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NXP evaluation kit JN516x-EK001

Quick, easy development of ZigBee, JenNet-IP, and IEEE 802.15.4 applications

Providing all the hardware and software components for full application design, this evaluation kit simplifies the development of systems that run ZigBee, JenNet-IP, or IEEE 802.15.4 network stacks.

Key features

- Four base boards
- Three lighting expansion boards
- Two expansion boards with sensors and buttons
- One LCD expansion board
- 16-button capacitive touch remote control
- Two USB dongles
- Cisco router with Ethernet support
- Complete software development kit (SDK)
  - GNU-based toolchain with C compiler
  - Flash programmer
  - Eclipse IDE
  - Microcontroller and peripheral libraries

Key benefits

- Quick, easy product development
- Free, unrestricted Eclipse-based SDK
- Hardware platform supports all sensors, displays, LEDs, switches
- One evaluation kit for all applications
- Supports JN5161, JN5164 and JN5168 wireless microcontrollers

Applications

- "Internet of Things"
- JenNet-IP
- ZigBee LightLink (LL)
- ZigBee Smart Energy (SE)
- RF4CE
- Home and building automation
- Smart lighting
- Remote controls
- Smart energy
- Wireless sensor networks

The NXP JN516x-EK001 evaluation kit is specifically designed for use with the NXP JN516x series, a range of ultra-low-power, high-performance wireless microcontrollers suitable for JenNet-IP, RF4CE remote control, and ZigBee applications.

This comprehensive kit, which includes a series of wireless carrier boards, plug-in expansion boards, USB dongles, a remote control, a specially programmed Cisco router, and a complete software design kit, provides everything necessary for system development.

The supplied router, which runs NXP OpenWRT firmware, makes it easy to develop solutions that include sensor-equipped objects as part of the "Internet of Things."

Using the various demos included in the kit, designers can quickly produce demonstrators or proof-of-concept products. The same software can then be used for end products, using JN516x ICs or modules.

The Smart Lighting demo, which makes use of nearly all the kit's components, is a JenNet-IP demo that uses the router to support USB connection to a WLAN or the Internet. The evaluation kit can easily be Flash programmed for use with ZigBee LL, ZigBee SE, or RF4CE demos.

The ZigBee SE demo lets the user experiment with an energy service portal (via the USB dongle), an in-premise display (using the display expansion board), standalone meters for electricity and gas, or a range extender.

The ZigBee LL demo gives the designer remote control of color LEDs on the lighting expansion board.

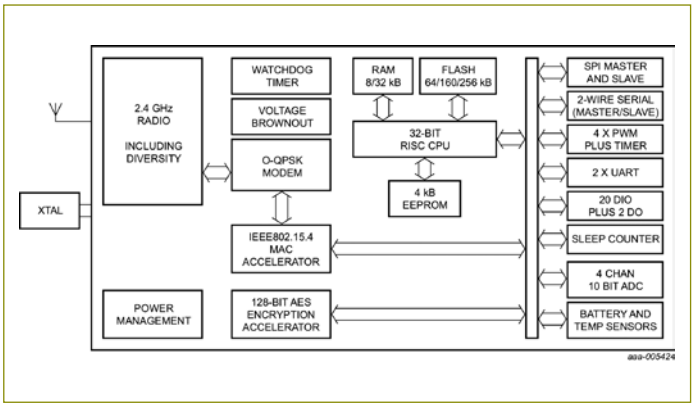
The RF4CE demo lets the user select, play, forward, stop, pause, or change the volume on Windows media player.

The kit also includes a network sniffer license from Ubilogix, free for use for 45 days, that works with the second USB dongle as the primary device.

The JN516x series

JN516x series devices feature an enhanced 32-bit RISC processor with embedded Flash and EEPROM memory, offering high coding efficiency through variable width instructions, a multi-stage instruction pipeline, and low-power operation with programmable clock speeds. They also include a 2.4 GHz IEEE802.15.4-compliant transceiver and a comprehensive mix of analog and digital peripherals.

JN516x block diagram



JN516x-EK001 contents

- Linksys wireless-N broadband router (WRT160NL)
- 12 V DC power supply unit (universal type) for Linksys router
- 2 antennas with SMA connectors for Linksys router
- RJ45 Ethernet cable for Linksys router
- USB Type-A extension cable for Linksys router
- 2 JN5168 USB Dongles with integrated antenna
- 4 carrier boards, each pre-fitted with expansion board and JN516x-based module (see below)
- LCD expansion board
- 2 generic expansion boards (one pre-fitted to carrier board)
- 3 lighting/sensor expansion boards (all pre-fitted to carrier boards)
- 2 JN5168 standard-power modules with integrated antenna (both pre-fitted to carrier boards)
- 2 JN5168 standard-power modules with uFL connector (both pre-fitted to carrier boards)
- 4 JN5168 high-power modules with uFL connector (2 for North America, 2 for rest of world)
- Remote control unit, based on the JN5168 wireless microcontroller
- Programming dongle for remote control unit
- 4 antennas with flying-leads for modules with uFL connectors
- 5-way 2.1 mm daisy-chain power extender-cable
- 3 USB-A-to-Mini-B cables
- 2 packs of AAA batteries

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