SPA300 Product Brief

Premium HD Audio Processor

The airlyra SPA300 is a highly integrated system-on-chip with high-definition audio decoder and audio post-processor. It is mainly composed of a 32-bit RISC microprocessor, an 8-bit I/O processor, and multi-core 32-bit DSP processors. The high performance DSPs, are capable of audio decoding, sample rate conversion, and audio post processing such as bass enhancement and virtual surround sound, as well as a built-in audio signal flow is provided for speaker compensation, including bass/treble tone control, PEQ, crossover filters, bass management, and DRCs, which normally found only in high-end professional audio equipment to deliver unsurpassed sound effect.

The SPA300 is delivering an excellent audio solution in a way that makes it implementation convenient, function complete and cost effective -- provides the fruitful interfaces and tools for system easy to bring-up, features the high performance and powerful processing ability in premium audio functions, and even embeds a lot external parts containing DDR memory for much simplifying the bill of materials on system. Most importantly, SPA300 is born to offer a perfect solution to the developer in producing the best cost-performance Home Audio for the upcoming growth markets.

FEATURE

Kernel Cores

- 32-bit RISC microprocessor, clock up to 320 MHz
- 8-bit I/O processor for system standby control
- 32-bit Multi-core DSPs, totally more than 2,000 MIPS computing power

Memory

- Integrated 128Mb DDR, frequencies up to 1,066 MHz
- 1-/2-/4-bit SPI Flash interface to external 16Mb to 512Mb SPI NOR Flash memory

Peripheral Interface

- 24.576MHz crystal in for all clock sources
- UART for connecting to BT, MCU, ISP (In System Programming)
- SDIO for SD memory card or Wi-Fi module
- PWM controller for 3 analog voltage control.
- High-speed USB 2.0 Host/Device for sound tuning, firmware upgrade or music playback
- 10-bit SARADC for multi-key support
- SPI support master mode
- Support IR for remote control (include IR learning)
- I2C Master & Slave
- More GPIO

Audio Interface

- 8 channels of I2S input for HDMI HBR mode
- 2 channels of I2S input
- 2 channels of ADC for LINE/AUX input
- 2 channels of PDM input for MIC
- 3-to-1 S/PDIF input from Coaxial/Optical/HDMI
- 16 channels of I2S/TDM output

Audio Processor

- Support Dolby ATMOS (include Dolby DAP)
- Support DTS: X (+DTS Virtual: X)
- Support MP3/AAC/HEAAC/WMA/WMA Pro decoders
- Support FLAC/ALAC/WAV HiRes decoders
- Support in-house APP: S+ Spatial Sound/VBass/Matrix/ DRC and Biquad Filters for PEQ/Bass/Treble/Crossover.
- Support 3rd party APP with highly compatibility.

* APP: Audio Post-Processor

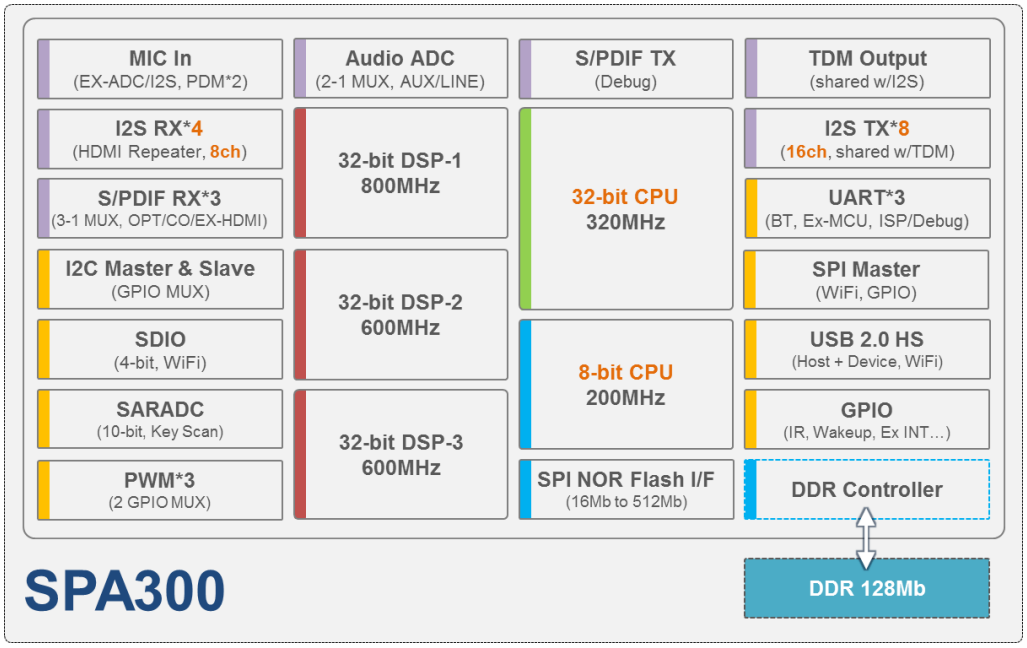
Platform

- On-line PC tuning tool
- Customized DSP algorithm support
- Best-in-class BOM

Package

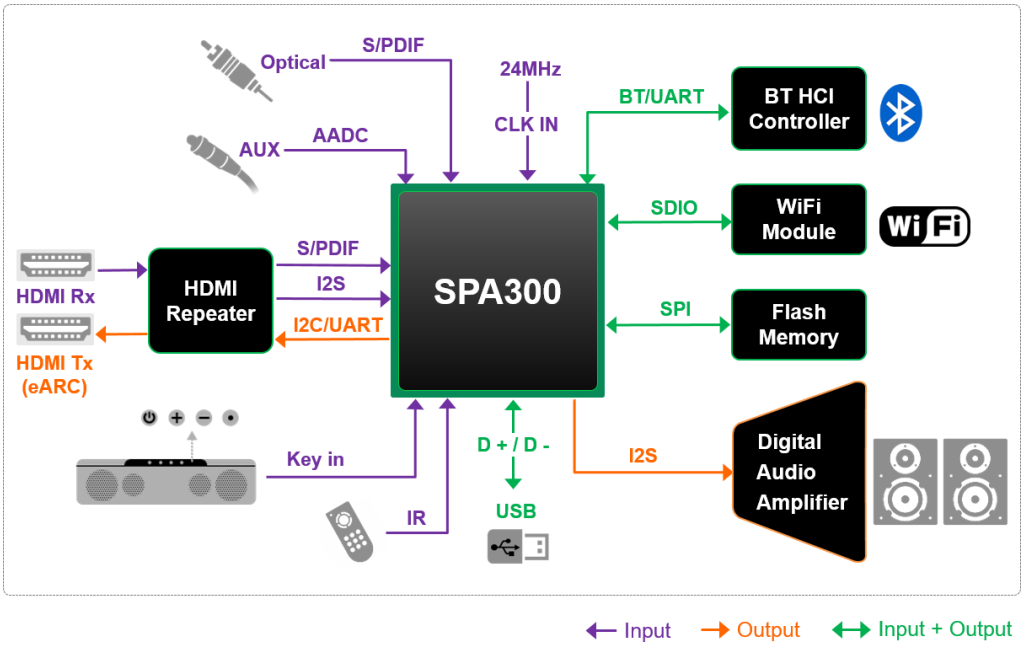
- LQFP-128, 14mm x 20mm

BLOCK DIAGRAM



APPLICATION

The SPA300 is applied for Soundbar, Bluetooth Speaker, USB/SD Speaker, A/V Receiver, etc. various Home Audio appliances.



SUNPLUS
SUNPLUS Technology Co.,Ltd. www.sunplus.com
No.19, Innovation 1st Road. Hsinchu Science Park 30076, Taiwan
T:+886-3-5786005 F:+886-3-5786006