Wireless Headset Reference Design Delivers Extended Battery Operation

Texas Instruments, an industry leader in highly integrated wireless connectivity solutions, introduced the second device in the family of PurePath Wireless audio products for consumer, portable and high-end audio applications. The 2.4 GHz CC8530 [1] radio frequency (RF) system-on-chip transmits uncompressed wireless audio over a robust RF link, and supports digital streaming for up to four audio channels. TI also introduced the CC85XXDK-HEADSET development kit [2] and reference design [3] as part of the PurePath Wireless audio family. As the market's most cost-effective offering for high-quality headsets and headphones, the design has a total electronic bill-of-material cost of less than USD $5 in high-volume production, and achieves a 22-hour life on a 465 mAh battery – a 100 percent increase as compared to currently available headsets. For more information or to order, visit www.ti.com/cc8530-pr [4].

"PurePath Wireless audio represents TI's industry leading expertise in digital audio and wireless connectivity markets," said Erling Simensen, product marketing manager, wireless audio, TI. "We've done all back-end work with the new wireless headset reference design, so engineers can build a prototype in less than one day. With the ability to stream two stereo streams from one audio source to several receivers, the CC8530 will enable exciting new use cases for wireless headsets and multichannel home audio applications, such as surround sound speaker systems with no need to pull wires across the house, and headphones that easily switch between two audio streams coming from one stereo system."

"TI's PurePath Wireless technology enables us to design cutting-edge wireless audio products," said Robert Wills, president, InterSource OEM Inc. / Claridy Amps, a design house specializing in audio products. "Thanks to PurePath Wireless

technology, our high-quality designs offer unwired multipoint audio streaming, and our audio systems can expand to up to four speakers and cover two stereo-audio listening zones. Products such as Sound of Lights [5]wireless speakers are sparking tremendous interest with great customer feedback, and we look forward to continued work with the TI team."

CC8530 solution: Key features and benefits

- Multichannel audio streaming capability:
    - Four speakers receiving independent audio streams from wireless base station
    - Up to four headphones receiving either stereo A or stereo B audio from the same base station
- Complete solution: RF protocol, microcontroller, audio codec setup support, application designs
- No required software development: Free Configurator PC software tool for easy configuration
- High quality-of-service for digital wireless audio transmission:
    - Excellent coexistence with *Bluetooth*® technology, WLAN and other 2.4-GHz devices
    - Distributed audio clock for synchronized wireless speakers
    - Low latency for better synchronization between audio and video
    - No unwanted noise (clicks or pops)
    - High mean time between dropout (MTBD) as compared to existing solutions
    - Eliminates the sound distortion typically found in competing proprietary systems
    - Support for 16-bit, 44.1-KHz or 48-KHz audio without any compression
- Compatible with various TI audio codecs: TLV320AIC3204, TLV320AIC3254, TLV320AIC3256, TLV320AIC3101, class D amplifiers TAS5708, TAS5710, TAS5713, TAS5727, CC2590 range extender and BQ25015 power management device

CC85XXDK-HEADSET development kit: Key features and benefits

- 22 hours on 465mAh battery: 100% longer battery life compared to today's standard headsets
- Consists of all-TI components
- Cost-effective design for high-quality wireless headsets and headphones
- Enables easy testing of complete headphone and headset functionality
- Fully programmable with PurePath Wireless Configurator PC tool.
- Includes TI's BQ25015 [6] power management device, the low-power TLV320AIC3204 [7] audio codec and CC2590 [8] range extender

Tools, availability, packaging and price

The multi-channel CC8530 is available today [4] from TI and through authorized TI distributors. The solution is packaged in a ROHS-compliant, 6 mm x 6 mm QFN-40. Pricing starts at $3.95 in 1,000-unit quantities. Future devices in the family will include the CC8521 (two channels with USB) and CC8531 (four channels with USB).

The new CC85XXDK-HEADSET development kit is available today for USD $149 on TI's e-store [9], and comes with a free reference design for wireless headsets.

The CC85XXDK [10] development kit, introduced last year for the CC85XX product family, provides all hardware and software necessary to evaluate the CC8530. This kit is available on TI's e-store [11] for USD $299.

Find out more about TI's low-power RF and wireless connectivity solutions

- Order development kits and samples: www.ti.com/cc8530-pr [4].
- TI's PurePath Wireless solutions: www.ti.com/purepathwireless [12]
- TI's audio solutions: www.ti.com/audio [13]
- TI's wireless connectivity selection guide: www.ti.com/wirelessconnectivityguide [14]

TI E2E low-power RF community: www.ti.com/lprf-forum [15]

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http://www.wirelessdesignmag.com/product-releases/2011/06/wireless-headset-reference-design-delivers-extended-battery-operation?qt-digital_editions=0

Links:
[1] http://focus.ti.com/docs/prod/folders/print/cc8530.html
[2] http://focus.ti.com/docs/toolsw/folders/print/cc85xxdk-headset.html
[3] http://focus.ti.com/docs/toolsw/folders/print/cc85xxdk-headset-rd.html
[4] http://www.ti.com/cc8530-pr
[5] http://www.soundoflights.com/
[6] http://focus.ti.com/docs/prod/folders/print/bq25015.html
[7] http://focus.ti.com/docs/prod/folders/print/tlv320aic3104.html?lpos=See_Also_Container&lid=Alternative_Devices
[8] http://focus.ti.com/docs/prod/folders/print/cc2590.html
[9] https://estore.ti.com/CC85XXDK-HEADSET-PurePath-Wireless-Headset-Development-Kit-P2452.aspx
[10] http://focus.ti.com/docs/toolsw/folders/print/cc85xxdk.html
[11] https://estore.ti.com/CC85XXDK-PurePath-Wireless-Development-Kit-P1997.aspx
[12] http://www.ti.com/purepathwireless
[13] http://www.ti.com/audio
[14] http://www.ti.com/wirelessconnectivityguide
[15] http://www.ti.com/lprf-forum