PLC COMMUNICATION FOR THE IOT WORLD

Quick time-to-market with Renesas Synergy™ Platform and Cool Phoenix 3

RENESAS

RENESAS Synergy™

Accelerate. Innovate. Differentiate.

2016.10

BIG IDEAS
FOR EVERY SPACE

POWERLINE COMMUNICATION FOR THE IoT WORLD

QUICK TIME TO MARKET WITH RENESAS SYNERGY™ PLATFORM AND COOL PHOENIX 3
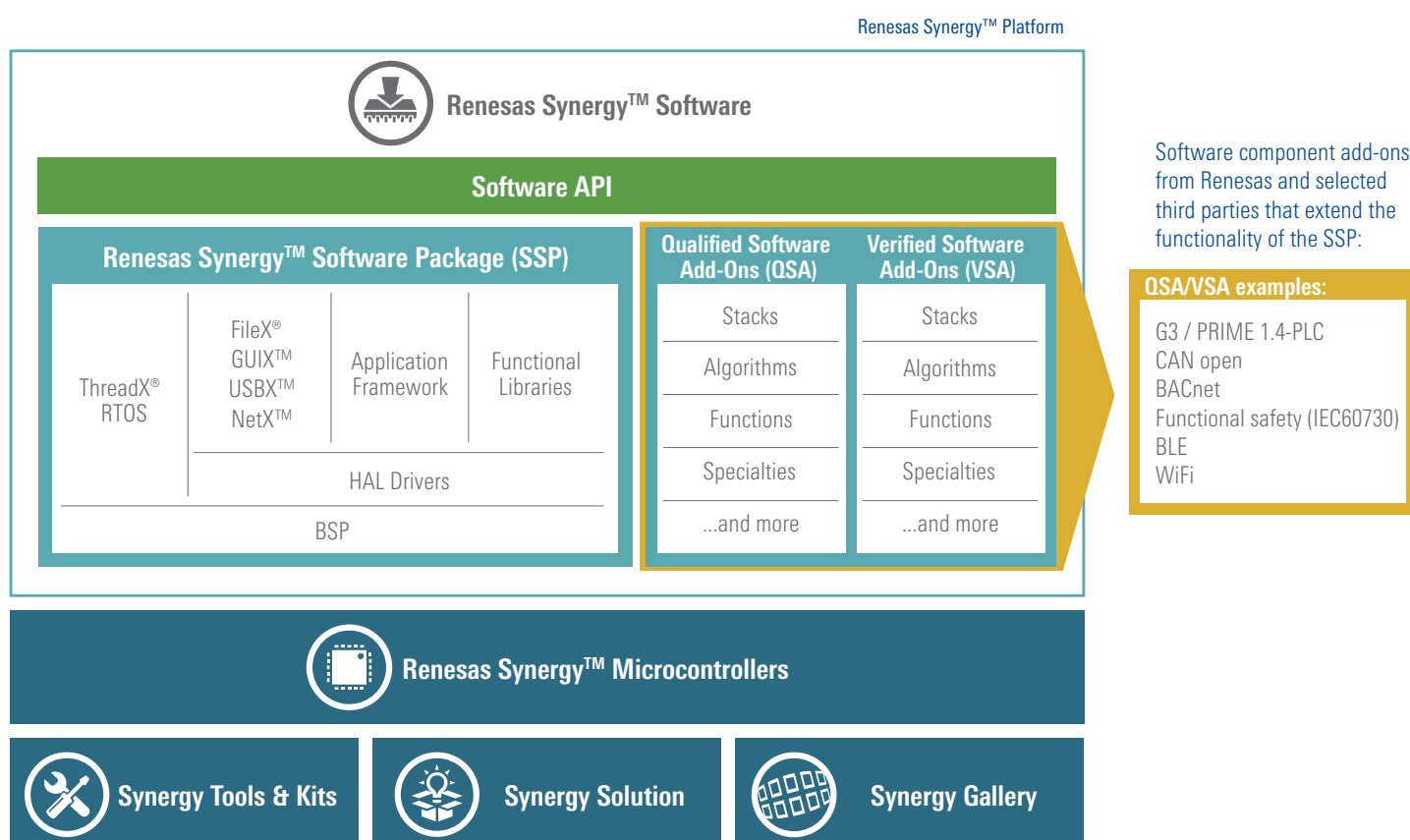
Smart grid-, street lighting- as well as building automation applications are getting increasingly complex. The IoT is set to revolutionize the embedded market!

To help companies develop products and services that will drive the IoT, Renesas has created Synergy™ – a complete and qualified platform concept that accelerates embedded development, inspiring innovation and enabling differentiation.

With this new platform, development can start at the API level. Any required firmware or drivers are part of the Synergy™ Software Package (SSP) with no requirement for any license fee or royalty payments.

A wide selection of ready-to-use verified and qualified third-party as well as Renesas software components is downloadable from the Gallery. This is adding specialized capability such as specific network communication protocols, special control algorithms or extended security features.

A dedicated boot algorithm has been implemented as software add-on, supporting the immediate setup of a Synergy™ host microcontroller with Renesas' single chip PLC modem Cool Phoenix 3 (R9A06G037).

Renesas Synergy™ Platform

Renesas Synergy™ Software

Software API

Renesas Synergy™ Software Package (SSP)

| ThreadX® RTOS | FileX® GUIX™ USBX™ NetX™ | Application Framework | Functional Libraries |

HAL Drivers

BSP

Qualified Software Add-Ons (QSA)

Stacks
Algorithms
Functions
Specialties
...and more

Verified Software Add-Ons (VSA)

Stacks
Algorithms
Functions
Specialties
...and more

Software component add-ons from Renesas and selected third parties that extend the functionality of the SSP:

QSA/VSA examples:

G3 / PRIME 1.4-PLC
CAN open
BACnet
Functional safety (IEC60730)
BLE
WiFi

Renesas Synergy™ Microcontrollers

Synergy Tools & Kits

Synergy Solution

Synergy Gallery

Renesas' third generation flexible single chip powerline solution in combination with the Synergy™ platform allows customers to:

- Immediately start developing end-product application code at the API level
- Eliminate the learning curve for software and MCU operation below the API
- Use commercial-grade software (pre-integrated and tested) with a common API
  - G3-PLC powerline communication stack
  - PRIME 1.4 powerline communication stack (under development)
  - IPv4 or IPv6 higher layer protocol stacks
  - DLMS / COSEM protocol stacks (under development)
  - Extensive hardware and software security features to assure confidentiality, integrity and availability of data

- Select between a wide range of scalable and compatible MCUs
  - Ranging from ARM® Cortex® M0+ (32 MHz / 128 kB Flash) up to ARM®Cortex® M4 (240 MHz / 4 MB Flash)
- Make use of a modular system architecture with reusable building blocks reducing testing effort and development cost
- Use a software configurable, flexible PLC modem supporting worldwide frequency bands (CENELEC A, FCC, ARIB) and standards
- Design equipment with unique robustness in the powerline communication even in harsh environments
- Significantly shorten time to market with product ready software supplied
- Reduce total cost of ownership
- Reduced bill of material

System Architecture
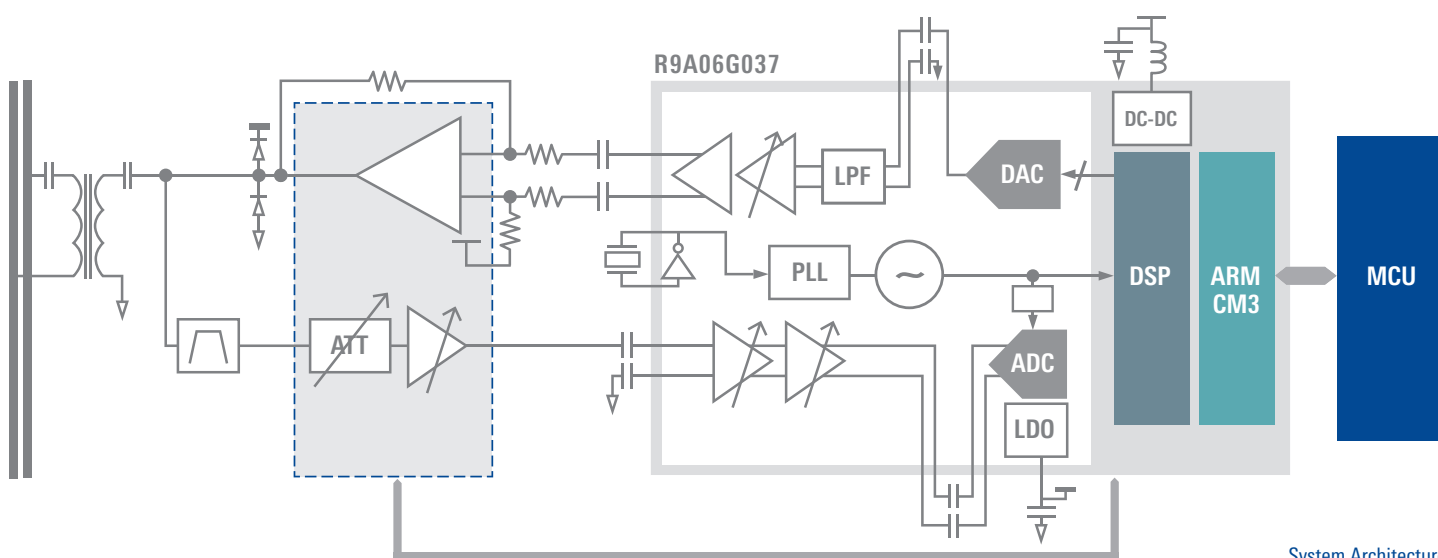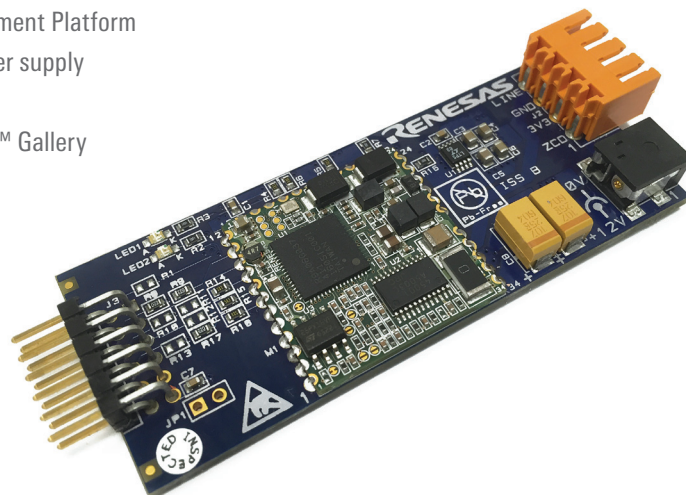
DEVELOPMENT TOOLS
PMOD PLC BOARD FOR RAPID DEVELOPMENT WITH SYNERGY™

- "Y-PMOD-OFDM-PLC-X3" PLC modem add on for the Synergy™ Development Platform
- Contains one PMOD powerline board with external line coupler and power supply
- Supports software development for a Synergy™ based PLC application
- G3-PLC protocol library (integrated VSA library) supplied on the Synergy™ Gallery
- Full Synergy™ development environment on the Synergy™ Gallery
- Sample code for coordinator and peer devices
- Comprehensive documentation

https://synergygallery.renesas.com
https://www.renesas.com/en-eu/solutions/home/metering.html
https://www.renesas.com/en-eu/products/synergy/features.html

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Before purchasing or using any Renesas Electronics products listed herein, please refer to the latest product manual and/or data sheet in advance.

Renesas Electronics Europe

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