



EnerChip™ CBC915 Energy Processor

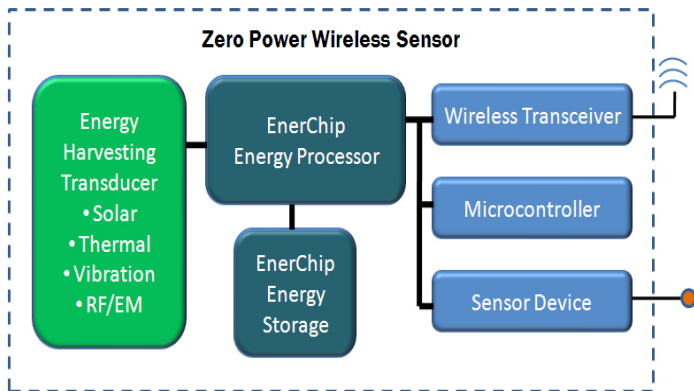
World's First Universal Energy Harvesting Power Management Unit

Solving the Challenges of Energy Harvesting:

There are many exciting new applications that could use Energy Harvesting for powering devices. Unfortunately, utilizing the “free” ambient energy surrounding a system is a very complex design challenge. There are many questions to answer:

- How to interface to energy harvesting transducers?
- How to convert low input power with high efficiency?
- How to manage energy storage?
- How to control power to the rest of the system?
- How to best manage the system power states?
- How to make the entire system “Energy Aware”?

The EnerChip™ Energy Processor solves these challenges by implementing an intelligent integrated approach to Energy Harvesting Power Management. The EnerChip EP is the key enabler for Zero Power Devices as shown below.

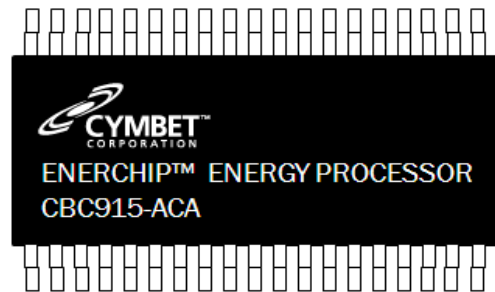


Benefit From a Powerful Feature Set :

Many new energy harvesting power management features have been integrated into the EnerChip EP:

- Use any type of Energy Harvesting transducer
- Utilize automated Maximum Peak Power Tracking
- Power management communications interface
- Input power measurement and status reporting
- Implement system-level Energy Aware functions
- Advanced energy storage management
- Use Digital Power controls

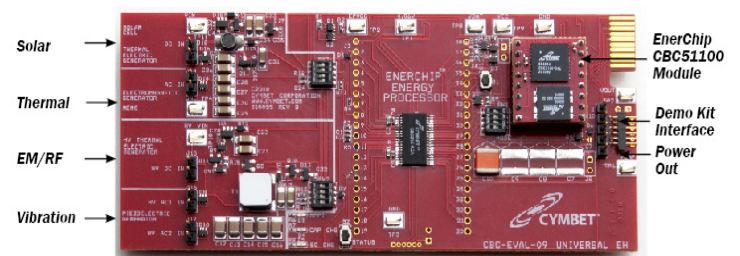
Everything is Inside the EnerChip EP:



The EnerChip EP CBC915 uses an advanced patent-pending Maximum Peak Power Tracking algorithm that constantly matches the EH transducer output impedance. MPPT is the most efficient method of converting energy from an EH transducer, and is superior to charge accumulation techniques that do not match the impedance of the transducer to the power conversion stage. The EnerChip EP operates in multiple modes and can communicate with microcontrollers. The EP manages all aspects of energy storage devices/peripherals and uses intelligent power management during the start-up initialization sequence. The EP operates at 10X less power than other EH power management units.

EVAL-09 EVAL Kit Accelerates EH Product Development

The EVAL-09 EnerChip Energy Processor Universal Energy Harvesting Evaluation Kit allows designers to explore the capabilities of the Energy Processor. Four different EH transducer interfaces provide the ability to experiment with various technologies. The EnerChip CBC3150 and CBC050 on board provide 100uAh of solid state storage. The EVAL-09 supports a connection to the Texas Instrument eZ-430-RF2500 wireless end device to create a Zero Power EH Wireless Sensor. A multi-transducer PC-based GUI is included in the EVAL-09 Kit.



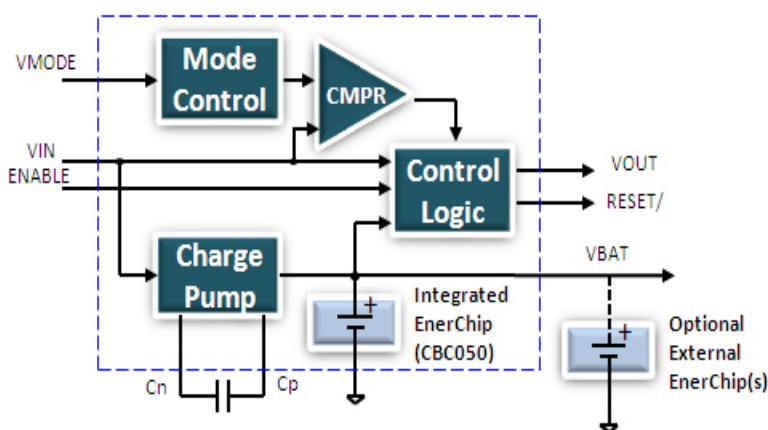
EnerChips: Compare to SuperCaps and Coin Cells

Feature	EnerChip CC	SuperCap	Coin Cell
High-cycle life (>5000)	✓	✓	X
No external charge circuit	✓	✓	X
No sockets/holders	✓	✓	X
SMT Assembly	✓	-	-
Low self discharge	✓	X	✓
Stable output voltage	✓	X	✓
Smaller area	✓	X	X
No hazardous chemicals	✓	X	X
Internal Supply Supervisor	✓	X	X
Power Fail Indicator	✓	X	X
Integrated DC-DC Converter	✓	X	X

EnerChip Applications

- **Standby supply** for non-volatile SRAM, Real-time clocks, controllers, supply supervisors, and other system-critical components.
- **Wireless sensors and RFID tags** and other powered, low duty cycle applications.
- **Localized power source** to keep microcontrollers and other devices alert in standby mode.
- **Power bridging** to provide back-up power to system during exchange of primary batteries.
- **Medical devices** can utilize EnerChip permanent power features for monitoring and wearables.
- **SmartCard Power** applications can leverage the small size of the EnerChip.
- **Energy Harvesting** is enabled by the thousands of charge cycles available on the EnerChip.

EnerChip™ CC CBC3150 Block Diagram



Cymbet Distribution Partners



Cymbet Product Solutions

Product	Description
	CBC012 – EnerChip 12uAh Rechargeable Solid State Battery - 6 pin DFN
	CBC050 – EnerChip 50uAh Rechargeable Solid State Battery - 16 pin QFN
	CBC3112 – EnerChip CC 12uAh Rechargeable Solid State Battery with Integrated Power Management -20 pin DFN
	CBC3150 – EnerChip CC 50uAh Rechargeable Solid State Battery with Integrated Power Management –20 pin DFN
	EnerChip Bare Die – 1uAh, 5uAh, 12uAh, 50uAh. Wire bond or bumped attach.
	CBC915 EnerChip Energy Processor with Maximum Peak Power Tracking
	CBC5300 - EnerChip EH Energy Harvesting Module
	CBC-EVAL-05 EnerChip Evaluation Kit with CBC3112 and CBC3150
	CBC-EVAL-08 EnerChip Solar Energy Harvesting Evaluation Kit
	CBC-EVAL-09 EnerChip Energy Processor Universal Energy Harvesting Kit
	CBC-EVAL-10 EnerChip CC Solar Energy Harvesting Evaluation Kit
	CBC-EVAL-11 EnerChip CC RF Induction Charging Evaluation Kit

Cymbet Strategic Investors



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Industry Awards and Recognition



Eco-Friendly Environmental Compliance

