INNOVANIAC MUSIC™

Compression Cheat Sheets – For Mixing Engineers

WHAT IS COMPRESSION?

A dynamic-range tool that automatically turns the volume down when a signal gets too loud. Main uses in mixing:

- Make quiet parts louder & loud parts quieter for a more consistent level
- Add punch or sustain
- Glue instruments together
- Control peaks so you can turn the whole track louder

Pro Tip: Think of it as an automatic hand on the volume fader that reacts in milliseconds.

RATIO

How hard the compressor squeezes once the signal passes the threshold. Examples:
2:1 = gentle (for every 2 dB over threshold, only 1 dB comes out)
4:1 = medium (standard for most instruments)
10:1 = acting like a limiter
∞:1 = full limiter (nothing gets past threshold)
Pro Tip: Higher ratio = more aggressive leveling.

ATTACK TIME

How fast the compressor reacts after the signal exceeds the threshold.
Fast attack (0.1–10 ms): Clamps down instantly. Controls peaks, thickens sound, but can kill the initial "crack" or impact.
Slow attack (10–100 ms): Lets the initial transient (the hit) pass through before compressing. This creates "Punch.“

Pro Tip: Want more punch/snap? Use Slower Attack.
Want leveling/control? Use Faster Attack.

RELEASE TIME

How fast the compressor lets go after the signal falls back below threshold.
Fast release (50–150 ms) follows fast notes, can add energy/pump
Slow release (300 ms–2 s or Auto) makes smooth, natural decay, prevents pumping on sustained notes
Pro Tip: set release so the gain reduction “breathes” with the song’s tempo (needle returns to 0 just before next hit).

THE KNEE (Hard vs. Soft)

The “knee” (AKA “Elbow”) is the kink point on the input/output graph where compression begins.
Threshold sets the elbow height.
Ratio sets how steep the line becomes after the elbow.
Makeup Gain lifts the whole signal after compression so loud parts hit the same peak level as before.
Visual rule: Drop threshold and more of the waveform gets squeezed.
Pro Tip: Raise makeup gain and the entire track gets louder without clipping.

POP / EDM – Mix Bus Compression

Ratio: 2:1 – 4:1
Attack: 10–30 ms
Release: 100–400 ms or Auto Gain Reduction: 1–3 dB
Why: Invisible glue – keeps transients alive and mix exciting
Reference tracks

- Dua Lipa – Levitating
- The Weeknd – Blinding Lights
- Ariana Grande – Positions

SIDECHAIN COMPRESSION (The "Pump")

Ratio: 4:1 – 10:1 (Aggressive)
Attack: 0.1 – 2 ms (Instant)
Release: Tempo-synced (1/8th or 1/4 note)
Gain Reduction: 6 – 15 dB+
Why: "Ducks" the bass/synths instantly when the Kick hits to prevent frequency masking. Creates the rhythmic "sucking" or "pumping" groove.
Reference tracks

- Daft Punk – One More Time
- The Chainsmokers – Roses

HIP-HOP / TRAP – Mix Bus Compression

Ratio: 4:1
Attack: 5–20 ms
Release: 100–300 ms or AutoGain
Reduction: 2–5 dB (often parallel)
Why: Controls huge 808 peaks, adds density and power
Reference tracks

- Travis Scott – SICKO MODE
- Drake – God's Plan
- Future – Mask Off

ROCK / INDIE – Mix Bus Compression

Ratio: 2:1 – 3:1
Attack: 20–50 ms
Release: 300 ms – 1 s or AutoGain
Reduction: 1–4 dB
Why: Lets drums & guitars breathe naturally
Reference tracks
- Foo Fighters – Everlong
- Tame Impala – The Less I Know the Better

R&B / NEO-SOUL – Mix Bus Compression

Ratio: 3:1 – 4:1
Attack: 30+ ms (slow)
Release: Slow / AutoGain
Reduction: 2–4 dB
Why: Smooth, creamy leveling – keeps vocal intimacy
Reference tracks
- SZA – Good Days
- Daniel Caesar – Get You
- H.E.R. – Best Part

METAL – Mix Bus Compression

Ratio: 4:1 – 8:1
Attack: 1–10 ms (fast)
Release: 50–200 ms
Gain Reduction: 4–8 dB
Why: Tames guitar walls & cymbal wash, follows double-kick tempo
Reference tracks

- Bring Me the Horizon – Can You Feel My Heart
- Spiritbox – Holy Roller

ACOUSTIC / FOLK – Mix Bus Compression

Ratio: 2:1 – 3:1
Attack: 30–50 ms
Release: Auto / very slow
Gain Reduction: 0.5–2 dB
Why: Barely touches the mix – preserves every nuance
Reference tracks

- Bon Iver – Holocene
- Phoebe Bridgers – Motion Sickness

KICK DRUM

Ratio: 4:1 – 12:1
Attack: 10–30 ms (To add punch/click), 0.1–5 ms (To control dynamics/tighten)
Release: 50–200 ms (tempo-matched)
Gain Reduction: 3–10 dB
Why: Slower attack lets the beater "click" cut through the mix; Fast release prevents the low-end tail from getting muddy.
Reference track
• Billie Eilish – bad guy

SNARE DRUM

Ratio: 4:1 – 8:1
Attack:10–30 ms (Lets the "crack" cut through),1–5 ms (Crushes the transient for a fat/thick sound)
Release: 50–150 ms (Tune to song tempo)
Gain Reduction: 3–6 dB
Why: Medium attack preserves the stick impact and release brings up the "ring" and ghost notes (body).
Reference tracks

- Justin Bieber – Peaches
- Royal Blood – Figure It Out

PARALLEL DRUM BUS

Ratio: 8:1 – 20:1
Attack: Very fast
Release: 50–100 ms
Gain Reduction: 10–20 dB
Why: Smashed to death – blend 10–30% under dry drums for thickness
Reference tracks

- Daft Punk – One More Time
- Led Zeppelin – When the Levee Breaks

BASS GUITAR / 808

Ratio: 4:1 – 10:1
Attack: 10–30 ms
Release: 200 ms – AutoGain
Reduction: 3–8 dB
Why: The slower attack lets the "pluck" or "pick" noise through for definition, then levels out the sustained low-end note.
Reference tracks
- Mark Ronson – Uptown Funk
- Future – Mask Off

ELECTRIC RHYTHM GUITARS

Ratio: 4:1
Attack: 10–30 ms
Release: 200–500 ms
Gain Reduction: 2–6 dB
Why: Glues chords together, long release prevents pumping
Reference tracks

- John Mayer – Slow Dancing in a Burning Room
- Muse – Plug In Baby

ACOUSTIC GUITAR

Ratio: 2:1 – 4:1
Attack: 20–50 ms
Release: Auto / slow
Gain Reduction: 1–3 dB
Why: Only tames stray loud strums – keeps fingerstyle alive
Reference tracks

- Ed Sheeran – Thinking Out Loud
- Jason Isbell – If We Were Vampires

LEAD VOCALS (Modern)

Ratio: 3:1 – 6:1 (two compressors)
Attack: 3–30 ms
Release: 100–300 ms / Auto
Total Gain Reduction: 4–10 dB
Why: First comp smooths, second catches peaks → rock-solid level
Reference tracks

- Adele – Someone Like You
- Post Malone – Circles

BACKGROUND / HARMONY VOCALS

Ratio: 4:1 – 8:1
Attack: 5–15 ms
Release: 100–200 ms
Gain Reduction: 4–8 dB
Why: Harder compression makes them sit back and glue as a layer
Reference tracks
- Fleetwood Mac – Go Your Own Way
- The 1975 – Somebody Else

PIANO (Pop/Rock)

Ratio: 3:1 – 4:1
Attack: 10–30 ms
Release: AutoGain
Reduction: 3–6 dB
Why: Evens velocity differences while preserving hammer attack
Reference tracks
- Coldplay – Clocks
- Sara Bareilles – Love Song

STRINGS / SYNTH PADS

Ratio: 2:1 – 3:1
Attack: Very slow
Release: Very slow
Gain Reduction: 1–3 dB
Why: Only glues the section – any pumping ruins the vibe
Reference tracks

- Radiohead – Weird Fishes/Arpeggi
- The Weeknd – Dawn FM (intro pads)