Getting started with SPV1050

SPV1050: ultra-low-power energy harvester and battery charger

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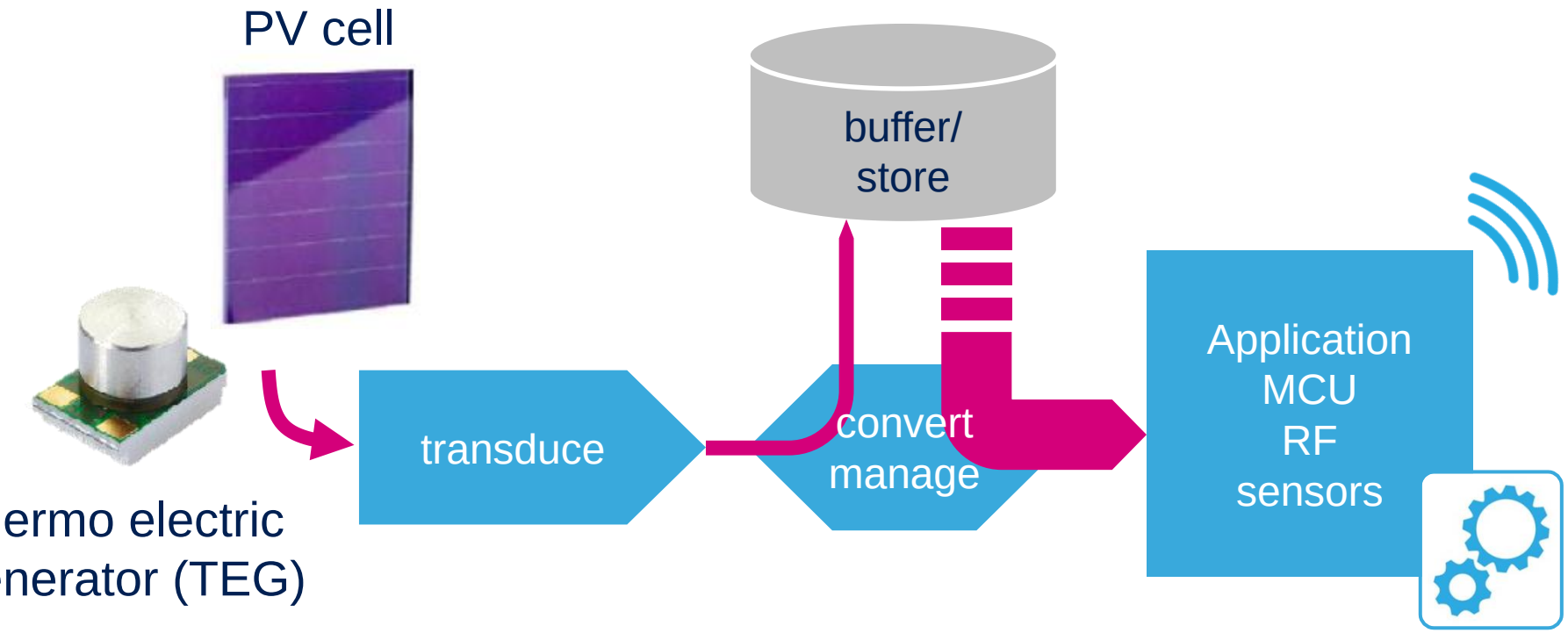
SPV1050

The SPV1050 takes a very small portion of the otherwise wasted ambient energy and stores it in a tank to make your wireless sensor node fully autonomous.



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Making your designs easier

To support SPV1050, a comprehensive set of design tools is available, including:

- evaluation boards
- autonomous wireless multi-sensor nodes (SPIDERs) equipped with a SW GUI for sensor data graphical visualization

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Making your designs easier

Order code	Description
STEVAL-ISV019V1	Evaluation board for SPV1050 ULP energy harvester and battery charger - Boost configuration
STEVAL-ISV020V1	Evaluation board for SPV1050 ULP energy harvester and battery charger - Buck-Boost configuration
STEVAL-ISV021V1	Energy harvesting demonstration kit based on SPV1050
STEVAL-IDS002V1	Autonomous wireless multi-sensor node powered by photovoltaic cells and based on SPV1050 (SPIDEr™)
STEVAL-IDS003V1	Autonomous wireless multi-sensor node powered by thermoelectric generator and based on SPV1050 (SPIDEr™)

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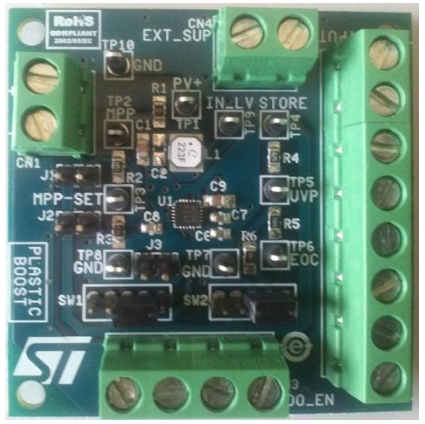
Boost & Buck-Boost configuration



Boost

STEVAL-ISV019V1

- Helping to find out the best system configuration to optimize energy conversion and harvesting
- Many testing points to enhance customer evaluation
- Battery End of Charge Voltage @ 4.27V, under voltage threshold @ 3.6V
- Few little HW changes allow to check the device performance in any working condition, with different PV panels or TEG and battery

Buck-Boost

STEVAL-ISV020V1

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Energy harvesting

Energy Harvesting

STEVAL-ISV021V1

- Indoor PV module soldered on the back
- 3.6V Lithium coin cell 120mAh battery
- Ambient light sensor for irradiance measurement
- Interface connector with a sensor board
- Interface to the power monitoring demo board and SW GUI to graph

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SPV1050 based autonomous wireless multi-sensor node

SPIDEr

Self Powered Intelligent Distributed Environment MonitoR

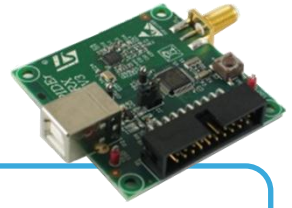
=

PV or TEG module

+

Power monitoring board

+



Receiver board

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PV/TEG SPIDEr

PV module based SPIDEr

STEVAL-IDS002V1

TEG module based SPIDEr

STEVAL-IDS003V1

- Photovoltaic module or TEG on board
- SPV1050 ULP energy harvester and battery charger
- On board Lithium coin-cell battery
- Integrated transmitter board with STM32 microcontroller and Spirit1 RF Sub-Giga transmitter
- Power monitoring and Receiver boards powered by USB

Power monitoring

Receiver board

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SPIDEr integrated sensors

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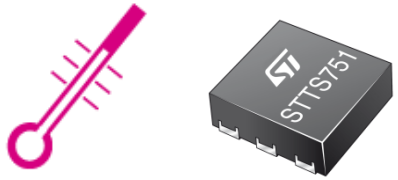
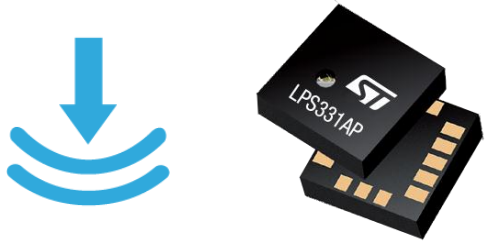
STTS751

Temperature sensor



LPS331AP

Air pressure sensor



LIS3DH

3-axis accelerometer MEMS sensor

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SPIDEr GUI

- to configure the sensor node
- to show conversion efficiency and all the fundamental electrical parameters measured through the power monitoring demo board

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Ordering your SPV1050

- Package and packing

  - Available in a surface-mounting VFQFPN 3 x 3 x 1 mm, 20 leads, in tape and reel and in bumped flip-chip die form

- Order codes

Order code	Package	Packing
SPV1050TTR	VFQFPN 3 x 3 x 1 mm, 20 leads	Tape and reel
SPV1050-WST	WLCSP, 20 bumps	Tested and unsawn wafer

- Support
  - Samples available, full production in Q1 2014
  - Further information and full design support available at:
  - **www.st.com/SPV1050**

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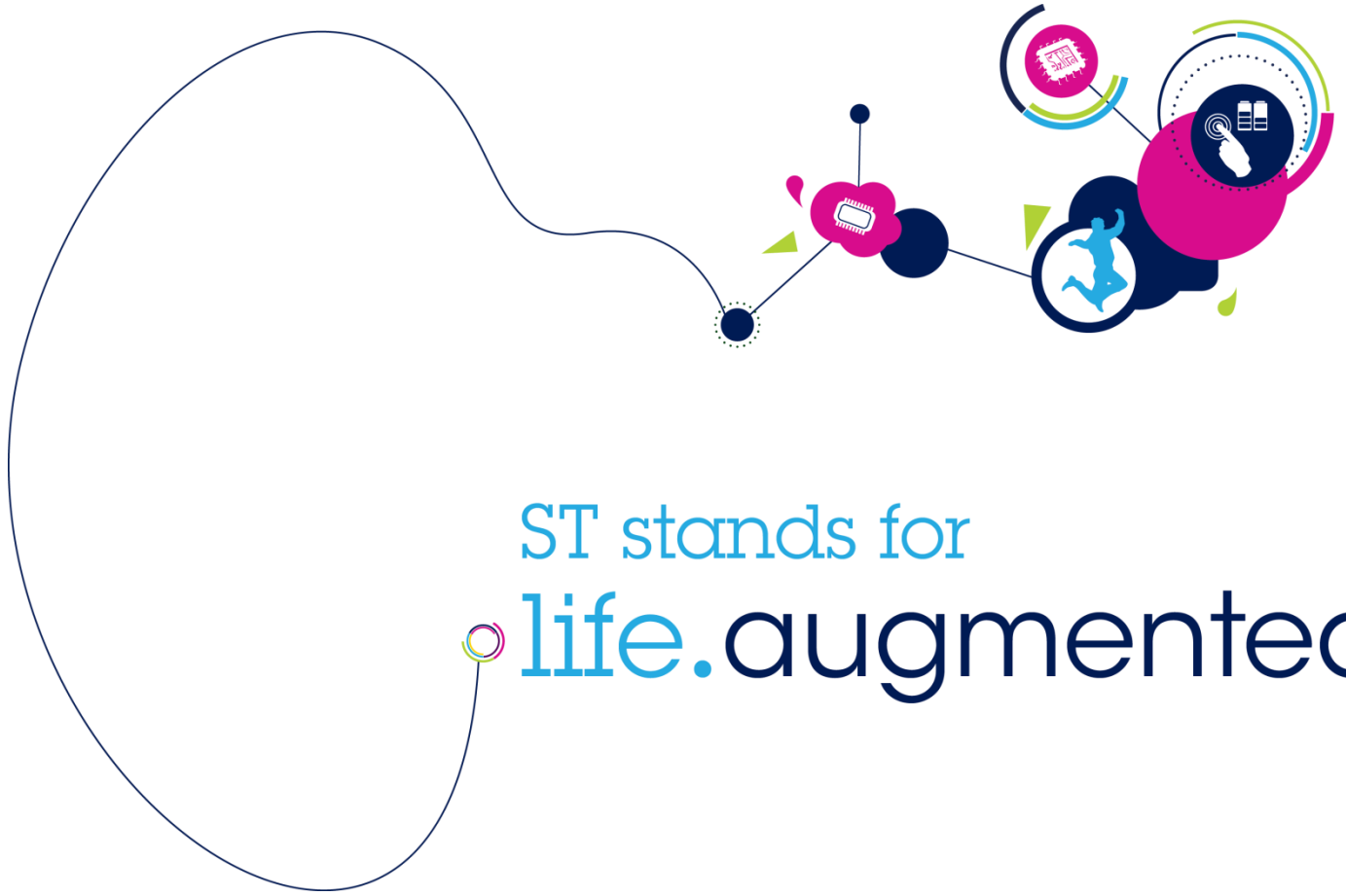
Thank you!



ST stands for

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