Rave Generation

PRESENTS

SUPER CHORUS
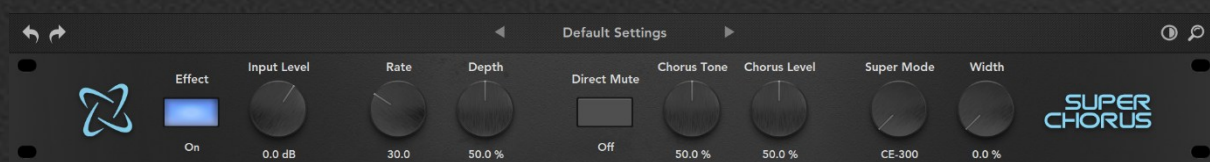
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USER MANUAL

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1. Introduction

Super Chorus is an authentic emulation plugin that faithfully recreates five iconic chorus and modulation circuits from classic gear spanning four decades. From the warm, analog swirl of an 80s rack unit heard on countless dreamy guitar and synth tracks, to the bright, wide stereo chorus that defined 90s trance pads, to the fluid, expressive modulation behind the legendary hoover sound of mid-80s synths, plus modern stereo detune and authentic Supersaw algorithms, Super Chorus captures the distinctive tones that shaped electronic music history.

Beyond faithful hardware emulation, Super Chorus introduces modern enhancements like stereo width control, variable mixing ratios, comprehensive parameter access across all modes, and cutting-edge stereo detune and Supersaw processing. Whether you're crafting lush 80s synthwave pads, adding movement to guitar tracks, creating the massive chorus sweeps that define electronic music, or producing modern wide stereo effects and classic Supersaw leads, this plugin provides the authentic character and modern flexibility to elevate your productions.

2. Key features

- Five authentic algorithms: Modeled after CE-300, JP-8000 Super Chorus, Alpha Juno 2 chorus circuits, plus modern Stereo Detune and authentic JP-8000 Supersaw
- Hardware-accurate BBD simulation: Authentic bucket brigade delay characteristics with proper frequency response and modulation behavior
- Period-correct rate mapping: Logarithmic scaling for CE-300/JP-8000, linear mapping for Alpha Juno 2 (research-based authenticity)
- Integrated compression/expansion: Authentic compander processing (CE-300) and VCA-style dynamics (Alpha Juno 2)
- True stereo processing: Phase-inverted LFO modulation for authentic stereo imaging
- Modern enhancements: Stereo width control, variable dry/wet mixing, and tone shaping
- Context-sensitive parameters: Rate and Depth adapt their function based on selected mode
- Stereo detune: Pitch-shifting algorithm with cubic detune curves
- Authentic JP-8000 Supersaw: 7-voice implementation with 11th-order polynomial detune curves
- Direct Mute functionality: Authentic Direct Mute behavior per original hardware specifications
- Triangle wave LFO: Continuously variable rate control from 0.1-10Hz with interpolation
- BBD filtering simulation: Authentic high-frequency rolloff and analog warmth

3. Quick-start

1. Insert Super Chorus on your desired track or send
2. Select a Mode based on your desired character:

- **CE-300** for warm analog vintage character
- **JP-8000** for modern digital precision with enhanced stereo
- **Alpha Juno 2** for classic Juno warmth with continuous control
- **Stereo Detune** for wide stereo pitch-shifting effects
- **Supersaw** for authentic JP-8000 Supersaw leads and pads

3. Adjust **Rate** (1-100) to set LFO speed for chorus modes, or leave as-is for Stereo Detune/Supersaw
4. Set **Depth** for modulation intensity (chorus), detune amount (Stereo Detune), or voice spread (Supersaw)
5. Balance **Chorus Level** for dry/wet mix

6. Experiment with **Width** for stereo enhancement

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4. User interface

4.1 Main parameters

Control	Range	Description
EFFECT	on/off	Master bypass switch for the entire chorus effect
INPUT LEVEL	-20/+12 dB	Input gain control with soft saturation for analog warmth
RATE	1-100	**Context-sensitive**: LFO speed (chorus modes), unused (Stereo Detune/SuperSaw)
DEPTH	0-100 %	**Context-sensitive**: Modulation depth (chorus), detune amount (Stereo Detune), voice spread (Supersaw)
DIRECT MUTE	on/off	Removes or reduces dry signal component (behavior varies per mode)
CHORUS TONE	0-100 %	High-frequency shaping of chorus signal (0%=dark, 100%=bright)
CHORUS LEVEL	0-100 %	**Context-sensitive**: Dry/wet balance (chorus), effect mix (Stereo Detune), Supersaw level (Supersaw)
SUPER MODE	5 modes	Selects the processing algorithm and characteristics
WIDTH	0-100 %	Stereo width enhancement from normal (0%) to ultra-wide (100%)

4.2 Mode selection

The heart of Super Chorus lies in its authentic emulations of three legendary chorus circuits plus two modern algorithms. Each mode has been analyzed and modeled to capture the unique characteristics that made these units classics.

CE-300 (1984) - Warm analog vintage character with authentic compander processing. Features traditional BBD delay with integrated compression/expansion, cross-channel mixing for stereo width, and classic triangle wave LFO. Perfect for guitar, bass, and vintage synth sounds. Delivers the punchy, musical character that made the original CE-300 a studio staple.

JP-8000 (1997) - Modern digital precision with "Super Chorus" architecture. Dual BBD design with enhanced stereo imaging, subtle feedback networks for slight flanging character, and precise digital control. Ideal for trance leads, modern synth patches, and any application requiring wide, pristine chorus effects.

Alpha Juno 2 (1985) - Classic Juno warmth with continuously variable rate control. Features the legendary Alpha Juno 2's integrated compression/expansion, authentic MN3009 BBD characteristics, and research-accurate linear rate mapping. The sound that defined 80s electronic music and the legendary "hoover" bass sound.

Stereo Detune - Stereo detune algorithm with sophisticated pitch-shifting. Creates stereo width through opposite pitch shifting - left channel pitched down, right channel pitched up. Features cubic detune parameter curve (0-300 cents), variable quality modes, and sophisticated crossfading to prevent artifacts. Perfect for wide stereo effects on leads, pads, and vocals. Uses fixed 1024-sample buffer for optimal quality.

Supersaw - Authentic JP-8000 Supersaw implementation. Features 7 voices (1 center + 6 detuned) with authentic frequency ratios, 11th-order polynomial detune curve for smooth control, and complex mix control. Random phase per note trigger creates organic sound character. The legendary sound that defined 90s trance and modern electronic music.

4.3 Context-sensitive parameters

Super Chorus features intelligent parameter mapping where **Rate** and **Depth** controls adapt their function based on the selected mode:

Rate Parameter:

- **CE-300/JP-8000**: LFO Rate (1-100) maps logarithmically to 0.1-10Hz
- **Alpha Juno 2**: LFO Rate (1-100) maps linearly to 0.1-10Hz (authentic Alpha Juno 2 characteristic)
- **Stereo Detune**: Not used (parameter has no effect)
- **Supersaw**: Not used (parameter has no effect)

Depth Parameter:

- **CE-300/JP-8000/Alpha Juno 2**: LFO modulation depth (0-100%)
- **Stereo Detune**: Detune Amount (0-100%) maps to 0-300 cents with cubic curve
- **Supersaw**: Voice Spread (0-100%) uses Adam Szabo's 11th-order polynomial

Chorus Level Parameter:

- **CE-300/JP-8000/Alpha Juno 2**: Dry/wet mix (0-100%)
- **Stereo Detune**: Dry/wet mix (0-100%)
- **Supersaw**: Supersaw Mix (0-100%) - overall effect level vs dry signal

4.4 Advanced features

Authentic Rate Mapping
Each chorus mode uses period-correct rate scaling that matches the original hardware:
- **CE-300**: Logarithmic scaling matching analog potentiometer response
- **JP-8000**: Logarithmic scaling for musical frequency ratios
- **Alpha Juno 2**: Linear scaling matching MIDI Parameter 34 implementation

Hardware-Accurate BBD Simulation
Each chorus mode simulates different BBD characteristics:
- **CE-300**: 2.5ms base delay with ±1.2ms modulation
- **JP-8000**: 5.0ms base delay with ±2.0ms modulation
- **Alpha Juno 2**: 3.0ms base delay with ±0.9ms modulation (±30% research-accurate)

Mode-Specific Processing
- **CE-300**: Full compander with cross-channel mixing for vintage stereo width
- **JP-8000**: Enhanced stereo processing with feedback networks and width control
- **Alpha Juno 2**: VCA-style integrated compression with authentic linear rate response
- **Stereo Detune**: Opposite pitch shifting with advanced anti-aliasing
- **Supersaw**: Authentic 7-voice detuning with complex mix control

Direct Mute Behavior
Each mode implements authentic Direct Mute functionality:
- **CE-300**: Removes dry signal from cross-mixing matrix
- **JP-8000**: Subtracts centered component for wide stereo effect
- **Alpha Juno 2**: Compatible subtraction matching JP-8000 behavior
- **Stereo Detune**: Reduces dry component from internal mixing
- **Supersaw**: Reduces dry component that's mixed internally with Supersaw voices

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5. Signal flow & processing

CE-300 Mode: Input → Input Level → Compressor → BBD Delay + LFO → Expander → Filters → Cross-Mix → Width → Output

JP-8000 Mode: Input → Input Level → Dual BBD + LFO → Feedback → Filters → Width Enhancement → Output

Alpha Juno 2 Mode: Input → Input Level → VCA Compression → Dual BBD + LFO → VCA Expansion → Filters → Width → Output

Stereo Detune Mode: Input → Input Level → Delay Buffer → Pitch Shift (L=down, R=up) → Crossfade → Filters → Width → Output

Supersaw Mode: Input → Input Level → 7-Voice Pitch Shifters → Mix Control → High-Pass Filter → Width → Output

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6. Tips & tricks

Mode selection guide

- **Guitar/Bass**: CE-300 for vintage analog warmth, JP-8000 for modern clarity
- **Synthesizers**: Alpha Juno 2 for classic 80s character, JP-8000 for trance/EDM, Supersaw for leads
- **Vocals**: CE-300 for subtle movement, Stereo Detune for width, JP-8000 for wide stereo enhancement
- **Ambient/Pads**: Supersaw for rich textures, all chorus modes work well with high Width settings

Rate and depth combinations

- **Subtle movement**: Rate 10-25, Depth 20-40%
- **Classic chorus**: Rate 25-50, Depth 40-70%
- **Fast warble**: Rate 60-85, Depth 60-90%
- **Extreme effects**: Rate 85-100, Depth 80-100%

Alpha Juno 2 techniques

- **Linear rate mapping** provides even control across the entire range
- Try Rate 45-65 for the classic "hoover" sound character
- Higher rates (80-100) create the signature Alpha Juno warble
- Works exceptionally well on bass and lead synthesizers

JP-8000 Super Chorus

- **Enhanced stereo width** - push Width to 70-100% for massive stereo image
- Excellent for trance leads and wide pad sounds
- Combines beautifully with reverb for ethereal textures
- Try moderate settings (Rate 35-55) for classic 90s trance character

CE-300 vintage character

- **Authentic analog warmth** - the compander adds musical compression
- Excellent on electric guitars and bass guitar
- Try with Direct Mute for different tonal variations
- Lower rates (15-35) provide subtle vintage movement

Stereo Detune techniques:

- **Subtle width**: Depth 10-25% for gentle stereo enhancement
- **Classic detune**: Depth 30-50% for noticeable pitch separation
- **Wide effects**: Depth 60-80% for dramatic stereo width
- **Extreme detune**: Depth 80-100% for special effects (up to 300 cents)
- Combine with Width parameter for even broader stereo image
- Works exceptionally well on leads, pads, and vocals

Supersaw techniques:

- **Subtle thickness**: Depth 15-30% for gentle voice spreading
- **Classic Supersaw**: Depth 40-65% for authentic JP-8000 character
- **Wide Supersaw**: Depth 70-85% for massive detuned textures
- **Extreme spread**: Depth 85-100% for maximum voice separation
- Use Width parameter to enhance the natural Supersaw stereo effect
- Perfect for trance leads, progressive house pads, and modern electronic music

Width enhancement tips

- **CE-300**: Width parameter provides modern enhancement to vintage algorithm
- **JP-8000/Alpha Juno 2**: Width enhances already-wide stereo processing
- Use Width sparingly on mix bus applications
- Combine with mid-side EQ for advanced stereo manipulation

Production techniques

- **Parallel processing**: Use at 100% wet on send/return for maximum flexibility
- **Automation**: Automate Rate for rhythmic effects and build-ups
- **Layering**: Different modes on different tracks for complex chorus textures
- **Stereo imaging**: Use Width parameter for final mix enhancement
- **Modern workflows**: Stereo Detune excellent for modern pop/EDM, Supersaw essential for trance/progressive

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7. Installation & troubleshooting

7.1 System requirements

• Operating System: macOS 10.13+ or Windows 10+
• Processor: Intel Core i5 or equivalent
• RAM: 4 GB minimum (8 GB recommended)
• Plugin Formats: VST3, AU (macOS)
• DAW: Any compatible host (Logic Pro, Ableton Live, Studio One, FL Studio, etc.)

7.2 Installation process

1. Download the installer from the official website
2. Run the installer and follow on-screen instructions
3. Launch your DAW and rescan plugins if necessary
4. Locate "Super Chorus" in your plugin list

7.3 Troubleshooting

• Plugin not appearing: Ensure plugin path is correct in your DAW settings
• Activation issues: Check internet connection and license key accuracy
• Parameter confusion: Remember that Rate and Depth are context-sensitive - check the current mode

Important Note: The Rate and Depth parameters change their function depending on the selected mode. In traditional chorus modes (CE-300, JP-8000, Alpha Juno 2), Rate controls LFO speed and Depth controls modulation intensity. In Stereo Detune mode, Rate is unused and Depth controls detune amount (0-300 cents). In Supersaw mode, Rate is unused and Depth controls voice spread using authentic polynomial curve.

For more resources, updates, and preset packs, visit ravegeneration.io.