



Crescendo II+ SoundBar SoC

Product Brief

The **Crescendo II+ SoundBar** is a 3rd-generation SoC that integrates all soundbar audio functions in a 128-pin Low Profile Quad Flat Pack (LQFP) package.

For best sound, the **Crescendo II+** SoC is built on the ESS SABRE DAC technology normally found only in high-end audiophile and professional audio equipments to deliver spectacular music with an unsurpassed sound stage, utilizing the ESS patented HyperStream™ modulator capable of 100% modulation and unconditional stability to drive analog or digital amplifiers.

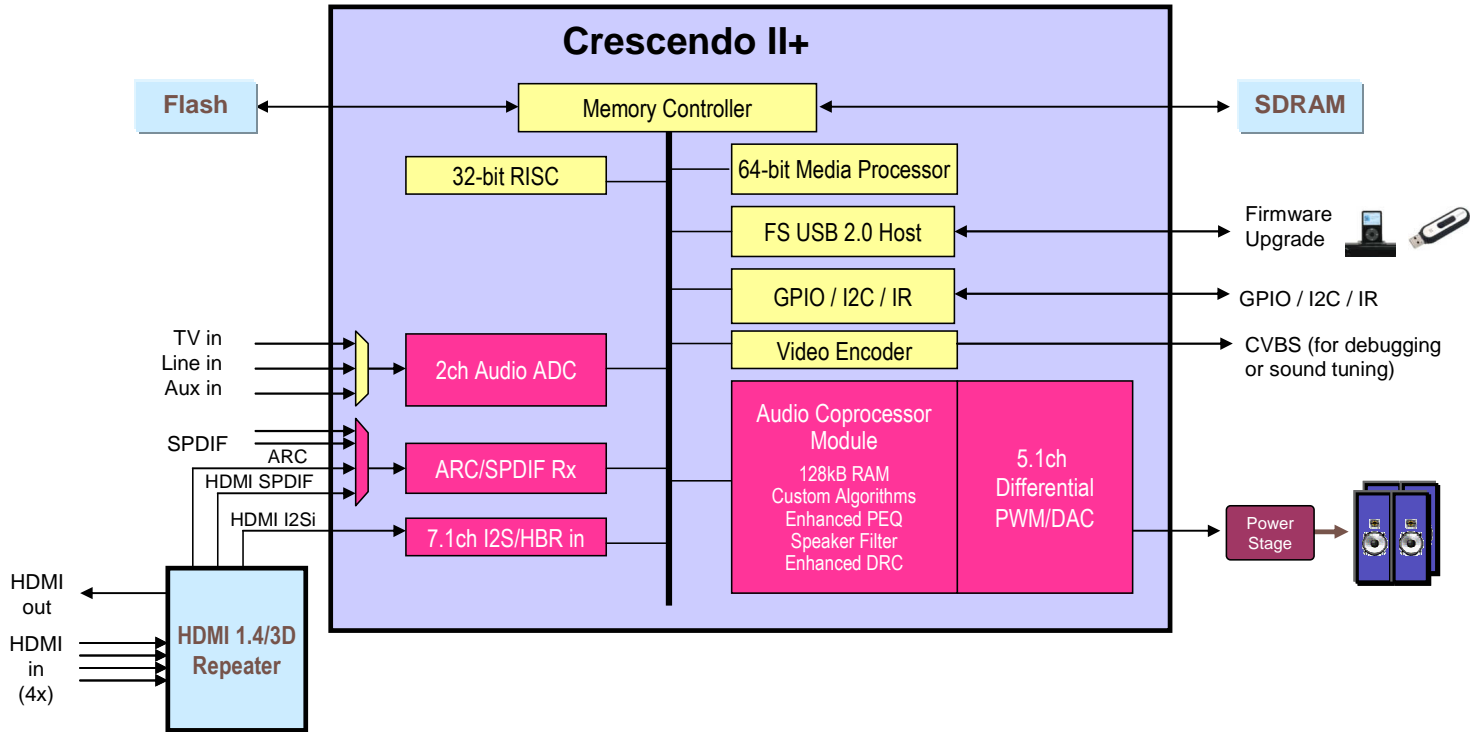
For lowest system BOM, the **Crescendo II+** SoC adopts a unified memory architecture for lowest memory cost. It integrates a 32-bit RISC and a 64-bit media processor for audio decoding, post-processing, lip-synchronization and sound effects such as virtual surround and bass enhancement, a hardware parametric equalizer (PEQ) for speaker equalization, an automatic gain limiter (AGL) for anti-clipping control, a user-programmable 32-bit Audio Coprocessor for custom sound algorithms, a 5.1-channel patented HyperStream™ Class D or D/A converter for driving digital or analog power stages, a 3-input HyperStream™ stereo ADC for connection to line input sources, a 4-input SPDIF/ARC receiver for connection to coaxial, optical, HDMI and ARC input sources, an 8-channel I2S input for connection to HDMI repeater, and a full-speed USB host controller for firmware upgrade or music playback from thumb drives or iPod.

FEATURE	BENEFIT
Highest integration of all audio functions in TV soundbar	Lowest system BOM cost
Patented Hyperstream™ PWM/DAC <ul style="list-style-type: none"> 5.1ch output in PWM/DAC/I2S modes Hardware Parametric Equalizer Hardware AGL 	Eliminate external DSP <ul style="list-style-type: none"> Drive analog or digital amplifier and wireless subwoofer transmitter Realistic audio from tiny speaker/enclosure Support amplifier anti-clipping
Comprehensive Sound Bar Processing <ul style="list-style-type: none"> Decode MP3/DD/DTS, etc. Sound effects Enhanced Audio Coprocessor w/ 128kB SRAM 	Eliminate external DSP <ul style="list-style-type: none"> Playback all legacy audio formats Virtual Surround Speaker, AV sync etc. More memory for custom algorithms and ease of programming
Versatile Audio Input <ul style="list-style-type: none"> 3-input enhanced ADC (50kΩ impedance) 4-input SPDIF/ARC receiver 8-ch I2S input 	Eliminate external SPDIF receiver & ADC <ul style="list-style-type: none"> CD quality analog audio input Connect to optical/coax/HDMI SPDIF or Audio Return Channel Take HDMI PCM formats
System <ul style="list-style-type: none"> FS USB Host 	<ul style="list-style-type: none"> Firmware upgrade, playback from iPod or thumbdrives

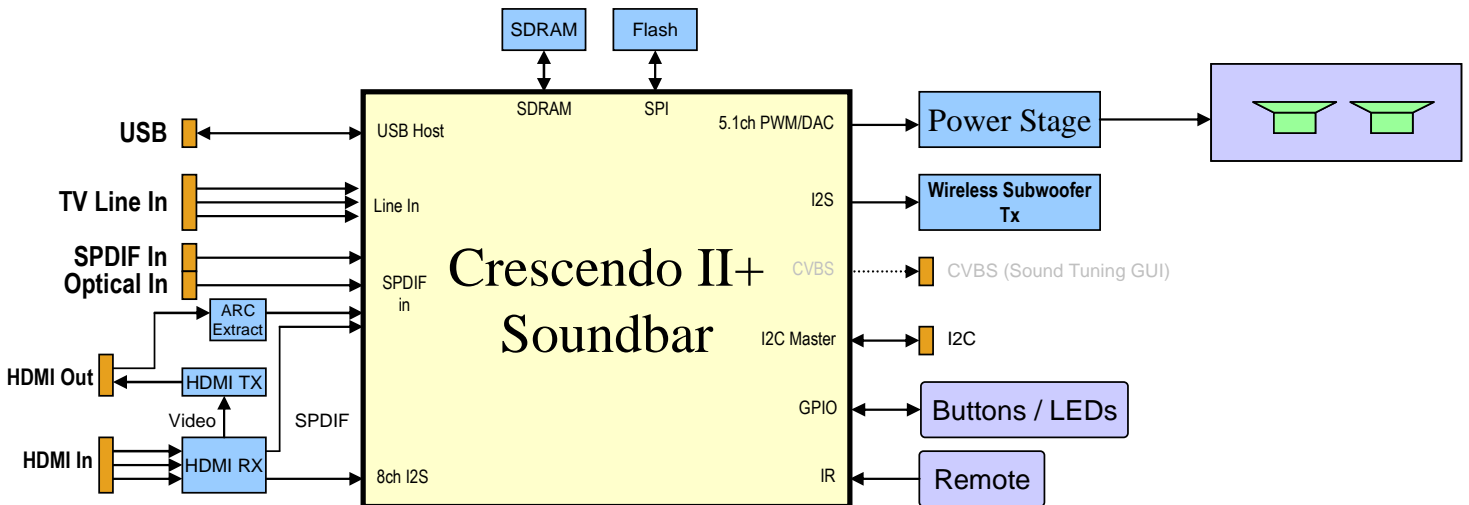


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FUNCTIONAL BLOCK DIAGRAM



APPLICATION DIAGRAM



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