



# Auburn Sounds Inner Pitch

Version 1.1.0

Natural Pitch Shifter



# FOREWORD

Thank you for using an **AUBURN SOUNDS®** product.

The aim of **INNER PITCH** is to be the most natural pitch-shifting engine possible and explore the possibilities that can offer.

Key features include:

- **State-of-the-art sound quality.**
- **Stereo-preservation.** 100% linked by default.
- **Lower latency** than GRAILLON. (Down to 17.8 ms).
- **Complex program material support.** Whole mixes and noise are supported.

AUBURN SOUNDS® has pushed DSP efforts beyond what was covered in published research.

Now, **INNER PITCH** allows you to play with two octaves of pitch in a fun and natural way.

What you get additionally:

- **Formant shifting**
- A **Delay Unit** which includes Ping-Pong, Diffusion, and infinite feedback.
- A simple in-loop **3-band EQ**.
- **Stereoization** based on a simple L/R pitch offset.
- **3 types of in-loop distortion.**

And most of that is for free. Inner Pitch exists in two versions:

- **AUBURN SOUNDS® INNER PITCH FREE** can do **everything that was described above.**
- **AUBURN SOUNDS® INNER PITCH FULL** includes more features that trade quality for CPU. Unlocks best pitch-shifting quality, and also the lowest CPU usage.

# INSTALLATION

First, unzip the content of the AUBURN SOUNDS INNER PITCH FREE (or FULL) archive.

## For macOS users

Double-click on the `.pkg` installer in the `Mac/` directory.

- You may need to reboot your Mac computer to see the new Audio Unit in hosts.
- If GateKeeper complains about the Developer being unidentified, try again with Right Click / "Open".
- If you can't open the ZIP, try moving it to your Desktop first.

## For Windows users

Double-click on the `.exe` installer in the `Windows/` directory.

- When using the VST 2.4 format, you may have to enter the right VST 2.4 directory in order for your DAW to find the plug-in.

## For Linux users

Open the `Linux/` directory.

- **VST2:** Copy the LV2 plug-in ( `.lv2` directory) in your LV2 directory.
- **VST3:** Copy the VST2 plug-in `Auburn Sounds Inner Pitch.so` in your VST2 directory.
- **LV2:** Copy the VST3 plug-in ( `.vst3` directory) in your VST3 directory.

# UPDATES

## Upgrade to FULL

Purchasing a FULL upgrade on the Auburn Sounds website, or its resellers, always leads to the <https://itch.io> website.

After purchasing or registering an external purchase here, you need to download a new ZIP and **install it on top of the existing FREE plug-in.**

*Your existing FREE sessions will keep working with the FULL product.*

## Getting newer versions

If you can't find links to your purchase, there are two possibilities:

- **Either you linked your purchase to an [itch.io](https://itch.io) account.**  
Go to this page and login: <https://itch.io/my-purchases>
- **Or you did *not* link your purchase to an [itch.io](https://itch.io) account.**  
Go to this page which can send you download links again:  
<https://itch.io/docs/buying/already-bought>

## Should I fear broken sessions?

Session compatibility is broken with each **major** version change.

*eg: Graillon 1.2 to Graillon 2.0*

Session compatibility is preserved with each **minor** version change.

*eg: Graillon 2.3 to 2.4*

*Because your host will see each major version as different plug-ins, you can't loose sessions by upgrading.*

# COMPATIBILITY

AUBURN SOUNDS INNER PITCH is available in various plug-in formats:

- VST2
- VST3
- Audio Unit v2
- AAX
- LV2

For the following Operating Systems (OS):

- Windows 7 or newer,
- macOS 10.12 or newer,
- Ubuntu 18.04 or newer

Our plug-ins have been tested with a wide variety of Digital Audio Workstations hosts (DAW). However if you find out your DAW isn't well supported, please report a bug at [contact@auburnsounds.com](mailto:contact@auburnsounds.com) .

Supported sampling rates range from 11025 Hz to 192 kHz.

# CHANGELOG

## Version 1.1

- **NEW** Support FLStudio plug-in format on Windows.
- **NEW** Support mono tracks. In this mode, L/R Shift and Stereo Link do nothing, and CPU usage is much reduced.
- **NEW** Dragging the Pitch knob with right mouse button snaps to integer semitones.
- **Audio processing 70% faster.**
- Fix CoreGraphics crash in macOS, triggered on resize or opening.
- Fix error when buffer size is increased from 64 samples to more samples.
- Slightly nicer UI, some lights computed in linear RGB.
- Faster UI resize.
- Windows installer now asks to close DAW if plugin is open.

## Version 1.0.2

- Fix compatibility with some Linux such as Debian 11 (libc6 2.31)

## Version 1.0.1

- Fix compatibility with macOS Mojave 10.14, and earlier.
- Note: Same 1.0.0 binaries for Windows and Linux.*

## Version 1.0

- Initial release.

# PARAMETERS

## Pitch panel

**Pitch** sets the pitch-shifting from -2 to +2 octaves.

**L/R Shift** shifts left and right channels with an offset difference to enlarge the stereo image. *This creates antiphase and width.*

## Pitch settings panel

**Tonal Boost** favors either transients or non-transients. Helpful to adapt to source materials a bit more precisely.

**Stereo Link** keeps phase aligned in left and right channels while pitch-shifting.

- 100% link preserves the existing stereo image
- 0% link gives you a cleaner but ghostly sound (without a "center")

**Formant** lets you shift formants from -2 to +2 octaves.

## Distortions

**Color** add 3 distortion effects, that can all be used at once:

- **RATE** simulates a lower sampling-rate.
- **GAME** goes through an **ADPCM game codec** known as **QOA** (Quite OK Audio) to have a subtle video-game sound.
- **TUBE** is a simple parallel waveshaper that sounds good on about anything.

*Tip: All those distortions happen in-loop when the delay is active, along with the EQ, the pitch/formant shifting, and the delay diffusion.*

## Premium features

**Quality (Full Edition only)** Gives you additional quality mode for pitch shifting.

- **MAX** preserves transients more, costs more CPU.
- **STD** is the balanced default.
- **SOFT** is an economical mode with a more noisy sound. It is sometimes the best sounding mode, while also being the cheapest in CPU.

**Time Div (Full Edition only)** sets the STFT **overlap** , as another quality mode for pitch

shifting.

- **2x overlap** can be used to save CPU. It sounds the less reverberant, and can be useful for transients at the cost of the tonal parts. Surprisingly, it sometimes ends up being the best-sounding.
- **3x overlap** is the default and most balanced mode.
- **4x overlap** sounds more precise with transients and high end, at the cost of more reverberation and CPU usage.
- **5x overlap** is even more precise for high end, at the cost of even more reverberant sound and CPU usage.
- **6x overlap** doesn't seem that useful.

## Delay panel

**Time** is the delay length in milliseconds. This can be set with the 2D panel or with the **TAP** button.

*Tip: You can set up **Time** individually in the panel by using CTRL + right-click.*

**Feedback** is the delay extinction in dB. This can be set with the 2D panel.

*Tip: You can set up **Feedback** individually in the panel by using right-click.*

**Pan** affects panorama of delayed sound.

**Ping-pong** alternates left and right in the delay sound.

**Diffusion** adds reflection to the delayed sound, turning it into a slight reverb.

## Spectrum Panel

Change the 3 **Band Gain** and the 2 **Band Crossovers** to modify the EQ shape of the **Wet** signal. *Tip: This also affects the delay feedback dramatically, by adjusting its internal limiter threshold.*

## Output Panel

**Wet** mixes the delayed, distorted, and pitch-shifted Wet signal with the unaffected and compensated Dry input.

**Gain** is a final output volume gain slider that applies to both.

# CREDITS

## Development, UI/UX, DSP

- Guillaume PIOLAT

## QA

- Benjamin RENARD

## Thanks

Thanks goes to our fellow musicians, friends and family that provides invaluable support for the creation of state of the art audio tools.

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## QOI (Quite OK Image format)

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## QOA (Quite OK Audio format)

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