XLP 16-bit Energy Harvesting Development Kit

Rapid Energy Harvester Prototyping

The XLP 16-bit Energy Harvesting Development Kit is a true development platform for realizing energy harvesting applications. It is based on Microchip's PIC® MCUs with nanoWatt XLP Technology and Cymbet's EVAL-08 Solar Energy Harvester.

Benefits of XLP Technology

■ Sleep Currents below 20 nA
■ Brown-out Reset down to 50 nA
■ Watch-dog Timer down to 220 nA
■ Real-Time Clock/Calendar down to 470 nA
■ Run Currents down to 50 µA/MHz

Powered only by light, the XLP kit enables rapid prototyping of low power applications such as RF sensors, temperature/ environmental sensors, utility meters, remote controls and security sensors to name just a few.
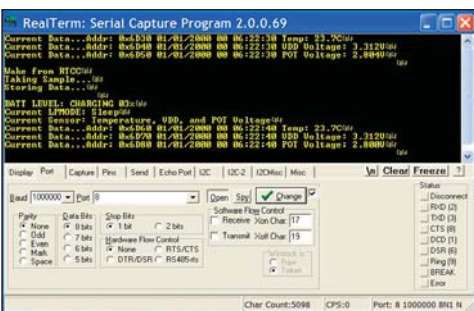
Rapid Energy Harvester Prototyping

The development board portion of the kit features on-board temperature sensors, data EEPROM, potentiometer, watch crystal, LEDs and expansion connector for PICtail™ modules. Supported PICtail module options include: RF, SD/MMC Cards and more.
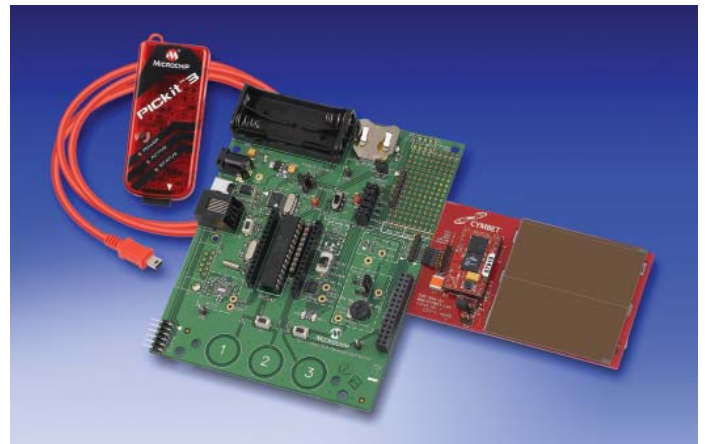
Solar Energy Harvester

The power for the kit is supplied by Cymbet's EVAL-08 Solar Energy Harvester. The harvester features a high-efficiency solar panel suitable for use with indoor or outdoor light. The harvester captures, manages and stores energy in two Cymbet EnerChip™ thin-film rechargeable energy storage devices. The EnerChips supply energy to the XLP development board when light is not available.

Energy Conscious Software

Power condition and capacity are monitored by the PIC24F using Energy Conscious software algorithms developed by Microchip and Cymbet. The monitored information can be reported to the PC user interface via a USB connection. This allows for experimentation and balancing of energy collection vs. energy use, maximizing the benefits of the harvested energy.

Programming & Debugging

For software development and programming, the kit includes the PICkit™ 3 programmer/debugger for use with the Microchip's free MPLAB® Integrated Development Environment.

Kit Features

■ Solar Energy Harvester with EnerChip storage devices providing backup power
■ Individual disable jumpers for board components such as temperature sensors, LEDs, EEPROM and potentiometer thereby removing unwanted standby current.
■ Expansion PICtail connector with MCU controlled power supply
■ Prototyping area for adding additional sensors and circuits
■ PICkit 3 Programmer/Debugger and board level connector for application software development
■ PIC24F16KA102 eXtreme Low Power MCU with 20 nA sleep currents (Can also be used with PIC24FJ64GA102)
■ UART to USB bridge for use in prototyping and PC communication
■ Energy Conscious software reports charge status as a percentage and charge state (Charging or Discharging EnerChips)

What's Included

■ Cymbet Eval-08 solar energy harvesting board and cable
■ XLP 16-bit development board pre-loaded with Energy Conscious program
■ PIC24F16KA102 microcontroller
■ PICkit 3 programmer/debugger
■ USB cables
■ XLP 16-bit Energy Harvesting Development Kit user guide
■ PC-based user interface program
■ Quick Start Guide

MICROCHIP

Ordering Information

- Please visit www.microchip.com/EnergyHarvesting for ordering information
- Microchip part number: DV164133

Important Links

Visit the XLP design center at www.microchip.com/XLP for:

- More XLP development tools
- Low power app notes, case studies, tips & tricks and webinars
- Complete list of XLP MCUs and datasheets
- Videos showing XLP performance

Support

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