Continuous Velocity Piano

INTRODUCTION

TASCAM is proud to introduce the first instrument based on a groundbreaking advance in virtual musical instrument technology, spectral morphing. Eliminating the need for many bulky, discrete sample layers, spectral morphing technology produces continuous, spectral variation by processing only a single baseline sample velocity. Using the baseline as a starting point, the spectral morphing filters then dynamically interpolate frequency characteristics, which can then be continuously morphed during and after musical notes are played. The result is far greater musicallity with over ten times the amount of dynamic expression. Another benefit is that instruments are much smaller in memory consumption, yet with greater playability and realism.

The Continuous Velocity Piano showcases both spectral morphing and convolution modeling, transcending the boundaries imposed by numerous, separate, sample layers, which has been the traditional approach. Spectral morphing provides a much more elegant and powerful solution that players can certainly feel, and virtual instrument developers can now create instruments in a fraction of time by eliminating the majority of laborious multi-sample collection. For example, the new Continuous Velocity Piano is only 180MB compared to the 1.1GB size of the GigaPiano-II, yet the new instrument has effectively Eighteen times the number of sample layers.
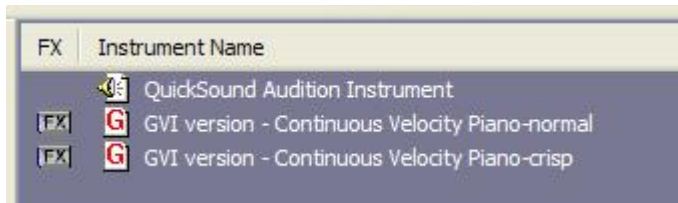
The instrument is provided in two variations, the "GVI version" and the "FULL MODELED" versions.

GVI optimized version
GVI version - Continuous Velocity Piano.gig
GVI version - Continuous Velocity Piano.gx99

This 24bit, 420MB 'GVI version' is 'CPU optimized'. It has been encoded with the GVI (Giga Virtual Instrument) sampler engine and is typically used within integrated RTAS and VST DAW environments. There is one sample layer extended continuously to 128 effective velocity layers by virtue of the spectral morphing technology, providing dynamics that are much closer to the real instrument than with previous discrete sample layer techniques. This version has pre-rendered the piano soundboard resonance into the note samples themselves, saving the CPU overhead of real time convolution. There are separate samples for pedal up and pedal down cases, switched by the sustain pedal. There are also samples for the note-off release resonance, retaining the soundboard 'ring'. In addition, samples of the lowering and raising of the dampers were taken, as triggered by the sustain pedal.

There are two variations within the .gvi / .gx99 files, normal and crisp. These variations are created using the GigaPulse 'Mic Model Only' mode, which uses the extremely efficient (i.e. short) mic model impulse responses.

For Both of the GVI versions of the Continuous Velocity Piano, the Mod wheel is programmed to be an inverted attenuation controller for the release trigger volume, which is a handy thing…
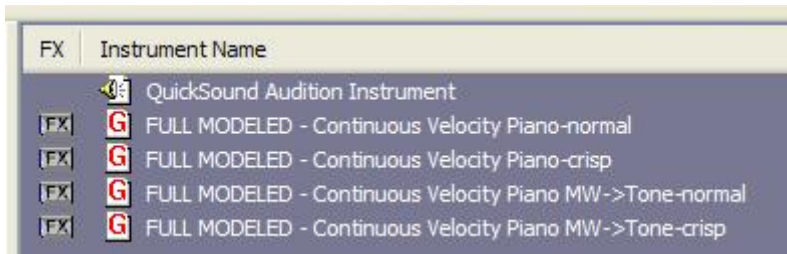
FULL MODELED version
FULL MODELED - Continuous Velocity Piano.gig
FULL MODELED - Continuous Velocity Piano.gx99

> SYSTEM NOTES: [FAST COMPUTER]
> Note that if you hear audio pops, you may need to increase the HW buffer size of your sound card.

This 24bit, 180MB version is smaller than the GVI version as it has no pedal down samples. Instead, it uses real time convolution models for more accurate modeling of the actual piano pedal mechanics. This version is more accurate than the GVI version, however it uses more CPU processing power and is thus recommended for use with the full GigaStudio workstation (see system requirements below). There is one GigaPulse instance for pedal down resonance and one instance for pedal up resonance. The pedal down resonance is damped dynamically by sustain pedal, and hence has the advantage of dynamic lifting and lowering of the dampers independent of how the notes are played. There is one sample layer extended continuously to 128 effective velocity layers by virtue of the spectral morphing technology. This provides dynamics that are much closer to the real instrument than with previous discrete sample layer techniques. In addition, samples of the lowering and raising of the dampers were taken, as triggered by the sustain pedal.

There are two variations within the .gig / .gx99 files, normal and crisp. These variations are created using the GigaPulse mic model impulse responses. In addition, there are two variations which use the Mod Wheel to effectively darken (downward) or brighten (upward) the overall response of the piano.

Since the resonance in this version is modeled using the integrated GigaPulse processor, the amount of resonance can be adjusted to suit the taste of the musician.
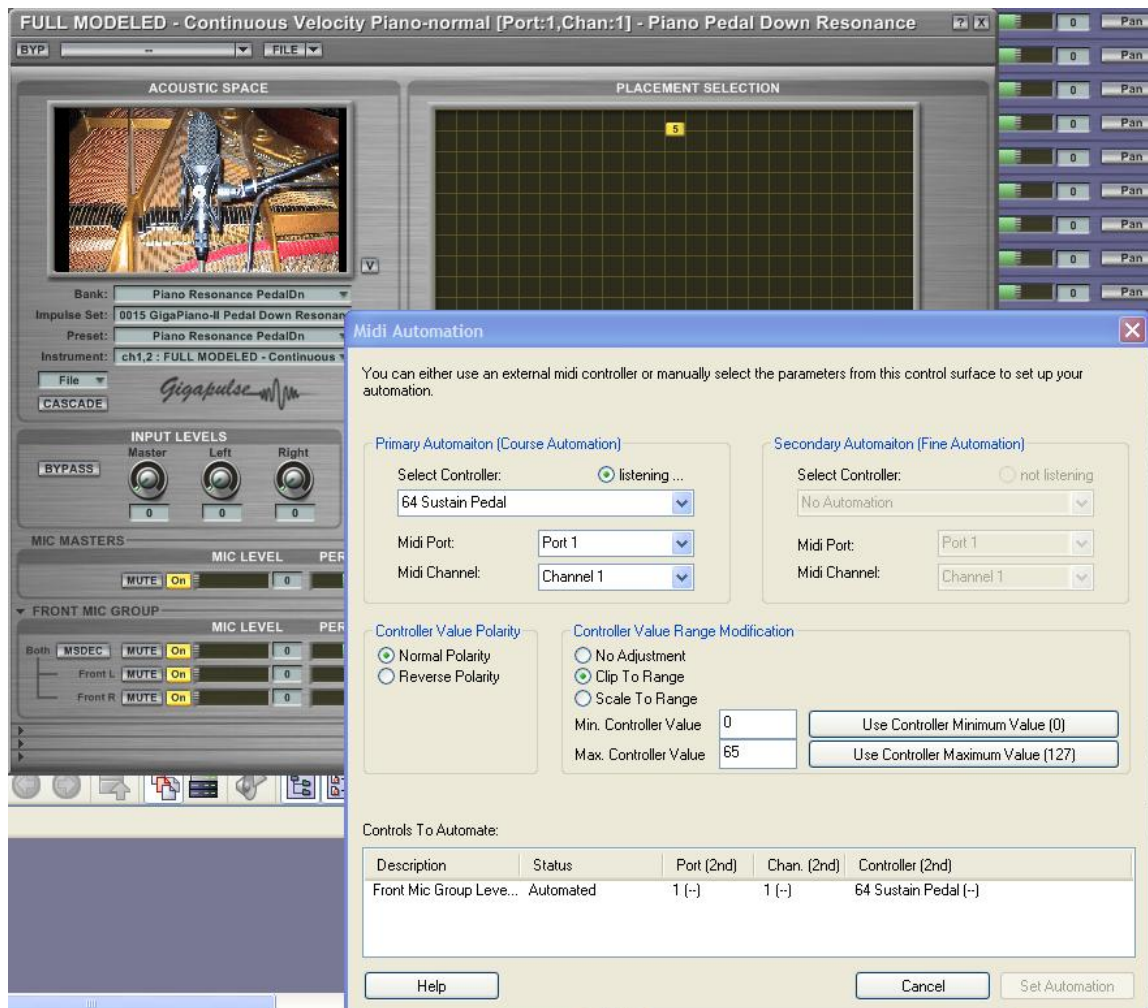

Select the Pedal up resonance as shown above (place cursor over the FX selection arrow above to invoke the GigaPulse dialog below).

To adjust the pedal up resonance, use the master perspective control. To tighten the response, lower the perspective (move slider to the left). To raise the resonance amount, raise the perspective control (move slider to the right).
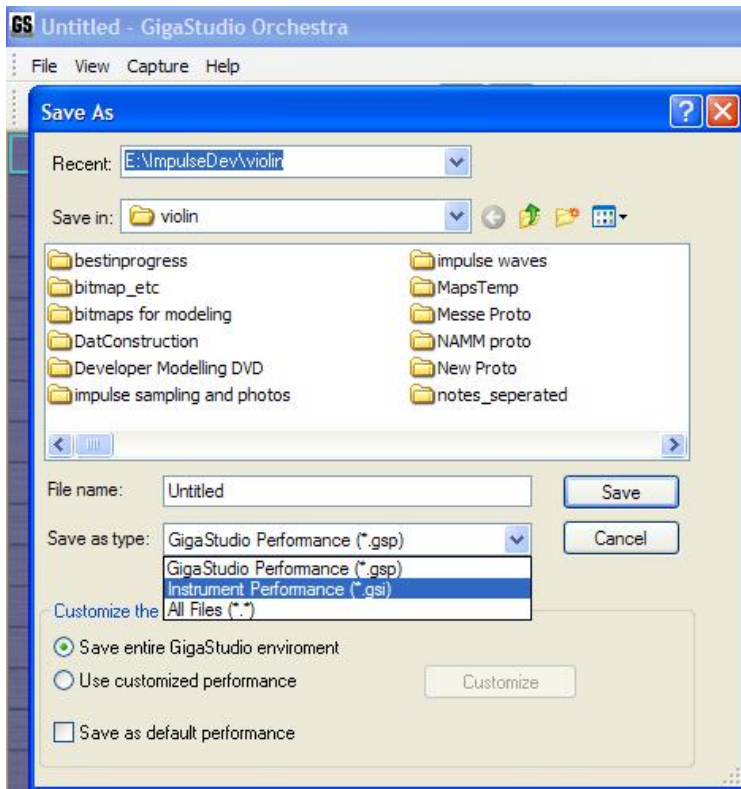
The pedal down resonance level may also be adjusted, however the following method must be used. First, select the pedal down resonance from the FX arrow menu (similar to 'pedal up' above).

Then, since the resonance is dynamically damped using Midi automation, the adjustment is made by changing the 'Max Controller Value' (65 is shown as default) in the Midi automation dialog for the 'Mic Level' control. To bring up the correct dialog, place the mouse over the Front L 'Mic Level' control and click the right mouse button. The above dialog is then displayed; where you can type in a new value for 'Max Controller Value', then click 'Set Automation'. Repeat this step for the Front R 'Mic Level'. A lower 'Max Controller Value' will lower the amount of pedal down resonance, and conversely a higher 'Max Controller Value' will increase the amount of pedal down resonance. The musician can also experiment with the 'perspective' and 'wet/dry' settings, however the 'Mic Level' automation is the preferred method.

Once these settings are defined to the liking of the musician, then they can be save as a new custom GigaStudio instrument (.GSI) using 'File/Save AS' (see screenshot example below).

NOTE: be sure to select the 'Instrument Performance (.gsi)' from this dialog, which saves your custom instrument as an instrument, and not as a session .gsp performance.

THE INSTRUMENT
The Piano is a KAWAI grand piano, 7'4", residing in Electric LarryLand Studios, Austin, TX.

The piano had been recently rebuilt, and is known for it's shimmering, clear tone. It has been used on many recordings made by nine-time Grammy winning engineer, Larry Seyer.

SYSTEM REQUIREMENTS
GVI version:
GigaStudio VI (GVI), RTAS, VST or standalone
[this version should run on systems meeting the 'Recommended' system
requirement for TASCAM GVI]

FULL MODELED version:
GigaStudio workstation version 3.2 or later
[this version should run on systems meeting the 'Recommended' system
requirement for TASCAM GigaStudio workstation, with the additional
recommendation of a 3.4Ghz or faster processor]

SYSTEM NOTES: [FAST COMPUTER]
      Note that if you hear audio pops, you may need to increase the HW buffer
      size of your sound card.

CREDITS

Jim Van Buskirk

**Producer, design concept, spectral morphing engine R&D,
Soundboard impulse R&D, instrument design**

Stephen Orsak

QA, graphics, GVI encoding

Larry Seyer

Sampling session recording engineer

Piano Technician
Brian Henselman