

Design and implementation of bluetooth microcontroller in system-on-chip (SoC)

Abstract

Wireless microcontrollers have become widely used in domestic and industrial applications, where Bluetooth is one of the most popular wireless communication mediums. This paper discusses the design and implementation of a wireless Bluetooth microcontroller System-on-Chip (SoC) using Silterra 180nm CMOS technology. It incorporates Cortex-M0 as the main processor and other essential peripherals for a microcontroller, such as a timer, watchdog, UART, and RTC. This paper demonstrates the gate-level simulation result of the integrated system where several firmware tests are loaded into the RAM and operate those peripherals to verify the overall system functionality. The simulation results show that the system is able to perform the data transmit and receive successfully.