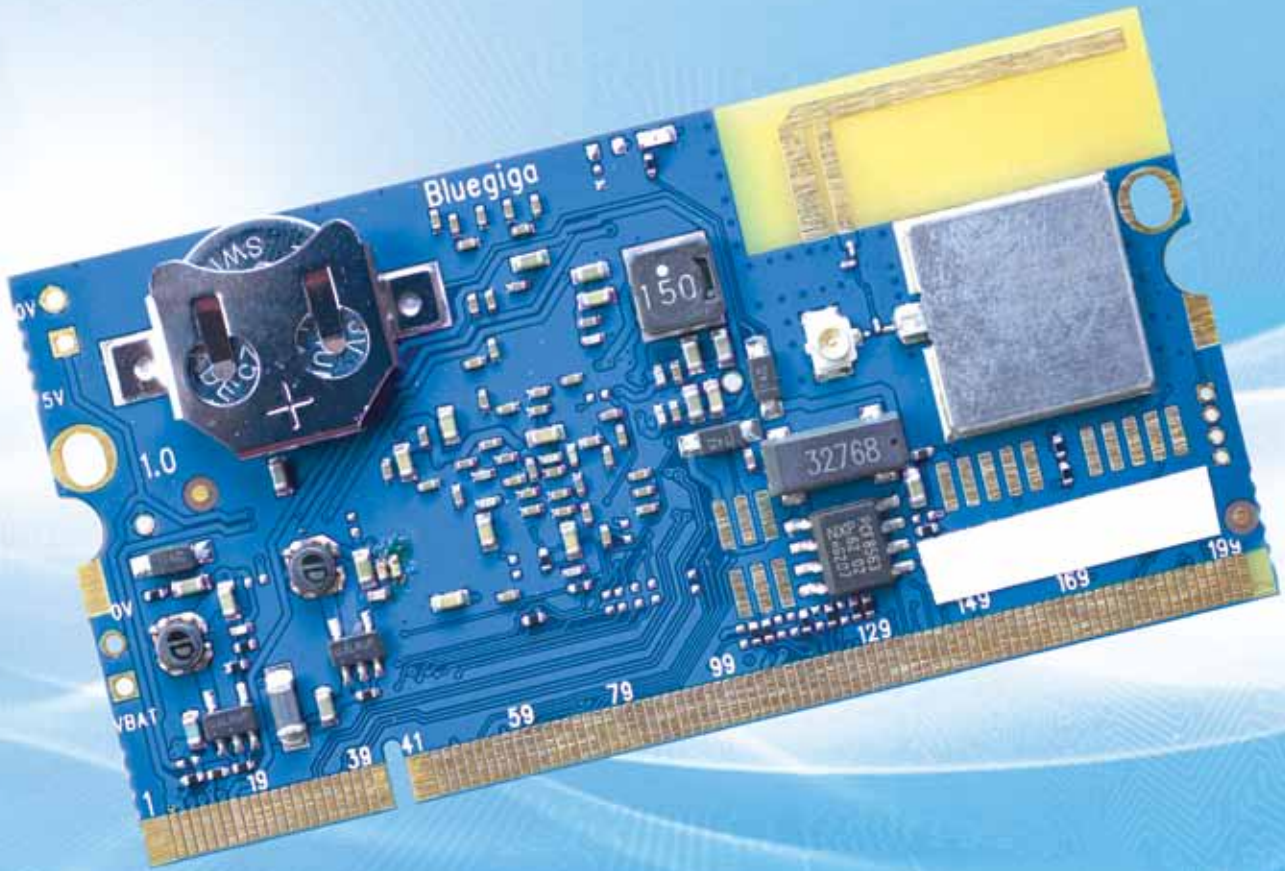Bluegiga Wireless
System-on-Module

Bluetooth®
SMART READY

WiFi
MEMBER
ALLIANCE

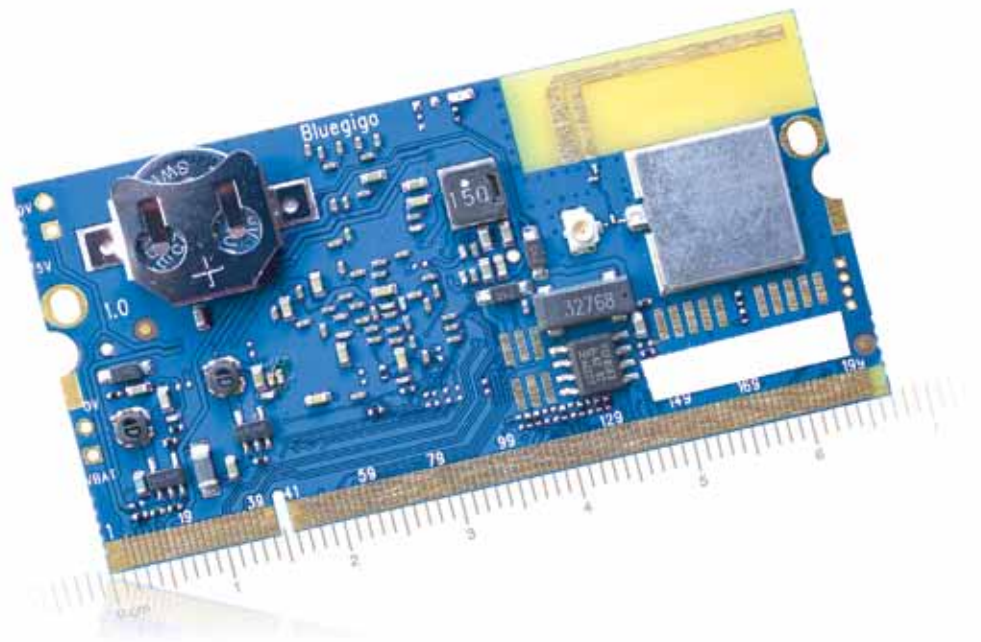# A Development Platform for Wireless Gateways

Bluegiga APx4 Wireless System-on-Module

Bluegiga APx4 is a low power wireless System-on-Module that comes with integrated Wi-Fi, *Bluetooth* 4.0, ARM and Linux – offering an ideal development platform for wireless gateways.

bluegiga

www.bluegiga.com/apx4

Bluegiga Apx4 Wireless System-on-Module

Key Features

- APx4 is a computing platform:
  - 450MHz ARM9 core (Freescale i.MX28)
  - 64Mb RAM
  - 128Mb Flash
  - Real Time Clock
  - Linux operating system
  - SO-DIMM form factor

- A connectivity platform:
  - *Bluetooth* 4.0 dual-mode radio
  - 2.4GHz 802.11 b/g/n radio
  - Wi-Fi Access Point mode
  - 10/100 Ethernet
  - USB 2.0 High Speed

- With many extension options:
  - Up to 800 x 480, 24bit display
  - Resistive touch screen
  - MMC/SDIO
  - Multiple SPI, UART and I²C
  - I²S
  - PWM, GPIO and AIO

- Linux operating system:
  - Based on the Yocto Project™
  - Thousands of open source software packets available

Description

The Bluegiga APx4 is a small form factor, low power system-on-module that includes the latest wireless connectivity standards: 802.11 b/g/n and *Bluetooth* 4.0. APx4 is based on Freescale's i.MX28 processor family and runs an embedded Linux operating system based on the Yocto Project™. In addition to integrating the 454MHz ARM9 processor, the wireless connectivity technologies, Linux operating system, the APx4 also includes with several built in applications, such as the 802.11 and *Bluetooth* 4.0 stacks, Continua v.1.5 compliant IEEE manager and many more. This combination provides an ideal platform for designing multi-radio wireless gateways that enable fast time-to-market and minimum R&D risks.

The Bluegiga APx4 software can be easily extended or tailored customizing the Linux operating system with applications. The motherboards for APx4 can be easily extended to include almost anything from 3G modems to Ethernet and audio interfaces and touch screen displays. The Bluegiga APx4 is an ideal product for applications requiring wireless or wired connectivity technologies and the processing power of the ARM9 processor, such as health and fitness gateways, building and home automation gateways, M2M, point-of-sale and industrial connectivity.

Applications

For professional applications requiring high extendibility platform with fully qualified end-to-end connectivity and co-existence with Wi-Fi, *Bluetooth* Smart and *Bluetooth* Classic. Applications include such as health gateways, M2M connectivity, fitness gateways, home and building automation, point-of-sale gateways, people and asset tracking and more.

Choosing Bluegiga will save your resources, time and money.

 + **+**

1. State-of-the-art and reliable hardware.

2. Customizable software for easy and fast implementation.

3. Agile tech support and design review services.

Benefits

- Fully integrated wireless system on a module:
  - Low development costs
  - Fast time-to-market: shortens development time by twelve months
  - Reduced R&D risks
- State-of-the-art connectivity:
  - *Bluetooth* 4.0
  - 802.11 b/g/n with access point mode
  - Seamless *Bluetooth* and Wi-Fi co-existence
- Linux-based:
  - Fast software development
  - Enables reusing existing applications
  - Open source, free development tools
  - Community support
- Built-in Bluegiga applications:
  - Faster development
  - Proven, maintained and supported applications
- Good extendability:
  - Supports a range of applications
  - Supports a range of technologies
- A qualified solution:
  - Proven interoperability
  - Minimal qualification costs
  - Faster time-to-market

- Bluegiga Software Development Kit:
  - A complete tool chain for developing drivers and applications into APx4
  - Graphical tool for software image building and packaging
  - Flexible APIs for *Bluetooth* 4.0, Wi-Fi and Continua
- Built-in Bluegiga applications:
  - eHealth software for Continua compliant health applications
  - BlueConnector for generic *Bluetooth* connectivity
  - HTTP server with graphical configuration interface
- Qualifications:
  - *Bluetooth*
  - CE
  - FCC and IC

Technical data

Processor

Model	Freescale i.MX283
Clock speed	454Mhz
Core	ARM926EJ-S

Memory

Flash	128MB
RAM	64MB

Power supply and management

Power supply	5V
Power modes	Automatic
Peak consumption	1900mW

Supported Peripheral interfaces

UART	Up to 4 ports, 2 with flow control. Baud rates up to 3.25 Mbps.
USB High Speed Host	Up to 2
SPI	Yes
Ethernet	Yes, 10/100 Base TX PHY integrated
SD/SDIO/MMC	Yes
I²C	Up to 2
Debug interface	JTA, Debug UART
GPIO	Up to 60
PWM	Up to 7
Audio interface	I²S
Display	Yes
Resistive touch screen	Yes

Bluetooth

Version	*Bluetooth* 4.0
TX power	+9dBm
RX sensitivity	-89dBm
BR/EDR connections	7
LE connections	5
Antenna	Integrated

IEEE 802.11

802.11 versions	802.11 b/g/n
TX power	+17 dBm
RX sensitivity	-92dBm
Access Point mode	Up to 8 clients
Antenna	Integrated or U.FL

Software

Operating system	Linux (Yocto based)
Driver support	Complete (all listed peripherals)
Number of software packages	Over 1800
Bluetooth stack	*Bluetooth* 4.0 stack - Serial Port Profile - Health Device Profile - Generic Attribute Profile (GATT)
Additional applications	- BlueConnector (*Bluetooth* to IP routing) - Continua compliant IEEE 11073 eHealth stack - Extendable web configuration interface

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