

WMD – Skorpion

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WMD Skorpion modulation ideas for distorted percussion, insane basslines, and haunted pads

Skorpion is not just a wavfolder. It behaves more like a **threshold-driven waveform animator**: your input is constantly compared against up to 8 thresholds, and every crossing changes the behavior of the internal vector core. That means it rewards **modulation everywhere**—especially modulation that changes how and when threshold crossings happen.

The big takeaway from the manual is this:

- **FOLD** changes how hard the input pushes into the threshold system
- **SLOPE** determines how fast the internal core moves, which strongly affects brightness/harmonics
- **SHIFT** offsets the input against thresholds, adding asymmetry and even frequency-shift-like motion when modulated slowly
- **TARGET** changes where the vector core wants to go
- **SHAPE** modulates SLOPE using feedback and internal signals like OUT, DIFF, COUNT, TRGTs, etc.
- The **THLD sliders** and **TRGT sliders** are a huge part of the sound, not just “settings”
- Skorpion also generates many useful CV/audio outputs for **self-patching**

That means the most interesting sounds usually come from:

1. **Audio-rate or fast CV into FOLD / SHIFT / SHAPE / THLDs**
 2. **Self-patching from DIFF / COUNT / DAC / \pm G(DIR) / DELAY / TRGTs**
 3. **Using THLDs and TRGTs as animated structures**, not static positions
 4. **Abusing CLIP, HALT, SYNC, and TARGET modes**
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First: how to think about modulation on Skorpion

1. Modulating FOLD

This is the obvious one, but on Skorpion it does more than “more wavefolding.” It changes how strongly the input drives threshold crossings.

Great sources: - envelope from a drum trigger - velocity CV - stepped random - audio-rate oscillator - internal macro LFO/envelope - self-patched **COUNT/** or **DAC**

Results: - more/less aggressive folding - rhythmic changes in transient bite - unstable tearing sounds when audio-rate modulated - formant-like movement when modulated slowly on complex material

2. Modulating SLOPE

This is one of the most powerful parameters. The manual says higher slope = signal goes further, faster = more harmonics.

Great sources: - 1V/oct if using Skorpion melodically - envelope for attack bite - audio-rate modulation for metallic sideband-like edges - **DIFF** output for harsh recursive behavior - **TRGTs** output for stepped timbral changes

Results: - snappy transients - aggressive bass growl - harmonic “snarl” - dramatic tone shifts from soft to shattered

3. Modulating SHIFT

SHIFT is especially good because it changes symmetry and threshold interaction. The manual notes slow modulation can create a **frequency shift effect**.

Great sources: - triangle or sine LFO - envelope with slow decay - random slew - **ABS(IN)** or **G(IN>0)** for waveform-dependent asymmetry - audio oscillator for clangorous movement

Results: - asymmetrical distortion - animated bass vowel motion - moving stereo grit - ghostly drifting pads

4. Modulating TARGET

TARGET changes the destination voltage of the vector core: - **5V** = more static / square - **CLIP** = overlays input waveform - **SLIDERS/TRGTs** = sequenced destinations

Great sources: - TRGT MOD input - self-patched external audio into **CLIP** - sequencer CV into **TRGTs input** - rhythmic gates into target sequencing by driving threshold crossings

Results: - different “families” of distortion - pseudo-PWM/square behavior - spectral overlay from another signal - stepped animated timbre

5. Modulating SHAPE

This is one of the deepest parts of the module. SHAPE modulates SLOPE using feedback sources: - **IN** - **OUT** - **DELAY** - **COUNT** - **DIFF** - **TRGTs** - **DAC** - **DIR**

This is where Skorpion gets alien.

Results: - log/exp-like curves - recursive screaming feedback behavior - pulsed segment-by-segment deformation - skewed or spiky waves - unstable but playable textures

The most important hidden modulation tools

THLD sliders as a wavemaking structure

The thresholds decide where folds occur. Uneven thresholds create irregular harmonic events.

Try: - clustered low thresholds for dense early folding - sparse upper thresholds for occasional violent bursts - alternating high/low patterns for pseudo-bitcrushed articulation - all equalized for a more classic wavefolder behavior

Equalize THLDs switch

Use this as a modulation destination: - **ON**: classic, evenly spaced behavior - **XOR**: equalized until a high gate disables it - **JACK**: external gate turns equalization on

This is fantastic for switching between: - smooth/classic fold tones - weird irregular threshold patterns

A gate sequencer or clock divider into **EQ THLDs jack** can make one pattern sound “normal” on some steps and “broken” on others.

TRGT sliders as a sequencer

TRGTs aren't just helper values; they create a true 8-step destination voltage sequence.

Target order: - **SEQ**: selected by count of active thresholds - **TIED**: selected by most recently crossed threshold

This matters a lot: - **SEQ** sounds more staircase/scan-like - **TIED** sounds more unstable and gesture-based

Modulate or patch for: - stepped timbre sequence - threshold-dependent wavetable feel - pseudo-formant patterns for basses and pads

HALT and HALT IF TARG=0

This is one of the wildest features.

- **HALT jack** freezes the vector core at current voltage
- **HALT IF TARG=0** makes any target at zero stop motion for that segment

This can create: - broken-square impacts - gated tearing bass phrases - stuck/frozen resonant-like moments - staircase pad textures

Best self-patch modulation sources

Skorpion gives you unusually useful outputs. These are gold for self-patching.

DIFF

Difference between TARGET and actual vector core value. The manual says it is usually very high in harmonic content.

Use it to modulate: - **SLOPE** for harshness and spikes - **SHAPE** for unstable aggression - **FOLD** for ripping dynamics - external filter cutoff for synced screaming motion

This is one of the best “go feral” sources.

COUNT/

0–4V staircase based on active thresholds, each threshold adds 0.5V.

Use it to modulate: - **FOLD** for threshold-count-dependent aggression - **SHIFT** for stepped asymmetry - **TARGET** or **TRGT MOD** for staircase morphing - external oscillator FM depth or filter cutoff

DAC

Weighted version of count; subtler than COUNT.

Use it where COUNT is too coarse: - gentle bass vowel movement - subtle brightness sequencing - evolving pad animation

$\pm G(\text{DIR})$

+5V when rising, -5V when falling.

Use it to modulate: - **SHAPE** with source = DIR for skew - external polarizer/VCA - filter FM or wave symmetry - rhythmic directional pumping

ABS(IN)

Full-wave rectified input.

Use it for: - envelope-like audio-rate modulation - making asymmetry related to source amplitude - dynamic fold response

G(IN>0)

Gate based on input polarity.

Use it for: - comparator-like rhythmic switching - clocking logic externally - alternating modulation per half-cycle

DELAY

Delayed signal from the WIDE section.

Use it to: - feed back into SHAPE or CLIP - modulate FOLD or SHIFT - process externally and bring back in - create chorused spectral instability

TRGTs output

This is huge. It's the target sequencer as CV/audio.

Use it to: - modulate filter cutoff - FM another oscillator - animate another wavefolder/VCA - self-patch into SHAPE, SLOPE, or TRGT MOD

Patch ideas for distorted percussion

These focus on kicks, snares, hats, metallic hits, and glitch percussion.

1. Broken industrial kick

Goal: hard, overdriven, tearing kick with a cracked top transient

Patch

- Sine or triangle oscillator into **IN**
- Pitch envelope on the oscillator for kick shape
- Set **TARGET** toward **5V**
- Medium-high **FOLD**
- Medium-high **SLOPE**
- **SYNC = HARD**
- **DRY IF NO THLDs = ON**
- Uneven threshold slider pattern, with several low thresholds active

Modulation

- Fast decay envelope into **FOLD CV**
- Smaller fast envelope into **SLOPE CV**
- Patch **DIFF out** lightly into **SHAPE CV**
- SHAPE source = **DIFF**
- Set SHAPE just above noon

Why it works

The input kick crosses thresholds during the pitch drop, while DIFF-driven shape adds ripping transient spikes. HARD sync makes the attack feel very reset and percussive.

Variation

Set one or two **TRGT sliders to 0** and turn **HALT IF TARG=0** on. This adds abrupt “flat” segments in the transient, almost like clipped speaker damage.

2. Snare from noise + tone overlay

Goal: smashed electro/industrial snare

Patch

- Mix noise + sine/triangle into **IN**
- Put **TARGET** between **CLIP** and **SLIDERS**
- Feed a second oscillator or bursty percussion signal into **CLIP jack**
- THLDs irregular, not equalized
- OUTPUT around wet, maybe a little wide

Modulation

- Envelope into **SHIFT CV** to create asymmetry on attack
- **COUNT/** into **FOLD CV** attenuated

- **TRGT MOD** fed from a short envelope or audio blip
- SHAPE source = **OUT** or **COUNT**

Why it works

The noise causes chaotic threshold crossings while the tonal body gives pitch center. External CLIP overlays another waveform onto the destination behavior for more crack and body.

3. Metallic hats and shards

Goal: sharp, digital-analog metallic percussion

Patch

- Noise or highpassed oscillator into **IN**
- THLDs mostly high, with a few clustered
- **SLOPE** high
- **FOLD** moderate
- SHAPE source = **COUNT** or **DAC**
- TARGET toward **SLIDERS**

Modulation

- Audio-rate modulation into **SHIFT**
- **±G(DIR)** into external VCA/filter or self-patched to SHAPE
- Use **TIED** target order
- Patch **TRGTs output** to external VCA/filter for synchronized timbral movement

Why it works

Audio-rate SHIFT causes asymmetry flicker, while TIED target order makes the result more unstable and metallic.

4. Glitch toms / broken machine hits

Goal: crunchy electronic toms that splinter unpredictably

Patch

- Triangle VCO into IN
- Envelope pitch mod on VCO
- **EQ THLDs** switched by trigger sequence
- Some steps equalized, others irregular
- **SYNC = SOFT**
- **TARGET = SLIDERS**
- TRGT sliders in descending staircase

Modulation

- Trigger/gate pattern into **EQ THLDs jack**
- Envelope into **TARGET CV**
- Light **DAC** into **SHIFT**
- **HALT jack** pinged with occasional triggers

Why it works

Switching equalized thresholds on/off changes the folding architecture per hit. HALT adds sudden frozen segments that sound like broken converters or robotic malfunctions.

Patch ideas for dubstep / drum and bass basslines

This is where Skorpion looks incredible. Its combination of threshold sequencing, asymmetry, directional feedback, and self-patching is ideal for modern aggressive bass.

1. Classic talking reese mutation

Goal: moving, vocalized, nasty stereo bass

Patch

- Detuned saw or square pair mixed to mono into **IN**
- **1V/OCT** from sequencer
- **OUTPUT** above noon into **WIDE**
- **OUTPUT** switch = **FILTERs**
- **TARGET** between **CLIP** and **SLIDERS**
- **THLDs** irregular, with more activity in the middle
- **SHAPE** source = **OUT**

Modulation

- Slow triangle LFO or envelope into **SHIFT**
- Medium envelope into **FOLD**
- **DAC** into **TARGET CV** attenuated
- **DELAY out** into **SHAPE CV** attenuated
- Macro envelope controlling internal mod on **FOLD** and **SHIFT**

Why it works

SHIFT adds vowel-like asymmetry motion, **OUT** feedback makes the slope bend musically, and the **WIDE**/delay path gives stereo movement while keeping lows centered in **FILTER** mode.

Tip

Use **FILTERs** mode for cleaner low end in bass music. The manual says frequencies below 240 Hz stay centered, while highs are widened.

2. Neuro-style tearing bass

Goal: hyper-modulated, tearing, evolving bass

Patch

- Rich oscillator or FM bass into **IN**
- **FOLD** high
- **SLOPE** high
- **TARGET = SLIDERS**
- Target order = **TIED**
- SHAPE source = **DIFF**
- **SYNC = HARD**
- Uneven THLDs, many active

Modulation

- **DIFF out** into **SLOPE CV**
- **COUNT/** into **SHIFT CV**
- Envelope follower or LFO into **TRGT MOD**
- Audio-rate oscillator into **FOLD CV**
- Occasional gates into **HALT**

Why it works

DIFF into SLOPE creates sharp, self-reactive edges. COUNT into SHIFT gives threshold-state-dependent asymmetry. HARD sync keeps it from completely dissolving into chaos.

Tip

If it becomes too wild, switch SHAPE source from **DIFF** to **DAC** for a subtler but still animated version.

3. Stepped snarling sequence bass

Goal: articulated bassline where each note has internal timbral sequencing

Patch

- Mono VCO into **IN**

- Sequencer to **1V/OCT**
- **TARGET = SLIDERS**
- Set TRGT sliders to a rhythmic pattern of low/high destinations
- Set target order to **SEQ**
- THLDs in a progressive ramp or alternating pattern

Modulation

- Gate envelope into **SLOPE**
- **TRGTs output** into filter cutoff or second oscillator FM
- **COUNT/** into **FOLD**
- Macro LFO on **SHAPE**
- Slow LFO into **SHIFT**

Why it works

The note itself drives threshold crossings, which then step through different target voltages, creating an internal sequence inside each bass note.

4. Ripping sub-bass with controlled top destruction

Goal: stable sub fundamental with aggressive moving mids

Patch

- Sine/sub oscillator into IN
- Duplicate dry sub to separate mixer if possible
- OUTPUT switch = **FILTERS**
- OUTPUT above noon but not fully wide
- **DRY IF NO THLDs = ON**
- **EQ THLDs = ON** initially
- TARGET toward **5V**
- SHAPE source = **OUT** or **DAC**

Modulation

- Envelope into **FOLD**
- Small audio-rate mod into **SHIFT**
- **DAC** into **SHAPE**
- Use **EQ THLDs jack** to occasionally disable equal spacing for fill moments

Why it works

Equalized thresholds keep it more stable and classic, while occasional irregular threshold moments create dramatic fills without losing the sub. **FILTER** mode helps preserve centered low end.

5. Bass growls from external **CLIP** abuse

Goal: strange layered bass where one signal “imprints” onto another

Patch

- Bass oscillator into **IN**
- Different oscillator, vocal sample, drum loop fragment, or noise burst into **CLIP**
- **TARGET** fully or mostly toward **CLIP**
- **SHAPE** source = **IN** or **OUT**
- **THLDs** irregular

Modulation

- LFO/envelope into **TRGT MOD**
- **ABS(IN)** into **SHIFT**
- **DELAY** into **FOLD** attenuated
- occasional **HALT** triggers

Why it works

The manual notes CLIP can be a different signal than the input. This lets one waveform act like the target/overlay behavior for another, which is incredible for hybrid bass textures.

Patch ideas for haunting atmospheric pads

Skorpion can do beautiful, uneasy pad textures if you stop thinking of it as only a destroyer.

1. Drifting haunted pad

Goal: evolving, spectral, asymmetric pad with movement

Patch

- Slow-moving chord or single saw/triangle into **IN**
- Lower **FOLD**
- Medium **SLOPE**
- TARGET between **SLIDERS** and **CLIP**
- OUTPUT in **WIDE**
- OUTPUT switch = **FILTERs**
- SHAPE source = **DELAY**

Modulation

- Slow sine LFO into **SHIFT**
- Very slow LFO into **SHAPE**
- **DELAY out** into **TRGT MOD**
- THLD LFOs from macro section enabled at low amount/rate
- Macro envelope with long attack/release

Why it works

The delayed signal feeding shape or target adds memory-like spectral smearing. Slow SHIFT motion creates the ghostly “frequency shift” feel described in the manual.

2. Broken choir / tape-warp pad

Goal: unstable, breathing, damaged-analog atmosphere

Patch

- Rich waveform or ensemble source into IN
- **SYNC = SOFT**
- **TARGET = SLIDERS**
- Target order = **TIED**
- THLDs uneven and sparse
- Some TRGT sliders near zero
- **HALT IF TARG=0 = ON**

Modulation

- Slow random CV into **SHIFT**
- Slow envelope into **SLOPE**
- SHAPE source = **DAC** or **TRGTs**
- **TRGTs output** to external reverb/filter modulation

Why it works

Targets at zero can pause portions of the internal motion, adding frozen chunks and broken continuity. TIED order makes the target selection feel organic rather than rigid.

3. Dark resonant cloud

Goal: eerie, harmonically rich drone/pad

Patch

- Drone oscillator, filtered noise, or feedback loop into **IN**
- TARGET closer to **CLIP**
- Feed another slow-moving oscillator into **CLIP**
- OUTPUT in **WIDE**
- SHAPE source = **OUT** or **DELAY**
- SLOPE moderate-high
- FOLD moderate

Modulation

- **DIFF** very lightly into **SHAPE**
- **DAC** into **SHIFT**
- super slow macro modulation on SHAPE and FOLD
- use **DELAY out** externally through reverb, then optionally back into CLIP or TRGT MOD

Why it works

Separate input and clip sources create spectral superposition. Gentle feedback makes it breathe without becoming too aggressive.

4. Evolving stepped pad / spectral sequencer

Goal: pad that feels like it has internal harmonic stages

Patch

- Sustained oscillator into IN
- TARGET = **SLIDERS**
- TRGT sliders set to contour: low-mid-high-mid-low etc.

- THLDs arranged to determine how often different segments activate
- target order = **SEQ**
- SHAPE source = **TRGTs**

Modulation

- Slow LFO into **FOLD**
- Slow LFO into **SHIFT**
- **COUNT/** into **TARGET CV** very lightly
- threshold LFO amount low, threshold LFO rate very low

Why it works

The pad internally moves through destination voltages and slope shapes as thresholds activate, which sounds almost like wavetable scanning or spectral frame interpolation.

Specific modulation strategies that work especially well

A. Audio-rate modulation

Skorpion explicitly supports audio-rate CV on THLD-related inputs, and its architecture loves fast modulation.

Try audio-rate modulation into: - **FOLD** for brutal upper partial shredding - **SHIFT** for metallic asymmetry - **SHAPE** for unstable sideband-like motion - **THLDs/** for global moving threshold geometry - **TRGT MOD** for aggressive target corruption

Especially good for: - metallic snares - neuro bass - alien drones

B. Self-patching recipes

1. DIFF -> SLOPE

The classic chaos patch. - Start with low attenuation - Adds intense harmonic edge - Great for basses and industrial percussion

2. COUNT -> SHIFT

Creates stepped asymmetry as threshold activity changes. - Great for talking basses - Also good on pads for mechanical movement

3. DAC -> SHAPE

A more controlled version of COUNT-driven shaping. - Great for subtle evolution - Excellent on pads and rolling basses

4. DELAY -> TRGT MOD

Creates memory/imprint behavior. - Feels like spectral afterimage - Great on haunted textures and wide basses

5. TRGTs -> external filter cutoff

Lets threshold activity sequence another module. - Great for integrated bass patching - Makes one voice feel like multiple coordinated systems

6. $\pm G(\text{DIR})$ -> SHAPE or external VCA

Alternates behavior depending on whether the vector core is rising or falling. - Creates push-pull asymmetry - Very expressive for bass growls

How to use the macro section musically

The internal macro system is easy to overlook, but it is perfect for animated patches.

Best uses

- put slow internal LFOs on **FOLD**, **SHIFT**, and **SHAPE**
- use the **macro envelope** to fade modulation in over long phrases
- use very long attack and release for evolving pads
- use short attack / medium release for bass notes that bloom into chaos
- use threshold LFO amount/rate for subtle constant movement in threshold positions

Great performance trick

Set: - macro attack = medium or long - macro release = long - FOLD and SHAPE in LFO mode - SHIFT in ENV mode

Then toggle the macro envelope on/off during a phrase. This makes a patch “wake up” and then slowly decay back to stability.

Switch combinations that are especially powerful

SYNC

- **HARD**: best for drums, punchy basses, more assertive attacks
- **SOFT**: best for pads, smeared textures, less clicky resets
- **X**: freer, often more chaotic/organic

TARGET ORDER

- **SEQ**: more structured, great for bassline design
- **TIED**: more unstable, expressive, alive

EQUALIZE THLDs

- **ON**: classic, more controlled
- **OFF/JACK**: more character and irregularity
- modulating this is very effective for fills and transitions

DRY IF NO THLDs

- useful when heavily modulating FOLD
- keeps sound present instead of disappearing
- especially valuable in bass patches

OUTPUT switch

- **DC**: raw, direct, often best for distortion and hard percussion
- **FILTERs**: best for polished bass music and wide pads, because lows stay centered and highs widen

Three “signature” advanced patch concepts

1. Threshold-switched bass architecture

Use a gate sequence into **EQ THLDs jack** so every few steps the module flips between: - equalized thresholds = stable bass growl - custom thresholds = chaotic mutant bass

Then use: - **COUNT**/ -> filter cutoff - **DIFF** -> subtle SLOPE - OUTPUT in FILTERs mode

This gives very performable bassline variation.

2. Cross-imprinted percussion

Use one signal at **IN** and a different percussive or tonal source at **CLIP**.

Examples: - kick in, snare in CLIP - tom in, metallic FM blip in CLIP - bass oscillator in, hi-hat loop in CLIP

Then modulate: - TRGT MOD with envelope - SHIFT with random - SHAPE from OUT or DIFF

This makes sounds that feel layered in a very nonstandard way.

3. Frozen spectral pad

Use: - TARGET = SLIDERS - some TRGT sliders at zero - **HALT IF TARG=0 = ON** - slow modulation of threshold activity - SHAPE source = DELAY - OUTPUT wide with FILTERs

This creates a moving pad where certain segments freeze into flat planes before melting back into motion.

Quick starting settings by genre

Distorted percussion

- SYNC: HARD
- TARGET: 5V or CLIP
- SHAPE source: DIFF or OUT
- THLDs: irregular

- FOLD: medium-high
- SLOPE: high
- OUTPUT: mostly wet, DC mode

Dubstep / DnB bass

- SYNC: HARD or X
- TARGET: SLIDERS or CLIP
- target order: TIED for chaos, SEQ for groove
- SHAPE source: OUT / DIFF / DAC
- SHIFT: modulated slowly
- OUTPUT: WIDE with FILTERS

Haunting pads

- SYNC: SOFT
- TARGET: SLIDERS / CLIP blend
- SHAPE source: DELAY / TRGTs / DAC
- THLD LFOs: subtle and slow
- macro attack/release: long
- OUTPUT: WIDE with FILTERS

Final practical advice

Best “sweet spot” habits

- Start with **THLDs not equalized**, then toggle equalize to compare
- Use **SHIFT** more than you think; it is one of the module’s most characterful controls
- For bass, keep **FILTERS** stereo mode on so low end stays solid
- For aggressive sounds, patch **DIFF** somewhere
- For evolving sounds, patch **DAC** or **DELAY**
- Explore **CLIP with a different source**—this is one of the most unique features in the module

- Don't overlook **HALT** and **HALT IF TARG=0** for rhythm and segmentation

If you only try 5 modulation patches, try these first

1. **DIFF -> SLOPE**
2. **COUNT -> SHIFT**
3. **DELAY -> TRGT MOD**
4. **Audio oscillator -> FOLD CV**
5. **External source into CLIP**

If you want, I can also turn this into: - a **10-patch cookbook** - a **"best self-patching matrix" table** - or a **genre-specific cheat sheet** for only percussion, only bass, or only ambient textures.

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