BongioviAcousticLabs

Powered by

CEVA

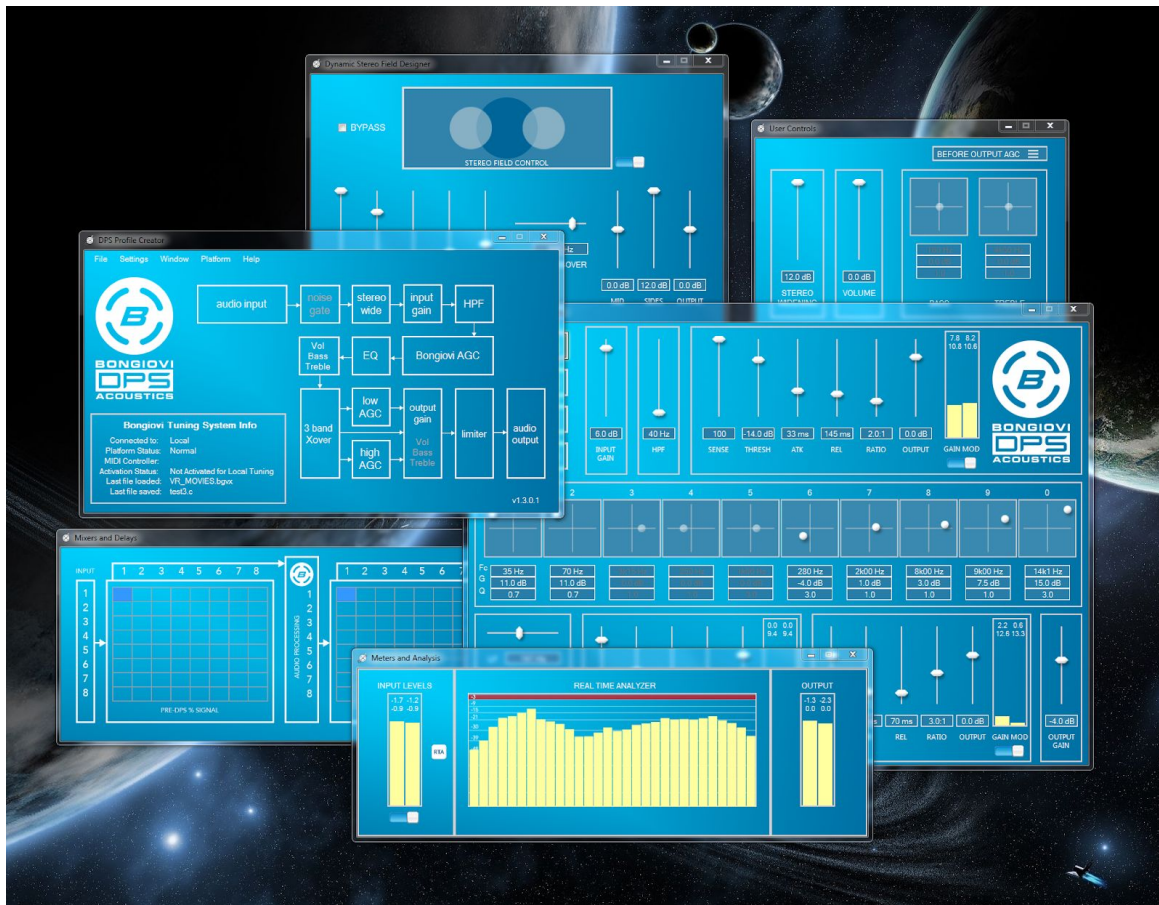*for*

SUNPLUS

SPHE8388
Automotive
Audio Solution

Overview

The Sunplus SPHE8388 automotive infotainment solution boasts a powerful CEVA digital signal processor running advanced Bongiovi Acoustics Digital Power Station (DPS) audio algorithms. **Bongiovi Acoustics** provides a comprehensive audio post processing toolbox to the "golden ears" engineer seeking to provide the best possible audio experience in a vehicle.

Audio Processing Features

- 6 audio processing channels:
    - 2 stereo pairs
    - 2 mono channels
- Pre and post processing cross-mixers allow for many configurations.
- Patented Bongiovi DPS dynamic range control:
    - Creates a more efficient signal for "masking" road noise
    - Restores digitally compressed audio
    - Increased speech intelligibility for phone calls
    - Smooth transitions between audio content and modes
- 10 + 2 band studio quality parametric equalizer:
    - 10 configurable bands per channel
    - 2 user bands (bass and treble) per channel
- Dynamic bass enhancement
- Dynamic high frequency enhancement
- Multi-band speaker protection
- Stereo sound stage enhancement for stereo pair channels
- Time delay for each channel
- Real-time GUI control over all parameters including audio meters.
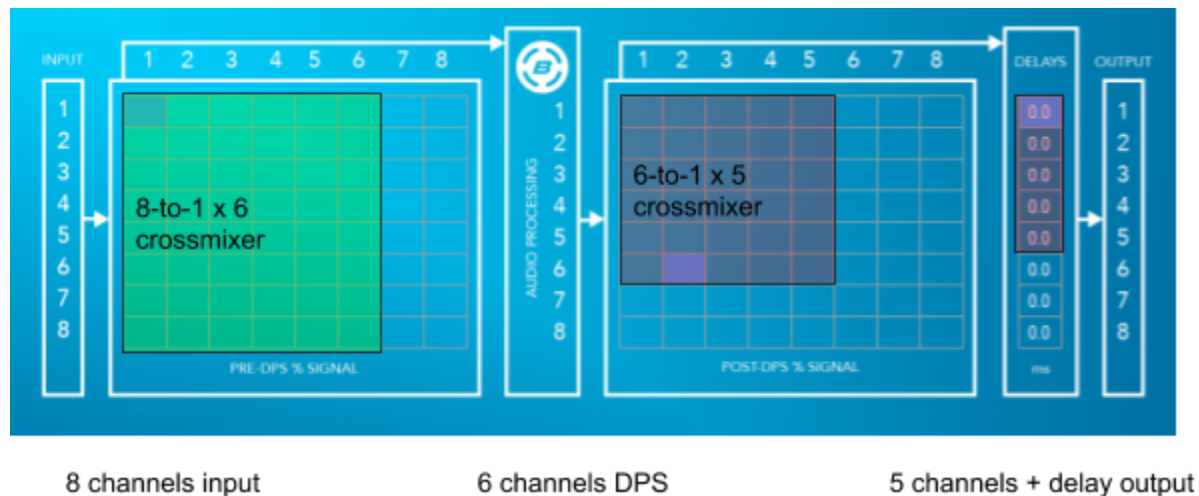
DPS Profile Creator Acoustic Tuning Toolkit

The DPS Profile Creator is a Windows PC application that connects via UART to the SPHE8388 platform. This tool provides comprehensive real-time control over every parameter. Input, output and gain-reduction meters give the audio engineer immediate feedback of the behavior of the algorithm as it is running on the target platform in a real-world environment.

Audio Parameter Sets (DPS Profiles)

After audio tuning and calibration is complete, the resulting parameter data may be handled in several ways:

- **State File** - This stores the state of all DPS Profile Creator settings including a special Notes feature for documenting changes, versions, and other useful information.
- **BGVX Profile** - This format stores the parameters for a single channel or preset. This is useful for importing into other multi-channel workspaces.
- **Sunplus CEVA data set** - This is the native Sunplus format used in the SPHE8388 CEVA dsp core. Multiple data sets may be recalled in the final implementation to provide various user features (music mode, talk radio mode, phone call mode, etc).

Flexible Cross Mixer

8 channels input   6 channels DPS   5 channels + delay output

The SPHE8388 cross mixer provides maximum audio routing flexibility:
- From mono to 7.1 surround upmixing or downmixing
  - Every input may be routed to every output before and after audio processing.
  - Each grid element contains a mix level value for accurate calibration and headroom maintenance.
- May be used to create independent listening zones and other novel implementations
- Time alignment of speakers is possible through a sample-accurate delay on all outputs

Points of Contact

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