HP Z1 Audio Features

Optimized Audio Experience

Introduction

The HP Z1 introduces a new form-factor for Workstations: the All-in-One. This new form-factor provides additional audio features not present in traditional tower Workstations. Most notable are the high quality stereo speakers and the integrated microphone array.

The HP Z1 Workstation also implements SRS Premium Sound which provides audio enhancement features. These digital signal processes augment the sound stage, creating a superior audio experience. The SRS Premium Sound User Interface (UI) is available to customize/optimize these features and is supported on Windows® 7 Professional (32 and 64-bit).

SRS Premium Sound provides listeners with wider stereo sound, by expanding the size of the audio image in both the horizontal and vertical sound field. SRS Premium Sound brings out rich sounds and nuances buried in the recorded or streamed multimedia content, creating a more natural audio experience with clearer definition, dynamic center control, and deeper bass.

SRS Premium Sound UI

The SRS Premium Sound UI can be opened from the Taskbar or from the Control Panel. There are four tabs within the SRS Premium Sound UI:

- Volume
- Listening Experience
- Recording Experience
- Advanced Settings

Active devices and gain can be selected in the Volume tab (Figure 1). SRS enhancements and EQ can be adjusted in the Listening Experience tab (Figure 2). Controls for the integrated microphone array are found in the Recording Experience tab (Figure 3). The Advanced Settings tab (Figure 4) has options for Power Saving State, a shortcut to the Sound control panel, and a Reset button to restore all audio settings to default.
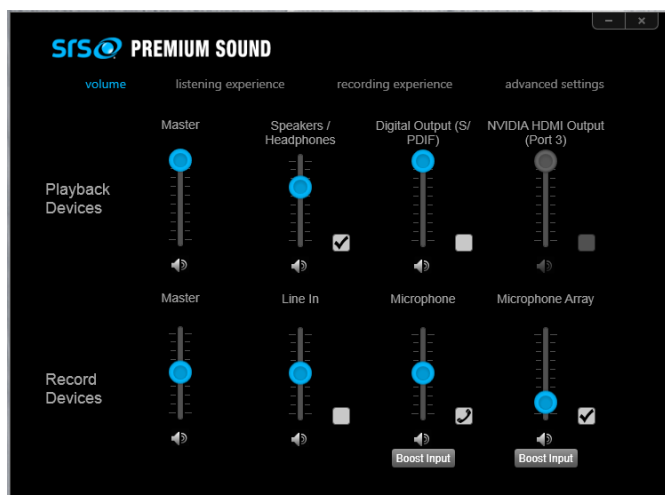

Figure 1: SRS UI Volume tab
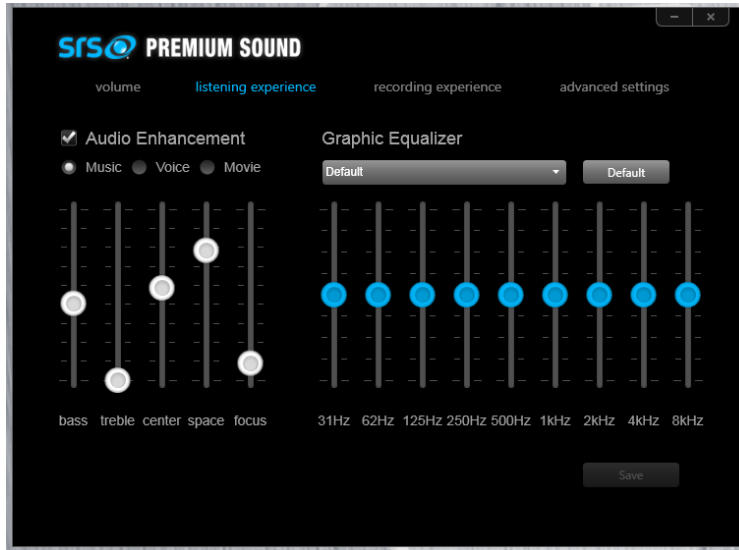
Listening Experience

Figure 2: SRS UI Listening Experience tab

The SRS Premium Sound UI contains many controls for optimizing the audio experience on the HP Z1. These controls have been pre-set to sound best for a wide range of audio content. However, depending on the audio content or personal preference, adjustment may be desired. After the controls are adjusted, it is always possible to return to the original settings: use the Reset button found in the Advanced Settings tab.

There are two portions of controls in the Listening Experience tab: the Graphic Equalizer and SRS Premium Sound Audio Enhancements. The Graphic Equalizer adjusts the gain of different frequency bands in the audio spectrum. The default pre-set is a flat (ideal) frequency response. There are many other pre-sets for various music genres. Or the user can define a custom Graphic EQ pre-set.

The Graphic EQ should not be considered as a volume control. The result of pushing all the sliders to maximum gain could be increased audio distortion. This is especially true for the low frequency bands (125Hz and lower). If extra bass is desired, either use the Bass slider in Audio Enhancements or connect an external subwoofer (to the orange jack in the rear I/O panel). The HP Z1 is acoustically tuned to be used with the HP Pulse Subwoofer.

The Audio Enhancement portion of Listening Experience tab controls the SRS Premium Sound effects. These are psychoacoustic effects produced by digital signal processing. These effects can be enabled/disabled with the checkbox next to "Audio Enhancement". These effects can be adjusted separately for three modes: Music, Voice, and Movie. These effects apply to the internal speakers, headphones, and line-out.

Descriptions of the SRS Premium Sound effects are as follows:

Bass
Increasing this value will provide a greater TruBass effect (more low frequency information). Decreasing this value will provide less of an effect. This is a psychoacoustic effect (not the same as increasing the gain of the low frequency bands in the graphic equalizer).

Definition (Treble)
Increase the value of this control if the perception of clarity and acoustic space needs improvement. Decrease the value if the high frequencies are too sharp.

Center
Center affects the volume of the center channel. Increasing this control will result in a louder center channel image. Decreasing it will lower the center volume.

Space

Space affects the apparent width of the stereo image. The higher the value of this control, the louder the stereo space effect.

Focus

Focus affects the apparent vertical position of the sound. Increasing this control will raise the elevation of the soundstage. Decreasing this control will lower the elevation down to the physical level of the speakers.
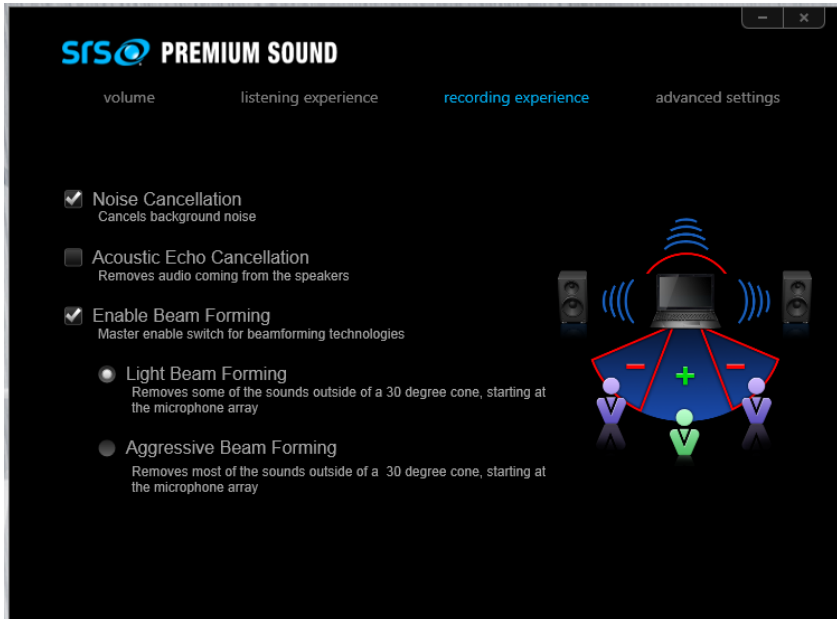
Recording Experience

Figure 3: SRS UI Recording Experience tab

These effects apply only to the integrated microphone array (not to external microphones). The features are as follows:

Noise Cancellation
Cancels background noise

Acoustic Echo Cancellation (AEC)
Removes audio coming from the speakers

Beam Forming
Removes some of the sounds outside of a 30 degree cone, starting at the microphone array

Advanced Settings

There is a Power Savings State, which allows the user to define a delay before the system turns off the audio analog power supply. This delay triggers once audio playback has ceased. The system recognizes when playback ends/begins and automatically turns audio power off/on accordingly. When Power Saving State is enabled, runtime beeps are disabled, but diagnostic beeps during boot are not affected. This audio Power Saving State has no effect on other OS or BIOS power savings states.
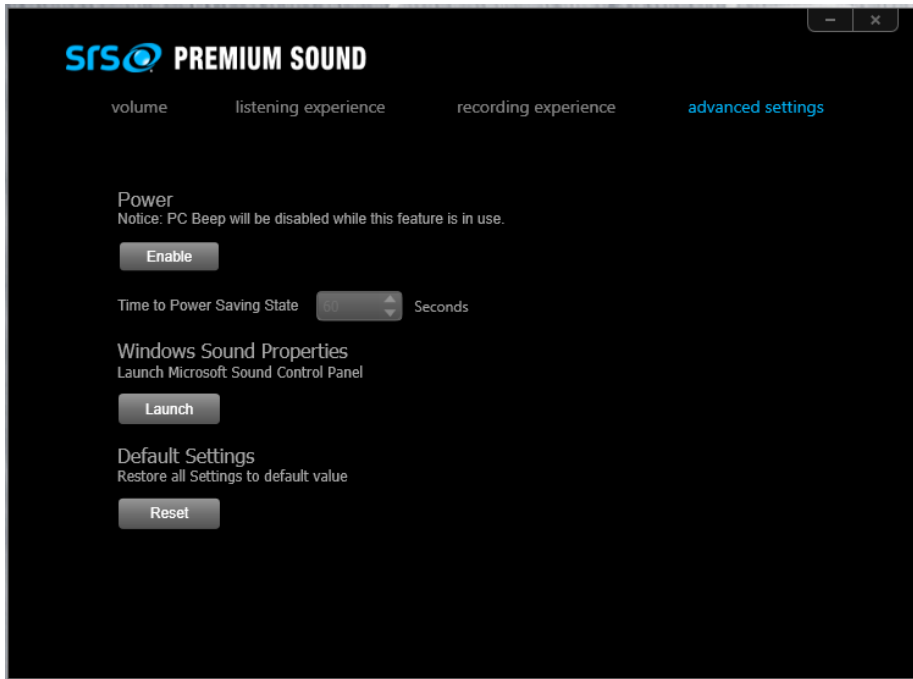
Figure 4: SRS UI Advanced Settings tab

Conclusion

The HP Z1 Workstation takes the AiO audio experience to the next level: high quality hardware combined with SRS Premium Sound algorithms result in an intense and immersive audio experience. The HP Z1 was painstakingly tuned for optimum acoustic performance. Also, the intuitive and simple SRS Premium Sound UI allows the user to fully customize their system to their own preferences. The final result is an audio system destined to impress!