HMicro

Life Signal Processor™ Chip (LSP™)
HC1100

Single chip solution for disposable and rechargeable clinical grade biosensor patches, embedded clothing and IoT nodes

HMicro designed the HC1100 LSP Chip from the ground up to achieve the objectives low power consumption, and wire-like reliability for healthcare, wellness and safety applications.

Until now, no such chip has existed in the industry that meets *all* these requirements.

By combining a multi-sensor interface subsystem, signal processor subsystem and a multiband radio subsystem into a single chip, the HC1100 chip has achieved a high level of integration to lower the cost for disposability. The HC1100 enables rapid development of low power high reliability applications where life signals must be faithfully captured and securely communicated to wireless receivers and cloud based applications systems and service providers.

The HC1100 chip is in high volume production that is managed by HMicro's world-class silicon devices partner. Extensive hardware and software development support tools and production ready reference designs for various types of biosensor patches and receiver devices are also available from HMicro.

Key Innovations Include:

- The chip incorporates a multi-mode radio design with radio transceivers based on the 2.4GHz Wi-Fi standard (WLAN 802.11b), 2.36-2.4GHz MBAN "Medical Band" and a transmitter based on 3-10GHz Ultra-Wideband (UWB).
- The Wi-Fi centric radio subsystem is custom designed to achieve ultra-low power consumption and to allow coin battery operation of the biosensor over multiple days.
- The receiver system combines the HC1100 with the companion chip HC5500 that contains the full UWB transceiver (transmitter and receiver). This allows for the optimal balance of cost and capability for both disposable and reusable - products supporting the triple mode radio.

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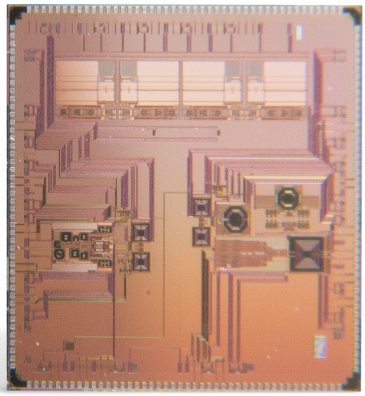

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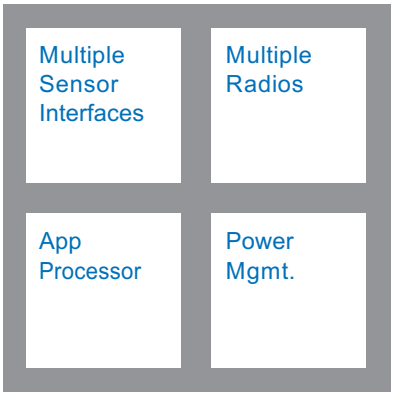

HC1100 WiPoint Chip microphotograph

Key Features

- Fully configurable multi-channel analog interfaces for high precision acquisition of signals from various types of IOT sensors or biosensors (such as multi-lead ECG, respiration, temperature, and pulse-oximetry).
- Integrated digital interfaces for peripherals and digital sensors such as motion and audio as well as external data storage.
- Intelligent switching between multiband radios for low power consumption and high link reliability with greater immunity to electromagnetic interference.
- Complete power management system allowing operation from 2.0 to 3.7 volt batteries including low cost Zinc-Air coin batteries
- Embedded firmware for Wi-Fi and multimode radio management
- ARM Cortex-M0 application processor for OEM's to customize analytics and system operation