

# STarGRID power-line networking SoC platform



## Complete and flexible solutions for smart metering and smart grid applications

STarGRID™ is a unique flexible, scalable and future-proof narrowband power-line communication system-on-chip platform to effectively address demanding smart metering and smart grid application requirements and related standards. By optimizing power consumption and system cost, the STarGRID platform is ideal for many green applications, including smart-energy control in photovoltaic modules, home area networking and street lighting management.

### KEY FEATURES

- Fully-integrated narrowband power-line networking system-on-chip
- High-performance DSP with embedded programmable turnkey firmware for multiple-modulation management
- Convolutional correction coding
- Programmable bit rates up to 128 Kbit/s
- Channel quality estimation
- Host UART/SPI controller
- I<sup>2</sup>C/SPI external data memory interface
- High-speed memory controller for optional code execution from external memory
- Watchdog timer
- On-chip 128-bit AES encryption accelerator
- Fully integrated analog front end
- High-sensitivity receiver
- High-linearity transmitter
- Embedded single-ended power amplifier delivering up to 1 A<sub>RMS</sub>, 14 V<sub>PP</sub> output

- Embedded temperature sensor and current control features
- Suitable for applications compliant with CENELEC EN50065 and FCC specifications
- -40 to +105°C temperature range
- QFN48 exposed pad (7 x 7 mm)

### KEY APPLICATIONS

- Smart metering and smart grids
- Street lighting control
- Smart energy management
- Home area networking
- Building automation

### STANDARDS SUPPORTED

- PRIME
- Meters & More
- IEC 61334-5-1

## A COMPLETE PLATFORM

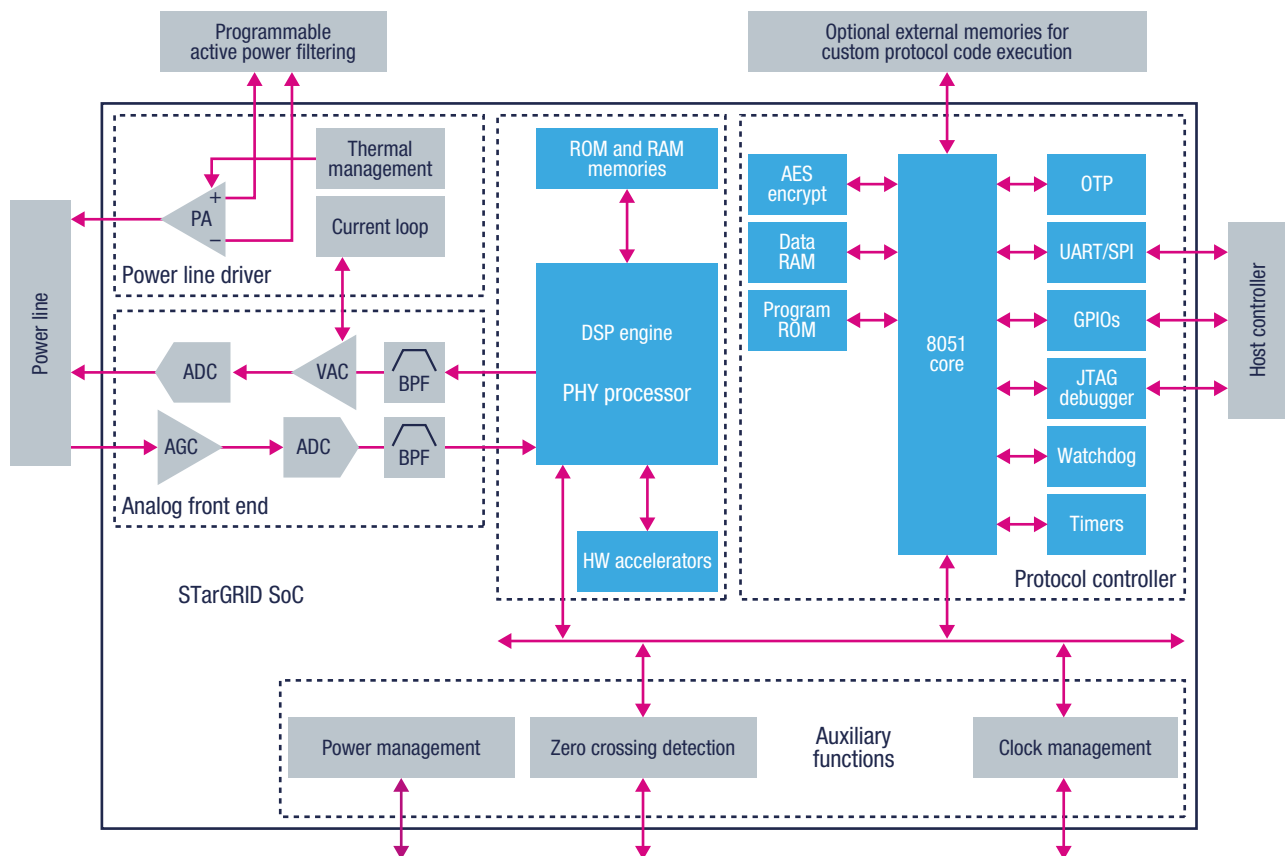
The StarGRID platform has been developed to meet specific standards and market requirements.

The ST7570 power line networking system-on-chip features S-FSK modulation up to 2.4 Kbit/s and integrates a full turnkey solution based on the IEC 61334-5-1 standard with advanced communication features to address very cost-effective, automatic meter-reading services.

The ST75MM is a flexible power line communication system-on-chip combining a high-performing PHY processor and a protocol controller core implementing the turnkey Meters & More protocol for future-proof, compact and cost-effective advanced metering infrastructure solutions. The high-performing ST7590 uses very robust OFDM modulation up to 128 Kbit/s, fully compliant with PRIME protocol standard specifications.

The ST7580 performs innovative dual-channel n-PSK modulation with high-performance convolutional coding and Viterbi decoding up to 28.8 Kbit/s, and it is suitable for different protocol implementations, to satisfy communication needs for customized smart metering and many green applications, but also smart-energy control in photovoltaic modules, factory and home automation, home area networking and street lighting management.

## STARGRID SOC BLOCK DIAGRAM



## STARGRID PRODUCT FAMILY

Part number	Modulations	Max. bit rate (Kbit/s)	Embedded protocol stack	Package
ST7570	S-FSK	2.4	IEC 61334-5-1 PHY, MAC	QFN48 (7 x 7 mm)
ST7580	FSK, BPSK, QPSK, 8PSK	28.8	ST DLL, custom stack	QFN48 (7 x 7 mm)
ST7590	OFDM	128	PRIME PHY, MAC, CS, IEC 61334-4-32 LLC	TQFP100 (14 x 14 mm), QFN48 (7 x 7 mm)
ST75MM	BPSK	4.8	Meters and more	QFN48 (7 x 7 mm)



© STMicroelectronics - August 2017 - Printed in United Kingdom - All rights reserved  
The STMicroelectronics corporate logo is a registered trademark of the STMicroelectronics group of companies  
All other names are the property of their respective owners

