

# Qu-Bit — Cascade

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## Using Qubit Cascade for Hyper-Complex Percussion & Rhythmic Sequences

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As a Eurorack modular synthesizer artist, the **Qubit Cascade** is a powerhouse for generating dynamic, percussive, and wildly complex rhythmic material. Here's a breakdown of strategies, patch ideas, and manipulation tips for creating polyrhythmic, intricate percussion:

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### 1. Cascade as a Unique Percussion Voice

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#### Internal Sound Sources

Cascade can generate percussion sounds directly, thanks to its internal audio algorithms: - **White Noise**: Snappy noise bursts → snares, shakers, textures. - **808 Drums**: Core electronic hits. - **Sine Tone (HiFreq)**: Toms, metallics, clave sounds.

#### Tip:

Trigger these with short, snappy envelopes (attack/release at minimum) for punch, or dial in more curve/time for organic flair.

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## 2. Ratcheting, Loops, and Hyper-rhythms

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### Ratcheting AD Mode

- **Repeats control:** This is your gateway to microtiming, ratchets, and tuplets (1x, 2x, 3x, 4x, 6x, 8x, 12x, 16x)!
- **Complexity:** Patch in non-synchronous clocks or trigger sources to the trigger input for off-grid accents.

### Polyrhythm Example

- Set one Cascade channel to repeat at 3x, another at 4x, and trigger both with a master clock; the result is a 3:4 polyrhythm.

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## 3. Envelope Tailoring for Percussive Impact

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- **Fast Attack/Decay:** Ultra-snappy for clicky transients.
  - **Exponential/Linear/Log curves:** Exponential for extra snap, linear for robotic, logarithmic for soft percussive tails.
  - **Envelope Inversion:** Use the invert button with offset for upside-down volume shapes—great for sidechain and pumping effects!
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## 4. Advanced Modulation for Intricacy

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- **CV Over Repeats, Curve, Level, Offset:** Use random sources, LFOs, or sequencer modulation to dynamically warp each envelope or ratchet sequence for evolving percussion.
  - **Gravity Modes:** Enable amplitude and time gravity for self-modulating envelopes; creates “bouncy ball” complexity or evolving accent patterns.
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## 5. Complex Time Signatures & Gate Manipulation

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- Use “Gate Output Modes” (trigger, EOD, EOA) to generate gates not just on main triggers, but at envelope segment transitions—patch these into other percussion voices to create interlocking, follow-on patterns (e.g., kick on envelope end → hi-hat).

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## 6. External Sound Shaping and Effects

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- **VCA + Envelope:** Cascade excels as a VCA/envelope for sculpting external percussive sounds—try shaping FM percussion, samples, or noise, especially with envelope follower or compressor mode for dynamic envelope control.
- **Compressor Mode:** Sidechain compression with a virtual sidechain—duck complex rhythmic material or make space for accents.

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## 7. Patch Concepts for Dense, Hyper-Rhythmic Grooves

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**A. Multi-Cascade Drumkit:** - Use 2–3 Cascades (or mult the gate) for kick, snare, hat. - Give each a different repeats/multiplier setting. - Offset each envelope’s start/decay so events overlap and phase-shift.

**B. Envelope Follower for Groove Extraction:** - Route complex audio into the Envelope Follower input. - Use follower output to modulate level or triggers elsewhere, locking percussion to existing material’s groove.

**C. Self-Modulated Ratcheting:** - Patch the Gate Output back to the trigger input (with attenuverter), or use CV-ed segments to “auto-ratchet” and randomize rhythm lengths.

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## 8. Making Percussion Uniquely Punchy

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- **Max Level, Min Attack:** Get sharp, club-ready transients.
  - **CV Modulate Offset:** Flushes 'ghost hits' or evolving amplitude response.
  - **Use Invert + Offset:** Immediate "ducking"/sidechain or reversed staccato shapes.
  - **Exploit Gravity & Internal Sounds:** Unpredictable, lifelike movement.
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## 9. General Workflow

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1. **Pick a sound source** (internal or external via VCA in).
  2. **Select envelope mode** (AD, ADSR, etc) for each percussion hit.
  3. **Patch triggers/gates** (experiment with offset polyrhythms).
  4. **Modulate everything**— especially repeats and curves.
  5. **Experiment!** Routings + curves = endless unique percussion.
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For more deep dives, refer to the [full Cascade manual PDF](#).

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