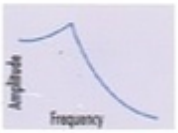
Morpheus Z-Plane Synthesizer

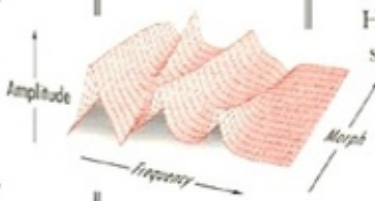
The Morpheus™ Z-Plane Synthesizer, with its revolutionary Z-Plane filters, is unlike any MIDI sound module in the history of E-mu®. In addition to the superb 16-bit sound quality and straightforward user interface that E-mu modules are famous for, Morpheus' Z-Plane technology offers new sounds and expressive control that you've never experienced in a MIDI instrument.

At the heart of Morpheus is E-mu's Z-Plane Synthesis—a technology that's redefining the future of digital sound creation. Unlike the simple 2- or 4-pole filters of traditional synthesizers, Morpheus has unique 14-pole Z-Plane filters that are capable of modeling virtually any resonant characteristics and then interpolating (or "morphing") between them in real time. This allows you to manipulate sounds in incredible ways: morph an entire section of orchestral strings into full-toned chimes; send a piano through the resonances of the human vocal tract pronouncing a variety of vowels; sweep a synth pad with 32 polyphonic flangers; use a mod wheel to control the subtle timbral changes that result from picking an acoustic guitar at different distances from the bridge. Let Morpheus give you the power to create the sounds you've only imagined before.



Traditional Synthesis

Single, 4-pole lowpass filter with resonance.



Z-Plane Synthesis

Allows you to "morph" sounds through multi-dimensional, 14-pole filters.

MORPHEUS
Z-PLANE SYNTHESIZER

Morpheus provides powerful tools for controlling the Z-Plane filters, like an enhanced version of E-mu's MIDIPatch™ Modulation System for unmatched real-time control and expressivity, and multi-segment function generators for microscopic sound sculpting. The new HyperPreset mode lets you split, layer and cross-switch between 16 presets at once—for creating sounds so thick you can swim in them.

Like other E-mu digital sound modules, Morpheus has an impressive set of features that give you the freedom to experiment. Start with the ability to play up to 32 sounds simultaneously over 16 MIDI channels. Then, add dual stereo effects processors and 6 polyphonic outputs for mixing and processing versatility. Combine all this power with the industry's clearest, most straightforward user interface, and you have the synthesizer that will move your music into the next century.

Morpheus Specifications

Menus

- **Master Edit Menu**
  Master Tune, Transpose, User Key Tuning, Global Bend, Global Velocity Curve, MIDI Mode, MIDI ID#, MIDI Mode Change, Program Change Map, Controller Assign, Footswitch Assign, Send MIDI Data, Auto-Select, Compare Mode, Viewing Angle
- **MIDI Map Edit Menu**
  MIDI Map Name, Preset/HyperPreset Assign, Volume Assign, Pan Assign, Mix Output Assign, MIDI Messages Enable, Bank Select, Program Change Map Select, Effect A Select, Effect B Select, Effects Amount, Effects Output Select, Save MIDI Map, Select MIDI Map
- **Preset Edit Menu**
  Preset Name, Primary Instrument, Secondary Instrument, Volume, Pan, Key Range, Transpose, Pitch Tune, Alternate Envelope On/Off, Primary Alt. Env. AHDSR, Secondary Alt. Env. AHDSR, Double+Detune, Sound Delay, Sound Start, Sound Reverse, Nontranspose, Loop Enable, Loop Offset, Solo Mode, Solo Priority, Portamento Rate, Portamento Shape, Portamento Mode, Crossfade: Mode, Direction, Balance, Amount, Cross-Switch Point, Filter Type Primary/Secondary, Filter Level, Morph Offset, Filter Frequency Track, Filter Transform, Filter Reverse, Auxiliary Envelope: Amount, Delay, AHDSR, LFO 1/2: Shape, Rate, Delay, Variation, Function Generator 1/2 Segment: Level, Time, Shape, Conditional Jump, Conditional Value, Destination Segment, Function Generator 1/2 Amount, Note-On Control 0-9 (9 Sources, 50 Destinations), Realtime Control 0-9 (13 Sources, 35 Destinations), Footswitch Control 1-3 (13 Destinations), Pitch Bend Range, Pressure Amount, Controller ABCD Amounts, Velocity Curve, Keyboard Center, Keyboard Tuning, Mix Output Select, Save Preset
- **HyperPreset Edit Menu**
  HyperPreset Name, Zone: Select (1-16), Preset Select, Volume Assign, Pan Assign, Key Range, Velocity Range, Velocity Offset, Transpose, Pitch Tune, Portamento Mode, Free-Run Function Generator, Save HyperPreset
- **Copy Menu**
  Copy: Preset, Layer (Pri/Sec), Filter, LFO, Function Generator, Auxiliary Envelope, Note-On Control, Realtime Control, HyperPreset, HyperPreset Zone, MIDI Map, MIDI Map Channel, Effect, Program Change Map, Bank
- **Digital Effects**
  Two simultaneous effects may be programmed. Effects include: Reverbs (Room, Warm Room, Small Room 1-2, Hall 1-3, Chamber-2, Plate 1-2, Early Reflections 1-4, Reverse Early Reflections, Rain), Shimmer, Stereo Flange, Phaser, Stereo Chorus, Delay, Cross Delay, Echo, Fuzz, Fuzz Lite, Ring Modulator

Technical Specifications

Audio Channels: 32
Data Encoding: 16-bit linear, 18-bit output DACs
Sound Memory: 8MB (Expandable to 16MB)
Preset Capacity: 384 (128 RAM, 128 ROM, 128 Card)
HyperPreset Capacity: 256 (128 RAM, 128 Card)
Filters: 32 14-Pole Interpolating Digital Filters employing 32-bit internal arithmetic
Programmed Filter Types: 198

- **Inputs**
  Stereo Effects Return In (2 pairs), MIDI In
- **Outputs**
  6, polyphonic (configurable as 3 pairs of stereo outputs w/programmable panning), Mono Mix, Headphone Output, MIDI Out, MIDI Thru
- **Data Card**
  PCMCIA card stores 128 Presets, 128 HyperPresets and 16 MIDI Maps

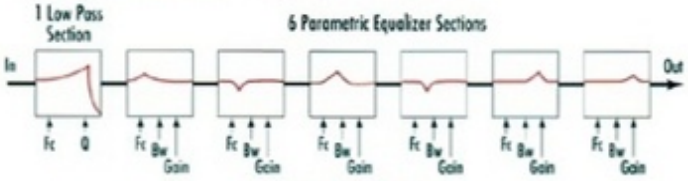
Z-Plane

What Is Z-Plane Synthesis?

Z-Plane Synthesis is E-mu's proprietary technology for providing new levels of expressivity and dynamic timbral control of sample-based waveforms.

Conventional synthesizer filters consist of a single section that simply lets you attenuate a waveform's harmonic content above a single frequency with (in some cases) an optional resonant peak at that frequency. In contrast, a Z-Plane filter consists of seven sections, each (very much like a band of parametric EQ) allowing independent control of frequency, bandwidth and degree of peak or notch. As a result, Z-Plane Filters can model virtually any resonant characteristic; whether that of an acoustic instrument body, the human vocal tract or even something that does not exist in nature.

This modeling capability alone makes Z-Plane Filters the most powerful filters ever available on a commercial synthesizer. But their real power comes from their ability to smoothly interpolate (or "morph") between resonant models. Whether in response to velocity, pressure, or a variety of real-time controls, Z-Plane filters let you dynamically transform sounds in ways never before possible. From subtle expressive variation to alien mutation, Z-Plane Synthesis gives you access to sounds which previously existed only in your imagination.



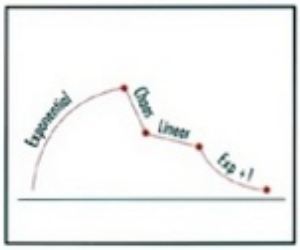
Z-Plane Filters
Z-Plane Filters give independent control over 14 filter poles configured as seven 2-pole sections

The Morpheus Function Generator

To give you maximum creative control of its Z-Plane filters, each Morpheus voice includes (in addition to three traditional AHDSR envelope generators) two advanced programmable Function Generators. For each of a Function Generator's eight segments you can specify not only level and rate, but shape (select from 64 shapes including Linear, Exponential, Random and Chaos) and a Conditional Jump that will cause a jump to another specified segment based on the state of a chosen parameter (such as velocity, footswitch position, and note-off, etc.).

As part of Morpheus' MIDIPatch modulation system, each Function Generator can be assigned to any of 35 real-time control destinations including filter morphing.

Conditional Jumps
Allows control of function generator based on the state of various parameters



Function Generators
- *Shapes selectable per segment*
- *64 shapes to choose from*

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