



## PRODUCT SUMMARY

# SKY76361-31/51 Cognitive Wireless Gaming Client System on a Chip (SoC)

## Applications

- Wireless gaming headsets and accessories: controllers, mice, and keyboards
- Wireless headphones

## Features

- Ultra-low-power 2.4 GHz radio transceiver: 30-meter indoor line-of-sight range
  - Operating current: 7.4 mA
- Skyworks UL2X Cognitive Wireless Audio Communication system:
  - 3/6 Mbps OTA data rate
  - Up to 8 channels of uncompressed OTA audio
  - Up to 40 kHz OTA audio bandwidth
  - Low and fixed latency <4 ms
  - Synchronized client audio (<1 us latency diff.)
  - Robust wireless performance
  - Link has Signal to Noise Ratio (SNR) to 120 dB
- Low-latency and high bandwidth data transport:
  - 120 kbps low latency (<1ms)
  - >1Mbps bulk transfer mode
  - -USB-OTA-PDM latency <4ms
- 32-bit RISC processor subsystem
- Configurable Audio Processing Unit (APU)
- Complete, highly integrated power system
- Full-speed USB interface
- Digital IO peripherals: JTAG, SPI, I<sup>2</sup>C, and UART
- Digital audio interface: USB, I<sup>2</sup>S, SPDIF RX, PDM
- Integrated RF switch drive
- 88-pin QFN, 7 mm x 7 mm x 0.85 mm package
- 67-ball WLCSP, 2.775 mm x 2.775 mm x 0.427 mm package
- Commercial temperature range of 0°C to 70°C



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## Description

The SKY76361-31/51 is an ultra-low-power, high performance wireless gaming client SoC that operates in the 2.4 GHz ISM band. It provides a high dynamic range, uncompressed wireless digital audio link with robust interference rejection and excellent coexistence with other 2.4 GHz wireless devices (such as Wi-Fi).

The embedded wireless communication system is known as UL2X and supports multiple over-the-air (OTA) usage scenarios with different numbers of channels, audio bandwidth, data bandwidth, and numbers of clients. The digital audio interface over I<sup>2</sup>S supports up to 24-bit, 96 kHz PCM digital audio. The OTA audio link features a low, fixed latency of <4 ms while rejecting the multitude of possible interference sources in the 2.4 GHz band. The link provides up to 120 dB dynamic range and up to 40 kHz audio bandwidth. Audio is inherently synchronized between clients in the network with <1 us latency difference.

The SKY76361-31/51 includes a configurable Audio Processing Unit (APU) to support equalization, dynamic range control, feathering and mixing.

The SKY76361-31/51 wireless communication system also provides a low latency (<5 ms)<sup>1</sup> data transport and special ultra-low latency (1 ms) HID data transport for wireless mice, keyboard, and gaming controller applications. Data input is handled through a high-bit-rate UART and high priority OTA data protocol.

The SKY76361-31/51 SoC is designed to support multiple system applications. The system interfaces for digital I/O, RF, power management, and intra-chip communication are designed to provide a streamlined system solution with minimal external components.

1. Subject to software support.

## Ordering Information

Part Number	Part Description	Evaluation Board Part Number
SKY76361-31 SKY76361-51	Cognitive Wireless Gaming Client System on a Chip (SoC), QFN package Cognitive Wireless Gaming Client System on a Chip (SoC), WLCSP package	SKY76361-31/51EK1

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