Kit Makes Designing Medical Telemetry Systems a Snap!

Zarlink Semiconductor Inc. has made available a development kit that enables faster design and evaluation of wireless telemetry systems linking implanted medical devices with monitoring and programming equipment.

The ZLE70101 Application Development Kit (ADK) demonstrates the high data rate, ultra low-power supported by the company's ZL70101 transceiver. This highly-

integrated RF chip delivers data rates up to 800 kb/s and operates in the Medical Implant Communication Service (MICS) 402 to 405 MHz band. The chip typically consumes 5 mA of supply current in full operation, while incorporating a unique "wake-up" receiver that allows the device to operate in an extremely low current 250 nanoamp (nA) "sleep" mode. The ZL70101 chip includes a fully-featured media access controller (MAC), designed specifically for MICS applications, that provides forward error correction, cyclic redundancy check and retransmission to achieve a reliable data link.

"Wirelessly enabled medical devices must meet strict performance and power demands to support new applications without impacting implanted device battery life," said Steve Swift, senior vice president and general manager of Zarlink's Medical Communications product group. "The ZLE70101 ADK offers customers a complete hardware and firmware evaluation platform to support the fast development of low-power, standards-compliant medical communication systems built on field-proven MICS technology."

The ZLE70101 ADK includes all hardware and firmware required to permit users to test the performance of the in-air communication link between implanted devices and external equipment. A commonly used application microcontroller is used for both the implant and base station platforms to enable rapid integration into a specific system design. An easy-to-use graphical user interface (GUI), running on a Windows-based PC, controls and demonstrates the capabilities of a ZL70101-enabled medical telemetry system. The GUI interfaces to the MICS RF boards via a USB2.0 interface.

The kit includes an Applications Development Platform (ADP100) board that interfaces with the PC through a USB2.0 interface to either the implant or base station mezzanine boards. The Application Implant Mezzanine (AIM100) board performs all MICS related implant communications. The Base Station Mezzanine (BSM100) board performs all MICS-related base station/monitoring equipment communications processing. Also included is a MICS Test Adaptor (MT100) board that enables the probing of key digital and analog signals for the ZL70101 chip on either the implant or base station board. A Programmable Cable Adaptor (PCA100) board and cable enables programming and debugging support for the included applications microcontroller.

To save valuable time in the development process, the ADP100, AIM100 and BSM100 are fully supported by embedded firmware with thoroughly commented source code to help developers quickly understand the programming requirements of the ZL70101 chip while allowing for firmware reuse.

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