



Description

The digital audio processor project aims to develop an audio processor hardware and software platform that combines software and hardware technologies to provide comprehensive audio processing capabilities and flexibility. The digital audio processor hardware has the ability to integrate with external devices to achieve more comprehensive audio processing and functional expansion. The digital audio processor software is an innovative product developed on the basis of hardware devices, with the characteristics of precise processing, real-time response, and versatility. The software integrates: phantom power supply, ducker, expander, equalizer, compressor, automatic mixing, feedback suppression, delay, crossover, limiter and other functions.

Feature

1. Support software management of 4-in-4-out, 8-in-8-out, 12-in-12-out, 16-in-16-out channel devices, support separate configuration of switches, flexible and convenient.
2. Can store 8 preset modes according to different usage scenarios, and realize fast switching of scene modes through software.
3. Support adjustment of ducker function, background music automatically ducks microphone speech, and provides multiple parameter settings for flexible on-site use.
4. Support adjustment of expander function, reduce the gain of smaller signals and increase the gain of larger signals, so that the dynamic range of audio signals is expanded to increase the dynamic response and realism of audio.
5. Support adjustment of equalizer function, each channel has 12-band parametric equalizer or graphic equalizer, providing 10, 15, 31-band graphic equalizer; support adjustment of volume of different frequency ranges in audio signals, correct audio timbre and spectrum balance, to achieve better auditory effect and audio performance.
6. Supports the function of adjusting the compressor. By setting the threshold, the dynamic range of the audio signal is controlled to keep the audio volume stable within a certain range, avoid excessive volume fluctuations, and prevent the audio signal from being distorted when a certain volume threshold is reached.
7. Supports the function of adjusting the automatic gain to automatically adjust the gain (volume) of the audio signal to achieve a uniform output audio volume for audio inputs of different volumes.
8. Supports the function of adjusting the automatic mixing, including gain sharing mixing and threshold automatic mixing. When multiple signal sources appear at the same time, the gain sharing mixing system automatically detects the volume level of each signal source and automatically adjusts the gain (volume) of the signal source. Supports threshold automatic mixing, sets a threshold, and when the strength of the audio signal exceeds or reaches the threshold, the mixing system automatically adjusts the volume of the signal; and when the strength of the audio signal is lower than the threshold, the volume of the signal will be automatically reduced or muted.
9. Supports the function of adjusting the feedback suppression, which can eliminate or reduce problems such as noise or whistles that may occur in the audio system to ensure clear and stable audio output.
10. Supports the adjustment of echo cancellation function, which can eliminate the echo caused by the sound reflecting in the room, space or transmission path, avoiding noisy and confusing auditory experience.
11. Supports the adjustment matrix function, allowing users to flexibly route, mix and process multiple audio input signals and output signals to meet the needs of different application scenarios.



12. Supports the adjustment of the delay function, by adjusting the parameters, introducing a certain amount of time delay to adjust the relative time of the audio signal, to achieve audio clarity, picture and audio consistency, etc.
 13. Supports the adjustment of the frequency divider function, allowing users to perform frequency division and partition processing on the audio signal to achieve independent control and processing of different frequency ranges. Through the frequency divider, the flexibility and effect of audio processing can be improved, bringing users a better audio experience.
 14. Supports the adjustment of the limiter function, by setting the threshold, the amplitude of the audio signal can be controlled to prevent audio distortion and damage to audio equipment; it can ensure that the audio output is within the appropriate range, providing better audio quality and protecting the effect of audio equipment.
 15. It has the function of switching between expert mode and normal mode; the expert mode provides a complete functional operation interface with full-function display and control; the normal mode provides the main operation interface function to prevent non-professionals from adjusting the audio parameters by mistake, and has input channel, output channel and USB playback, USB recording, channel gain adjustment and mute switch control functions.
 16. It has Chinese and English interfaces and supports the switching function between Chinese and English interfaces.
 17. It has the function of USB recording and playback, supports playing mp3, wma, sbc, wav format videos through the USB interface, and recording MP3 format audio.
 18. It supports GPIO settings and can configure 8-channel programmable GPIO control interface (customizable input and output).
 19. It supports docking the camera tracking system through RS-485 and RS-232 interfaces to realize automatic camera tracking function. It provides comprehensive camera setting options, including setting the camera serial port number, camera address, camera protocol, pan/tilt speed, preset point, zoom in or out, focus, aperture size and camera rotation, etc. You can set the preset point of each audio input channel, automatically track the target by monitoring the volume of the input channel, and realize automatic control and tracking.
 20. Support the generation of external central control system instruction codes for corresponding functions from the processor function, and configure the bidirectional RS-232 and RS-485 interfaces to generate instruction codes for the external central control system, which is convenient for the external central control system to connect to the processor and realize control.
 21. Support user management, add multiple users, modify and reset user passwords.
 22. Support data backup, save the set parameters or import the previously set parameters.
 23. Support firmware upgrade, support online upgrade of DSP firmware via network port.
 24. It has multiple roles of administrator and ordinary user. The administrator can set the maximum value of channel gain, and ordinary users can only set the gain within the set limit value.
 25. Support operation log recording and export of operation logs generated by the system.
 26. Support the setting of group input and output functions. You can set 2-16 different groups, adjust any channel parameters in the group, and all device parameters in the group will change synchronously without repeated adjustment.
 27. Support cross-platform use, support Windows operating system (Windows7/Windows10/Windows11), support domestic operating system (Kirin Feiteng ARM, Kirin Zhaoxin X86), or Linux domestic operating system.
 28. Support saving any scene as the default scene, and quickly apply the configuration of the default scene to the specified scene when needed.
 29. Support input parametric equalizer switching 8-segment/12-segment point configuration to meet different scenarios.
 30. Support master-slave configuration, one-to-one configuration of the host and slave. After the master device fails, the slave device can quickly take over as the master device
 31. The device continues to run.
- Supports synchronous linkage of data between PC client, APP and Web end.