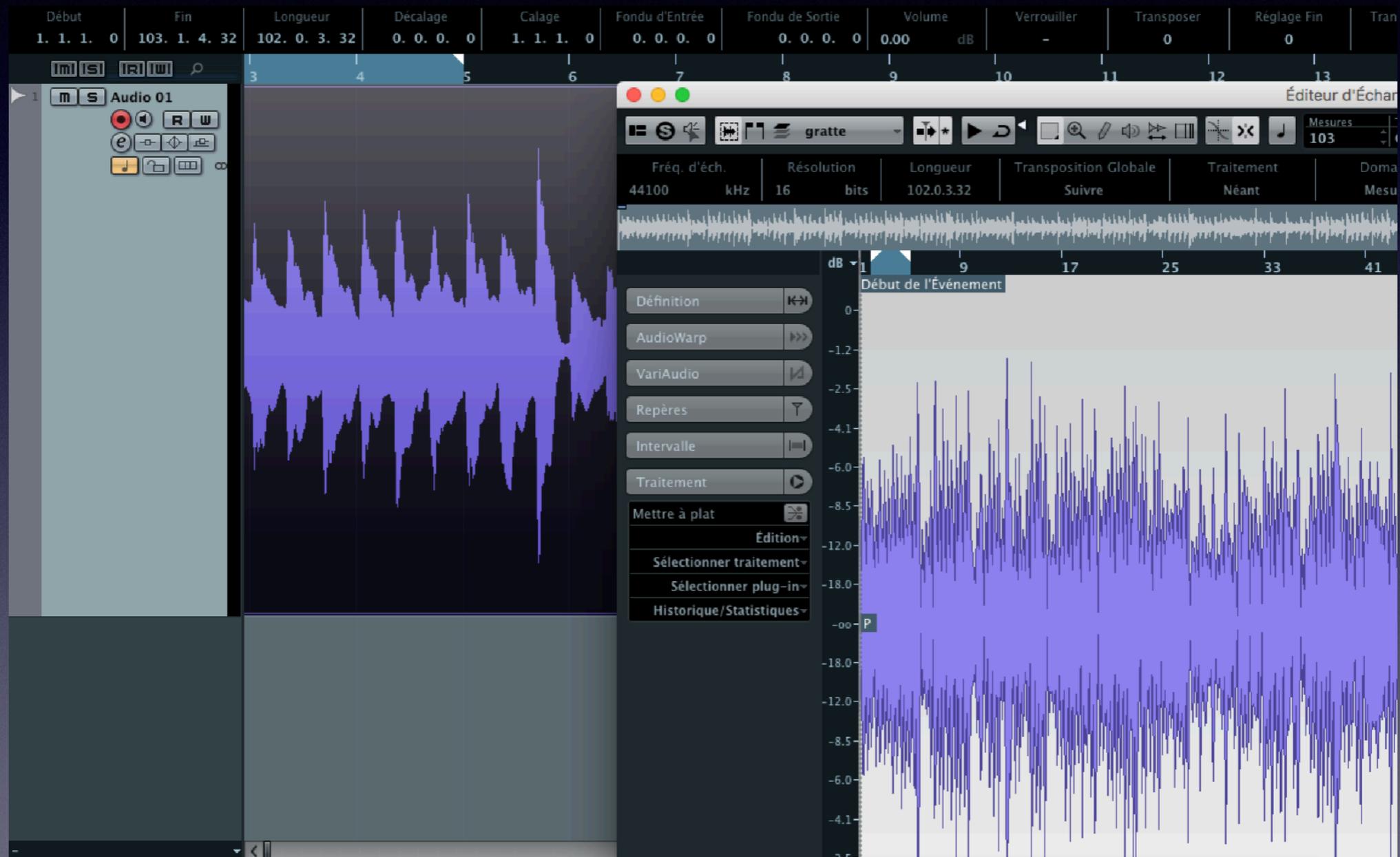
ARTURIA Beat Step

MIDI



Edition des notes dans la grille MIDI (Cubase)

AUDIO



Edition des évènements Audio (Cubase)

Logiciels



Traitement

The image displays a collage of audio software interfaces, primarily Adobe Audition and Sound Forge Pro, illustrating the audio processing workflow.

Adobe Audition (Left): Shows a multi-track session with tracks for "Scarlet Begonias", "Fire on the Mtn", "Truckin'", "Terrapin Station", and "Jam". The waveform view shows a green audio signal. A context menu is open over the tracks, listing options: Cue, Subclip, CD Track (highlighted), and Cart Timer.

Sound Forge Pro (Right): Shows a project window with a waveform and a frequency spectrum. The time display is 00:01:45,301. The frequency spectrum shows a blue audio signal and a green frequency response curve. The "Plug-In Chain" on the right includes: Mastering EQ, Low Shelf Frequency, Band 1 Frequency, Band 2 Frequency, Band 3 Frequency, Band 4 Frequency, High Shelf Frequency, Low Shelf Gain, Band 1 Gain, Band 2 Gain, Band 3 Gain, Band 4 Gain, High Shelf Gain, Low Shelf Q, Band 1 Q, Band 2 Q, Band 3 Q, Band 4 Q, High Shelf Q, Low Shelf Enable, Band 1 Enable, Band 2 Enable, Band 3 Enable, Band 4 Enable, High Shelf Enable, Output Gain, Band 1 Threshold, Band 2 Threshold, and Band 3 Threshold.

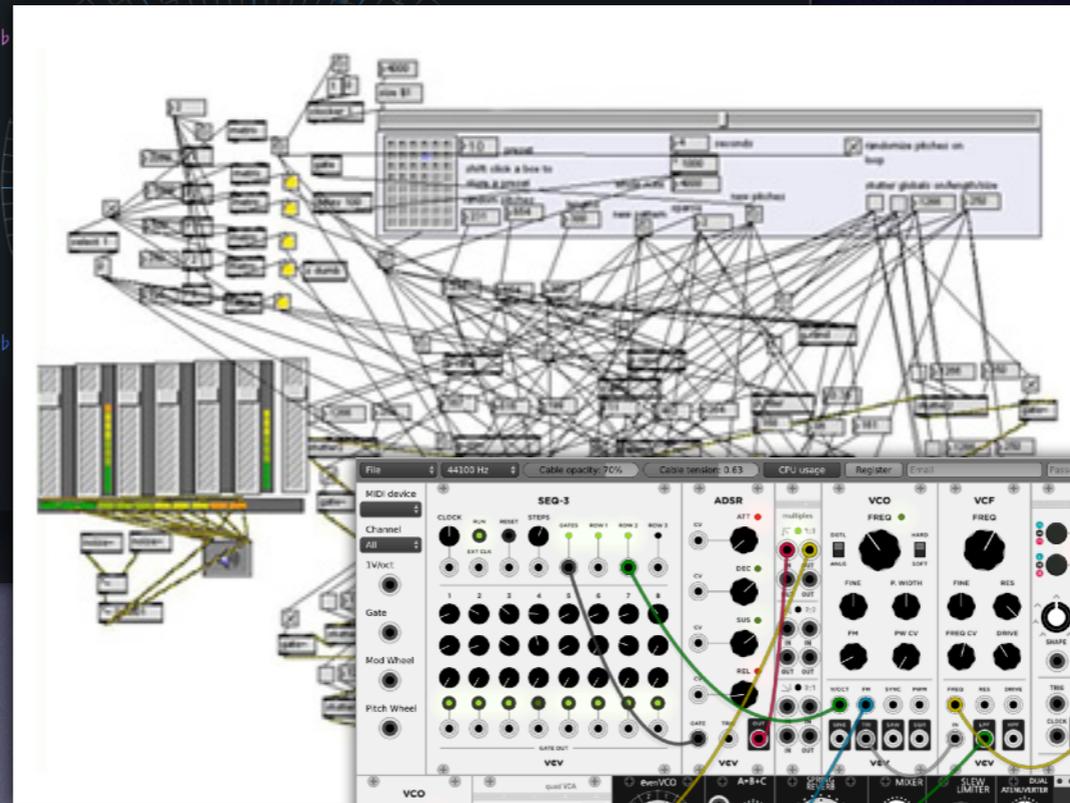
Other Windows: A "File Properties" window shows details for a file named "Water_02.forgeproj", including location, size, and format. A "Record" window shows recording settings for a 16-bit PCM file. A "Region List" window shows a list of audio regions with their start and end times.

Enregistrement



Autres...

The screenshot shows the 'thesnail' software interface, which is used for absolute tuning. The top part of the interface features a piano roll with a keyboard layout and various parameters for each note. Below the piano roll, there are several control panels for different notes, each with a spectrum analyzer and various tuning parameters. The interface is dark-themed and includes a 'MODE' section with icons for different functions, a 'DISPLAY' section with a spectrum analyzer, and a 'COLOURS' section with color selection options. The bottom part of the interface shows a 'TUNING REF' set to 440Hz and playback controls.



The screenshot shows a software synthesizer interface with various modules and controls. The interface is dark-themed and includes several sections: 'MIDI device', 'SEQ-3' (sequencer), 'ADSR' (envelope generator), 'VCO' (voltage-controlled oscillator), 'VCF' (voltage-controlled filter), 'VC MIXER' (voltage-controlled mixer), and 'VC MIXER' (voltage-controlled mixer). Each section has multiple knobs, sliders, and buttons for adjusting parameters. The interface also includes a 'Cable capacity' indicator, 'CPU usage', and 'Register' information. The bottom right corner shows a 'VC MIXER' section with multiple channels and a 'VC MIXER' section with multiple channels.

Instruments Virtuels



Effets Virtuels

The image displays a collection of virtual effect plugins used in digital audio workstations. The central focus is the **SCHEPS 73** guitar amplifier simulator, which features a detailed interface with knobs for **PREAMP**, **DRIVE**, **HIGH**, **MID**, and **LOW** frequencies, along with **HP** (high pass) filters and **PHASE** controls. It also includes a **MONITOR** section with **MONO** and **STEREO** options, and **INPUT** and **OUTPUT** level meters.

Surrounding the amp simulator are several other virtual effects:

- Visualizer:** A top-left window showing a frequency spectrum with **BASS** and **TREBLE** sliders, and a waveform labeled "My Guitar".
- Reverb:** A large central-right window for a reverb unit, featuring a **REVERB TIME** of 1.99 seconds, **ER SELECT** (5), **EQ REVERB** with a frequency response graph, and various parameters like **ER/Tail**, **Dry/Wet**, and **Output**.
- Equalizer:** A bottom-left window with two channels (**CH1** and **CH2**) for processing, including **Gain**, **Type**, **Freq**, **Q**, and **Delay** controls.
- Output Echos:** A section with **Size** and **Tone** knobs.
- Dynamics:** A section with **Mode** (set to Duck), **Thresh**, and **Recovery** controls.
- Global Settings:** A bottom-right section with **Drive**, **Tempo** (120.00), and **Analog/Digital** options.

The interface is dark-themed with various colored accents (orange, blue, green) and includes a **HRVERB** logo at the bottom center.

Studio

