

# FS848: High-Definition Wireless Audio IC



## FS848 DIGITAL WIRELESS AUDIO IC

### Audio Distribution

Built purely for audio, the FS848 includes multiple layers of error detection and correction, delivering uncompressed DVD-quality audio with unparalleled reliability.

5-GHz low-interference U-NII frequency band (supported worldwide)

Eight independent audio channels; end-user scalable from 2.0 system to 7.1 system

Viterbi and Reed-Solomon forward-error correction codes; provides an additional 8 bits of forward-error correction per sample

Interpolation filter, error concealment engines, and active muting imperceptibly mask data errors

Patent-pending technology

### Audio Fidelity

With exact timing and distortion-free digital filters, the FS848 delivers the utmost in audio fidelity.

24-bit, 48-kHz uncompressed audio

Low-latency, fixed, 2 millisecond end-to-end delay; eliminates lip synch errors

Interchannel delay error: <200 nanoseconds

Three independent audio filter channels per slave (typically high, middle, low)

Eight programmable biquad digital filters per filter channel; allows complete driver equalization

Programmable delay of up to 40 milliseconds for speaker position phase alignment; supports large rooms

Each filter channel provides programmable delay for speaker driver alignment (up to 23 cm driver offset)

A revolutionary breakthrough in home theater audio, the Focus FS848 High-Definition Wireless Audio IC not only produces superior sound quality, but makes audio system setup simple. Using patent-pending technology, the Focus FS848 transmits digital audio to speakers—wirelessly.

## FS848 High-Definition Wireless Audio IC

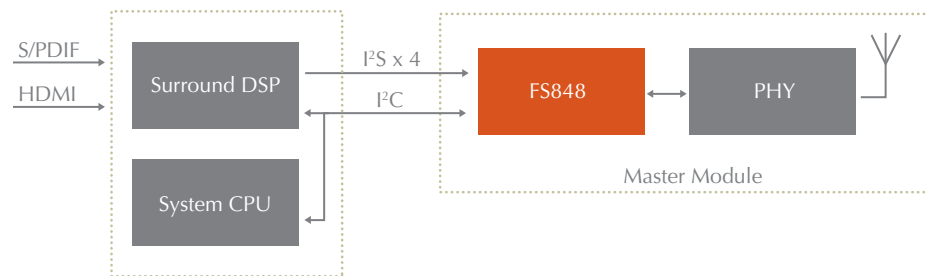
### Superior Surround Made Simple

Featuring advanced technologies and filters, the FS848 High-Definition Wireless Audio IC enables home audio systems to deliver professional-quality, distortion-free audio with ease. SpeakerFinder™ technology automatically discovers and powers up speakers the moment the system is turned on. And MyZone™ technology allows the listener to position the audio sweet spot anywhere in the room. High-quality programmable digital filters enable designers to optimize speakers for specific crossover, amplifier, speaker driver, and speaker cabinet characteristics.

### Transmitter System

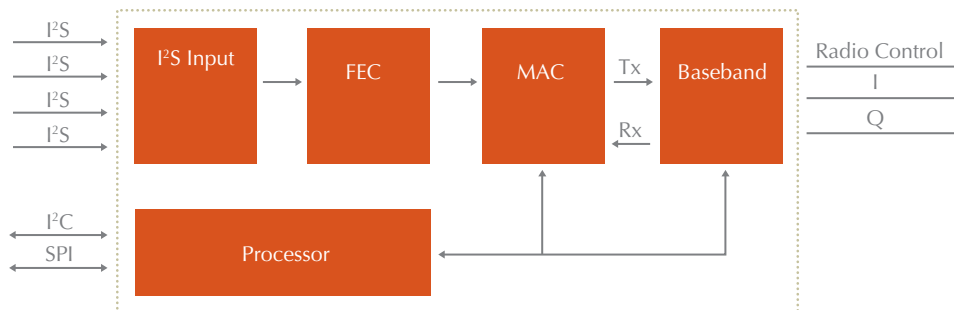
#### Master System Block for DTV, AVR, DVD, or Blu-ray

The FS848 can be easily integrated into many of today's consumer electronic devices. Accepting up to eight channels of digital audio, the FS848 is completely programmable by I<sup>2</sup>C. The master controls all speaker slaves and has the ability to pass commands from the system CPU to the slaves.



### Master Chip Block

In master mode, the FS848 is responsible for speaker discovery and setup, audio distribution quality, and speaker control, including volume and sleep. Audio data comes in the I<sup>2</sup>S inputs and is then encoded, forward-error corrected, and sent to the radio. Commands via I<sup>2</sup>C can be added to the audio packets by the processor.



## Speaker Management

With SpeakerFinder technology, the FS848 makes speaker setup a snap—users simply open the box, plug in the speaker, and turn on the system. It's that simple.

Patent-pending SpeakerFinder technology

Automatic speaker discovery; no user input required

Speaker channel (left, right, center, surround) is assigned according to speaker location

Ultrasonic transducers can locate speakers to within a 1 in. (2.54 cm) radius

Delay and volume functions are optimized for speaker location

## Sweet Spot Assignment

The FS848 includes MyZone technology, which lets listeners move the sweet spot from their favorite chair to the couch for family movie night—simply by pushing a button.

Patent-pending MyZone technology

Sweet spot can be moved by pressing a button on the remote control

Remote control contains an ultrasonic transducer that can pinpoint the desired location of the sweet spot to within a 1 in. (2.54) cm radius

Delay and volume functions are automatically set for the desired sweet spot location

## Specifications

14 mm x 14 mm, 100-pin LQFP

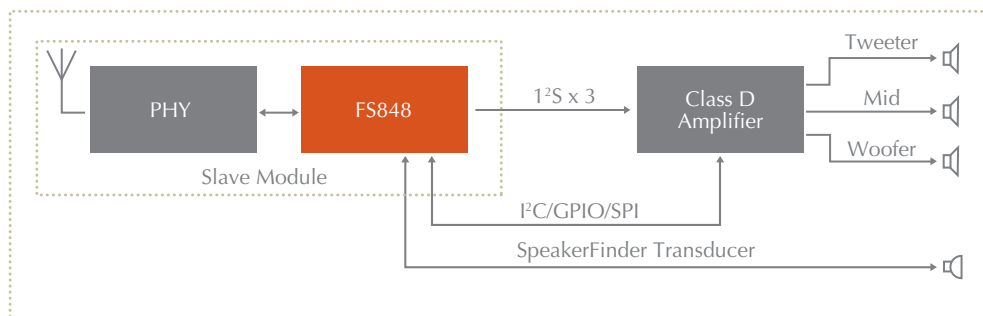
Temperature range: 0°–70° C

Energy Star compliant

## Speaker System

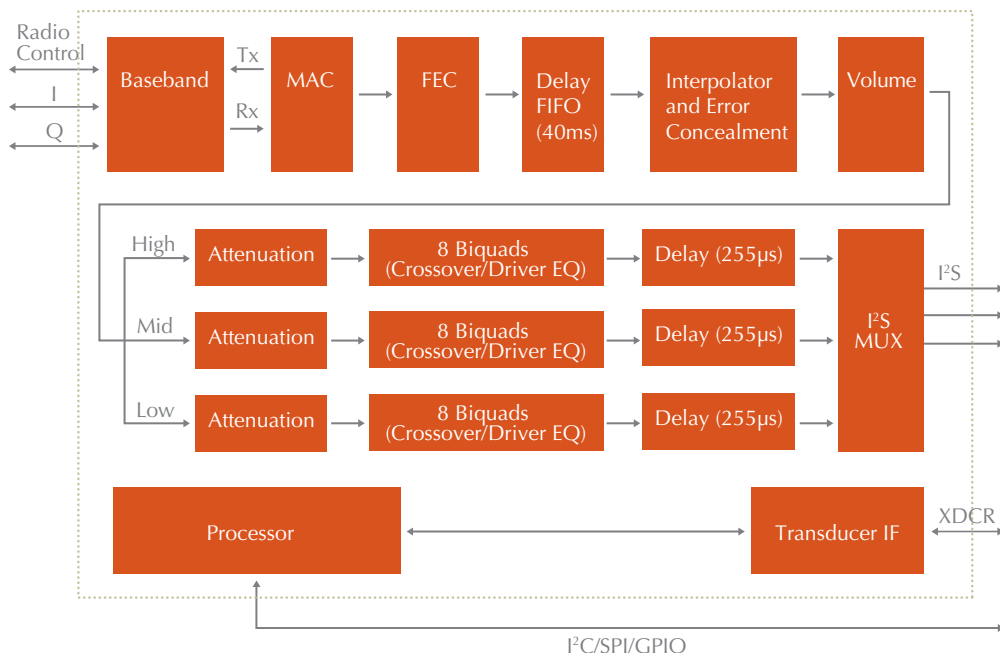
### Slave System Block

The FS848 slave is integrated in each speaker—the radio receives the audio data from the master and sends it to the amplifier via I<sup>2</sup>S. The master sends commands to the ultrasonic transducer for SpeakerFinder and MyZone.



### Slave Chip Block

In slave mode, the FS848 processes incoming audio data by performing error correction and concealment as needed. Next, data is passed to three independent, programmable filter paths for crossover and driver equalization.



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