



# CEVA-BX DSPs RealSpace Spatial Audio User Manual

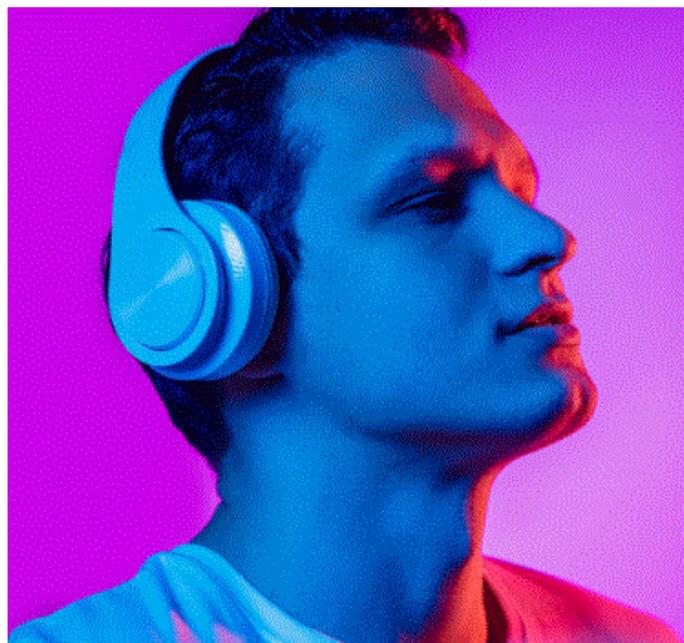
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## CEVA-BX DSPs RealSpace Spatial Audio



## Product Information

- Product Name: Spatial Audio with Head Tracking
- Supported Audio Formats: Stereo, 5.1, 7.1, and Ambisonics

### **Key Benefits:**

- Provides a fully immersive experience with precise head tracking and realistic 3D rendering in one solution
- Lowest latency with the full solution running embedded on the TWS/headphone audio SoC.
- Agnostic to codec, content provider, or device ecosystem with rendering done right on the ear.
- Supports tuned presets for Movies, Games, Music, and Speech.
- Reduced fatigue with spatialized video calls thanks to Bluetooth Hands-Free Profile support.
- Longer battery life and more features due to RealSpace's small memory and compute requirements.
- Pre-integrated with the full audio pathway on top Audio SoCs from BEStechnic and Beken for fast time to market with lower risk.
- Available for CEVA-BX DSPs or Arm Cortex-M CPUs and Windows APO implementations.

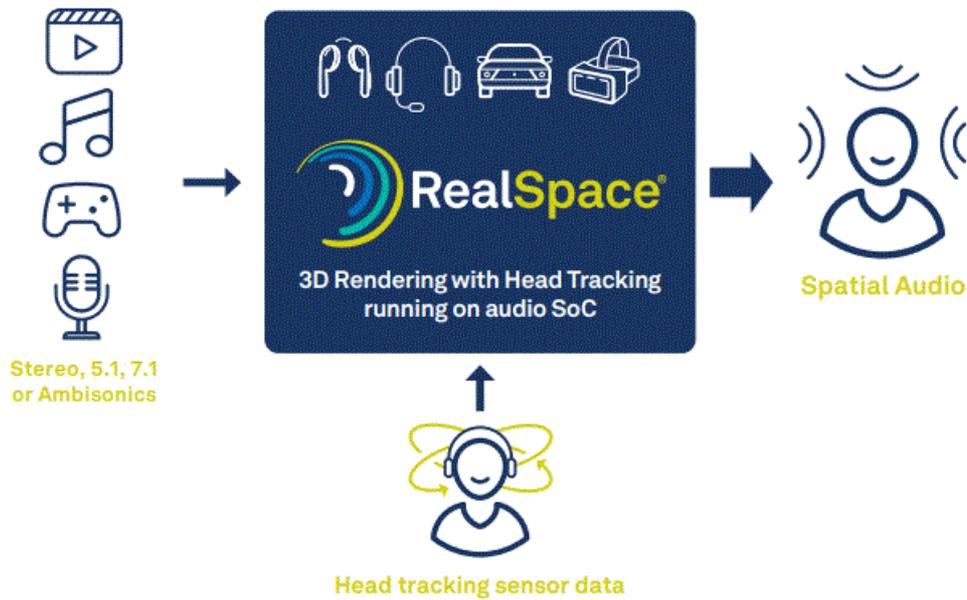
### **Product Usage Instructions**

1. Connect the Spatial Audio device to your audio source (e.g., smartphone, computer, etc.) using the provided cables or wirelessly via Bluetooth.
2. Put on the Spatial Audio headphones or earbuds and ensure they fit comfortably.
3. Turn on the device and adjust the volume to a comfortable level.
4. Choose the desired audio format (Stereo, 5.1, 7.1, or Ambisonics) based on your content and preferences.
5. For an optimal experience, activate the head tracking feature by enabling the corresponding setting on your device or through the Spatial Audio app.
6. Once head tracking is activated, the sound field will be externalized and fixed in place as you move your head.
7. Enjoy a fully immersive audio experience with precise head tracking, realistic 3D rendering, and spatialized sound.
8. To further enhance the audio experience, use the available tuned presets for Movies, Games, Music, or Speech.
9. When making video calls, take advantage of the spatialized audio feature to reduce fatigue by enabling Bluetooth Hands-Free Profile support.
10. If desired, adjust the head tracking sensitivity or other settings through the Spatial Audio app or device settings.
11. When not in use, turn off the Spatial Audio device to conserve battery life. For more detailed information about the product, please visit the [CEVA-DSP website](#) or refer to the user manual provided with the product.

### **CEVA RealSpace® – Complete Spatial Audio Software Solution**

CEVA's RealSpace® is a fully embedded solution supporting multiple system architectures, whether you want to render spatial audio on a TWS earbud, headphone, mobile phone, gaming system, PC, or a car. This means a great experience isn't tied to a particular device ecosystem, content provider, or codec.

RealSpace®-powered earbuds and headphones can render any content in exceptional 3D. RealSpace® is pre-integrated on some of the top audio SoCs in the industry, letting you bring cutting-edge products to market faster and with less risk.



## Key Benefits

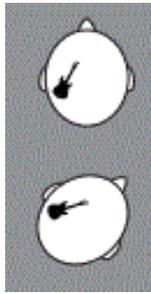
- A fully immersive experience with precise head tracking and realistic 3D rendering in one solution
- Lowest latency with the full solution running embedded on the TWS/headphone audio SoC
- Agnostic to codec, content provider, or device ecosystem with rendering done right on the ear
- Supports stereo, 5.1, 7.1, and ambisonics audio content
- Give your customers the best audio experience with available THX tuning
- Eliminate drift with multiple auto-recentering modes
- Tuned presets are available for Movies, Games, Music, and Speech
- Reduced fatigue with spatialized video calls thanks to Bluetooth Hands Free Profile support
- Longer battery life and more features thanks to RealSpace's small memory and compute requirements
- Pre-integrated with the full audio pathway on top Audio SoCs from BEStech and Beken for fast time to market with lower risk
- Available for CEVA-BX DSPs or Arm Cortex-M CPUs and Windows APO implementations

As consumers demand more immersive and seamless experiences, Spatial Audio has become a key technology in a broad range of applications.

## Overview

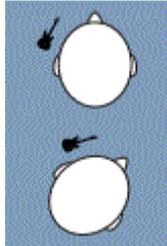
When we listen to sound through headphones or TWS earbuds, our brains are denied much of the key information they use to interpret the world. As a result, sound, even surround sound, seems to come from inside the head. Spatial audio recreates the missing information – like the exact position of the sound source or the design of the listening room – in order to create a more realistic, immersive experience. 3D rendering on its own externalizes your perception of where audio is coming from, bringing it out of your head and into the world around you. But the brain is a very sensitive instrument and interprets subtle differences between reflections, reverberations, and how it all interacts with your ears. That's why, for a truly realistic experience, you need to track head motion and know where the ears are located relative to the source of the sound.

- **Stereo/Surround Sound**



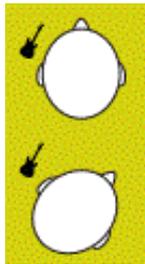
- Sound comes directionally but from a limited number of sources.
- The brain interprets sounds as coming from inside the head.
- The guitarist is inside your left ear.

• **Spatial Audio**



- The brain interprets the sound as coming from outside the head.
- Soundfield is externalized and fixed to the head.
- The guitarist is always at 10 o'clock.

• **Spatial Audio + Head Tracking**



- Soundfield is externalized and fixed in place as you move.
- The guitarist stays at the left of the virtual stage even as you dance and move.

CEVA's RealSpace® is a complete spatial audio solution, combining proven best-in-class 3D rendering with precise head tracking to bring total immersion to any audio content in an easy-to-integrate package. Get out of your head and into the action with RealSpace®.

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**For more information:**



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## Documents / Resources

	<p><a href="#">CEVA CEVA-BX DSPs RealSpace Spatial Audio [pdf] User Manual</a> CEVA-BX DSPs RealSpace Spatial Audio, CEVA-BX DSPs, RealSpace Spatial Audio, Spatial Audio, Audio</p>
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## References

- [V CEVA- Leading Licensor of Signal Processing IP | CEVA DSP](#)