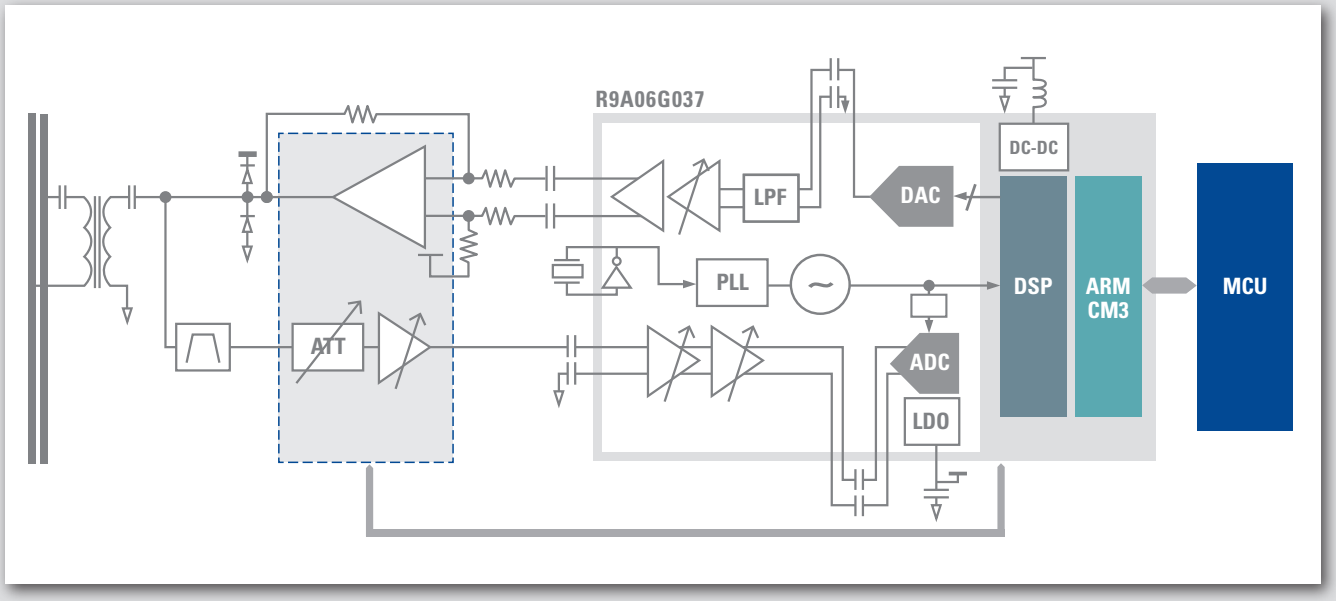
Cool Phoenix 3

Renesas' Third Generation Flexible PLC Modem Solution

With the constantly evolving markets, equipment manufacturers face many challenges in developing new products supporting ever changing needs. Re-usable building blocks and efficient synergy effects in the development and testing phase are becoming of the essence. Renesas' third generation of flexible single-chip powerline solutions allows equipment manufacturers to significantly shorten time-to-market, minimise risk and maximise system cost efficiency. With its increased memory headroom and boosted protocol processing performance, additional functions like dual-route communication can be implemented, helping customers to differentiate their products.

System Configuration



- Software configurable, flexible PLC modem supporting worldwide frequency bands (CENELEC A, FCC, ARIB)
  - » Supporting multiple regions with a single design
- Pure software based implementation for standard protocols
  - » Supporting multiple standards with a single design (G3, PRIME)
- Modular system architecture
  - » Reusable building blocks reducing testing effort and development cost
- Integrated AFE with adaptive gain amplifier and AGC function
  - » Assuring optimum reception performance and robustness
- Unique robustness achieved by dedicated hardware features and software algorithms
  - » Assuring communication even in harsh network environments
- High memory headroom.
  - » Even dual route communication can be supported.
- Competitive Bill of Material
  - » Including certified software stacks with no additional license fees.

Features	Benefits
High performance DSP and MCU core	Enables easy design of a single meter platform ready to support multiple standards and frequency bands
High memory headroom (768k Byte RAM)	Offers sufficient headroom for future standard evolution and dual route communication
Very low power operation	Helps reducing overall system power consumption
12-bit DAC	Reduced integral and differential non linearity -> Increased robustness
11-bit ADC (ENOB 11bits)	Increased noise tolerance -> Increased robustness
Tuneable internal anti-aliasing filter	Reduced BOM cost
Integrated Rx programmable gain amplifier (-18 dB to +60 dB in 2 dB steps)	Wide gain range and wide dynamic range -> Increased robustness
Integrated DC/DC and LDO	Low power consumption and low noise interference; Reduced BOM cost

Connect it! – Powerline Communication Solution Kit

- Simple to use tool for technology evaluation and development
- Configurable to support multiple frequency bands by simple exchange of the filter board
- Pre-programmed for quick PHY performance evaluation
- Simple PC GUI for flexible device configuration and powerline communication analysis
- Assembled RX631 host MCU allowing customisation of evaluation software to own powerline test environment
- E1 debugging interface for development support
- Multiple USB connectors as interface between modem and host microcontroller

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