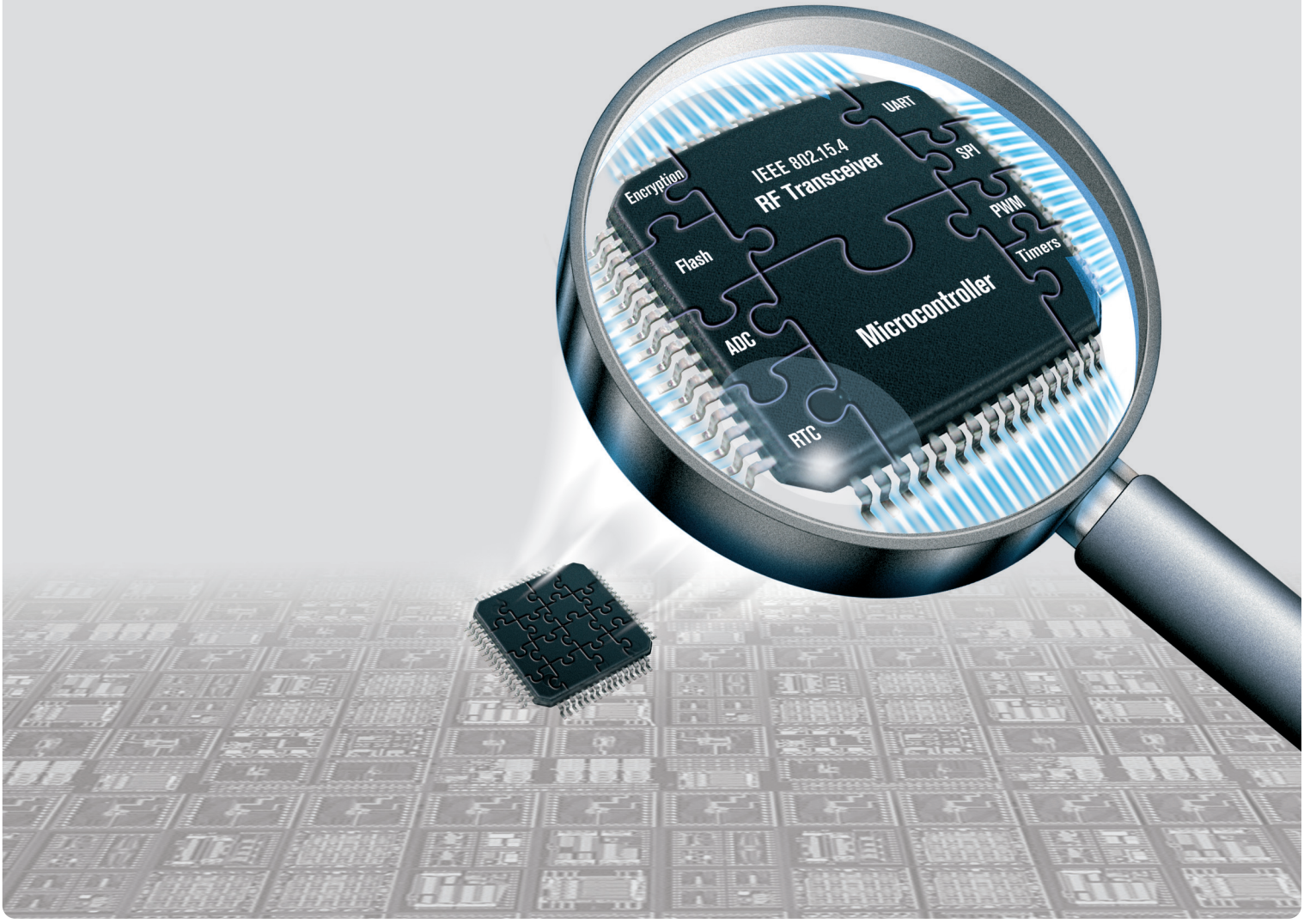
Chipcon



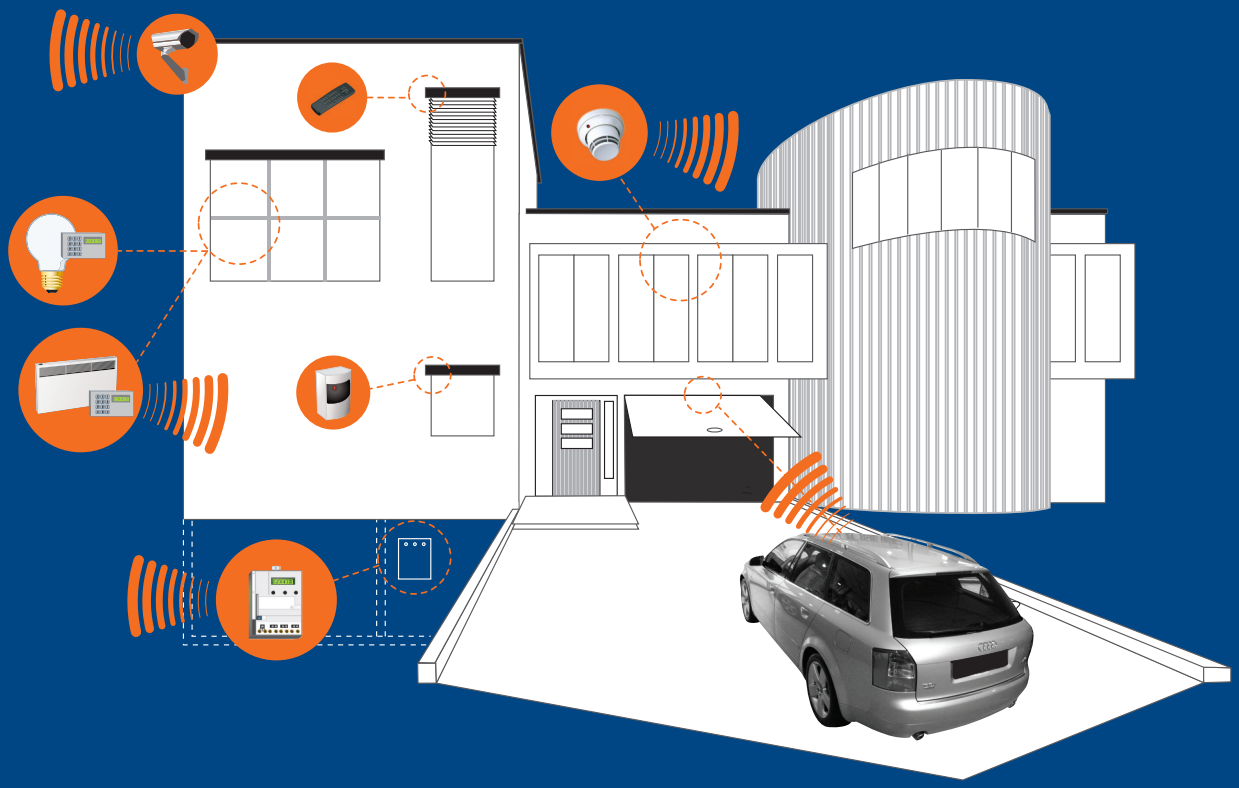
ZigBee/IEEE 802.15.4

One-Stop-Shop with world leading technology

Connecting smarter

THE WORLD IS GOING WIRELESS

The future of wireless technology is rapidly becoming a reality. Chipcon is providing leading ZigBee/IEEE 802.15.4 technology to the emerging market of low-cost and reliable wireless control and monitoring applications.



Chipcon's clear goal is to become the world leading provider of ZigBee/IEEE 802.15.4 technology. The CC2420 from Chipcon was the industry's first single-chip 2.4 GHz IEEE 802.15.4 compliant and ZigBee-ready RF transceiver. Now Chipcon also provides a one-stop-shop solution including RF transceivers, ZigBee protocol software, development tools and kits and proven reference designs.

Chipcon's complete ZigBee suite makes it easy for system designers to develop their applications. Instead of solving complex radio and network issues, companies can now focus on building applications on top of the ZigBee standardized framework.

THE ZIGBEE STANDARD

ZigBee is a new global standard for wireless connectivity, focusing on standardizing and enabling interoperability of products within home control, building automation and industrial control and monitoring.

ZigBee is built on the robust radio (PHY) and medium attachment control (MAC) communication layers defined by the IEEE 802.15.4 standard. Above this ZigBee defines mesh, star and cluster tree network topologies with data security features and interoperable application profiles.

WHY ZIGBEE?

It is now widely recognized that standards such as Bluetooth and WLAN are not suited for low power applications, which is due to these standards' high node costs as well as complex and power hungry RF-ICs and protocols.

With Zigbee, however, the case is different. ZigBee is the only standard that specifically addresses the typical needs of wireless control and monitoring applications:

- Large number of nodes/sensors necessitates wireless solutions
- Very low system/node costs
- Need to operate for years on inexpensive batteries; this requires low power RF-ICs and protocols
- Reliable and secure links between network nodes
- Easy deployment
- No need for high datarates
- Global solutions must be provided

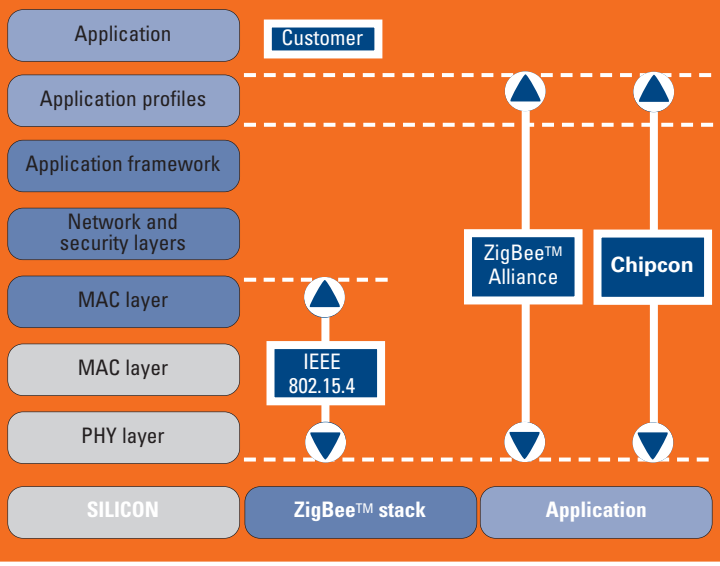
For system developers it is much more cost effective to design their applications based on a common standardized ZigBee platform than creating a new proprietary solution from scratch each time. Furthermore, OEMs obtain global solutions and independence of RF-IC manufacturers, due to the 2.4GHz standardized radio by IEEE 802.15.4.

ONE-STOP-SHOP; HARDWARE, SOFTWARE AND TOOLS

Chipcon offers a true one-stop-shop solution for ZigBee and provides customers with:

- IEEE 802.15.4 compliant RF-ICs with MAC software
- ZigBee Protocol Stack
- ZigBee Development SW tools
- ZigBee Development kits
- High performance and robust reference designs

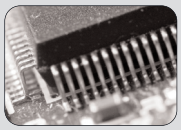
The CC2420 2.4GHz IEEE 802.15.4 compliant RF transceiver used in combination with a suitable microcontroller and the ZigBee Protocol Stack constitute the industry's most attractive and proven solution regarding system cost, low power consumption, robustness and performance. Chipcon offers the Z-Stack™ ZigBee Protocol Stack and software tools from Figure 8 Wireless which is a world leading provider of ZigBee software.



CHIPCON'S ZIGBEE/IEEE 802.15.4 PRODUCT ROADMAP

Chipcon's clear goal is to become the world leader of silicon and software solutions for ZigBee/IEEE 802.15.4. Chipcon's product roadmap includes both stand-alone RF-transceivers as well as true SoC (System-on-Chip) solutions. The main characteristics of Chipcon's product roadmap are reduction of chip and system costs, reduction of power consumption and a increased integration level.

Chipcon's ZigBee SoCs will include an IEEE 802.15.4 compliant RF transceiver, a low power yet high performance microcontroller, flash program memory and RAM and powerful peripheral modules. ROM based versions can be provided for very high volume applications.



	ZigC1	ZigC2	ZigC3
RF Transceiver	CC2420 7x7mm 48 pins 2003	CC2520 5x5mm 28 pins 2005	CC2620 4x4mm 28/32 pins 2006
SoC Flash	CC2430 Flash 7x7mm 48 pins 2005	CC2530 Flash 6x6mm 36 pins 2005	CC2630 Flash 5x5mm 32 pins 2006
SoC ROM	CC2430 ROM 7x7mm 48 pins 2005	CC2530 ROM 6x6mm 36 pins 2006	CC2630 ROM 5x5mm 36 pins 2007

CC2420

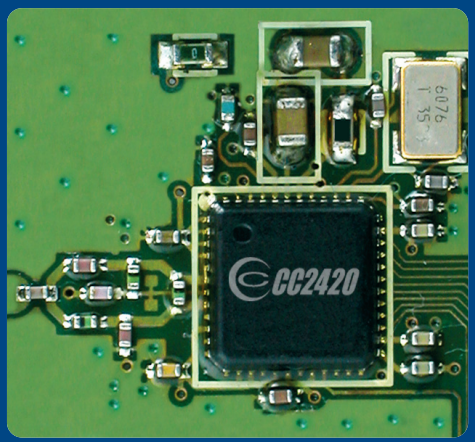
Chipcon's CC2420 was the industry's first IEEE 802.15.4 compliant RF transceiver. With its outstanding RF performance and features, the CC2420 provides customers with a state-of-the-art and cost-effective radio solution for ZigBee/IEEE 802.15.4 systems. For the CC2420 Chipcon provides IEEE 802.15.4 MAC software free of charge.

CHIPCON ZIGBEE DEVELOPMENT KITS

With Chipcon's development kits customers can quickly start evaluating and designing true ZigBee networks and applications. The kits include CC2420-based hardware modules bundled with the Z-Stack™ ZigBee Protocol Stack.

In addition the following powerful ZigBee software tools are included:

- Z-Stack™ ZigBee Network Configurator for first order customization of ZigBee enabled applications
- Z-Stack™ ZigBee Profile Builder, which enables customers to create their own application profiles
- Z-Tool™ ZigBee Protocol Stack Trace Tool for network tracing and debugging



Chipcon is a leading international semiconductor company that designs, produces and markets high-performance standard radio frequency integrated circuits (RF-ICs) for use in a variety of wireless applications.

Chipcon's very flexible and robust RF-ICs target a broad range of applications within markets such as: Home and Building Automation, AMR (Automatic Meter Reading), Alarm and Security, Consumer Electronics and Automotive.

APPLICATION AREAS

Wireless home and building automation systems are expanding rapidly. The scenario of the future is that modern homes and commercial buildings will be equipped with a huge number of radio nodes. This will boost the demand for reliable and cost-effective RF-ICs combined with reliable and secure network protocols. This development is seen for monitoring and control systems for industrial applications as well.

LIGHT CONTROL SYSTEMS
- Power outlets
- Dimmers
- Switches
- Remote controls

CONSUMER ELECTRONICS
- Remote controls
- Set-top boxes and gateways
- PC-peripherals

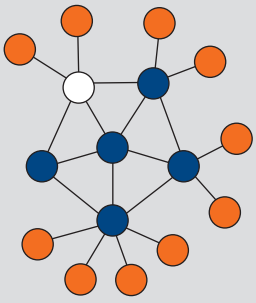
AUTOMATIC METER READING SYSTEMS
- Electricity
- Gas
- Water

ALARM & SECURITY SYSTEMS
- Smoke detectors
- Burglary- and social alarms
- Access control
- Water leakage alarms

ENVIRONMENTAL MONITORING
- Temperature
- Carbondioxide
- Humidity
- Vibration

ENERGY MANAGEMENT AND COMFORT FUNCTIONS:
- Thermostats
- Heating, ventilation, air-conditioning (HVAC)
- Control of blinds/shades/rollers/windows

INDUSTRIAL
- Monitor and control
- Wireless sensor networks



ZIGBEE NETWORK TECHNOLOGY

Above the PHY and MAC layers defined by IEEE 802.15.4, ZigBee defines reliable and secure mesh, star and cluster-tree network topologies with interoperable application profiles.

Mesh networks enable high levels of reliability and scalability by providing more than one path through the network for any wireless link.

PAN Coordinator (Full Function Device)
Coordinator (Full Function Device)
Device (Reduced or Full Function)

HIGH AMBITIONS FOR THE FUTURE

Our clearly expressed goal is always to be in front of the competition ensuring our position as a preferred supplier. To achieve this goal we continuously develop new generations of highly competitive products. Leading technology and products are a key competitive factor in our business.

Chipcon creates the future of wireless industry by actively developing the next generation of outstanding products.

We are represented at 42 locations in 27 countries.

DISTRIBUTORS/REPRESENTATIVES

Chipcon

Chipcon AS, Gaustadalléen 21, N-0349 Oslo, Norway,
Tel: +47 22 95 85 44 Fax: +47 22 95 85 46
www.chipcon.com, E-mail: info@chipcon.com
Rev.no.:1.0 - 2004/7