Software-defined broadband power line communication

Custom waveforms for challenging use-cases

Power line communication (PLC) is used to establish a communication channel in an environment that only has power wiring available and the cost of wireless or ethernet is prohibitive. Existing HomePlug broadband solutions target the home and do not suit the industrial market by limitations in performance. NXP proposes the use of a software-defined, DSP based solution using the LA9310 device for customizable PLC implementations that can be use-case optimized.

Power line communication

Communication of power supply lines is widely used in commercial and industrial applications. Commercial applications include domestic connectivity (HomePlug standards) and EV charging communications (GreenPHY standard).

Industrial applications often require customization of the waveform to support specific environmental conditions and use-case requirements, including large distance, chaining/relay and so on.

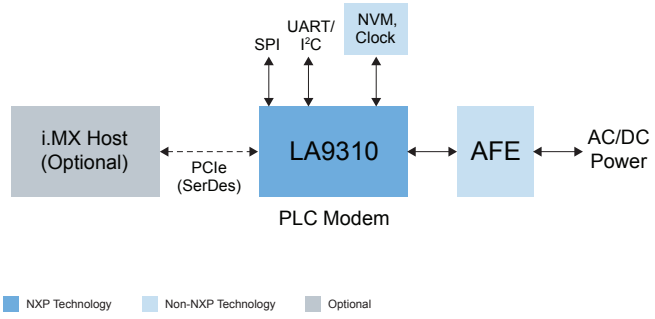
Software-defined PLC

The sheer amount of individual standards, use-cases and application requirements across distance and speed drives the need for a flexible solution instead of custom silicon for each. NXP promotes a software-defined solution based on the LA9310 DSP that can either operate stand-alone or in conjunction with a host processor, targeting the high-performance PLC market.

Specifications and benefits

- Targeting up to 80 MHz bandwidth
- Low-speed GPIO/I²C/SPI and high-speed SerDes (PCIe) IO
- Integrated DSP (80GFLOPS) and Arm®-M4
- Hardware forward error correction
- Aggressive DC power, ~1 W

System architecture



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