



VertexCom

VC631X

Product Brief

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General Description

VC631X is a narrowband Power Line Communication (PLC) Processor. It integrates a 32-bit ARM Cortex M4 MCU and 32-bit DSP, embedded Flash memory, 7 UART interfaces, 3 SPI interfaces, 2 I²C interfaces, one 10/100M Ethernet MAC, PLC MAC/PHY layer functions, Analog-Front-End and high current Line Driver. VC631X is a true single chip SoC that supports multiple modern narrowband PLC standards for Smart Grid and other IIoT applications. VC631X solution is optimized to provide the most robust AMI networking connectivity and state-of-the-art communication performance in the noisy electric grid environments.

Features

- Support multiple narrowband PLC standards:
 - VC631X: G3-PLC, IEEE P1901.2, ITU-T G.hnem
 - VC631X-P: PRIME v1.4 or v1.3.6
- Support Frequency bands: CENELEC, FCC, ARIB
- Integrated high linearity, high current and power efficient Line Driver to offer the lowest BOM cost for narrowband PLC applications.
- Support modulations: ROBUST mode, differential/coherent BPSK, QPSK, 8PSK and 16QAM
- Up to 7 UART interfaces
- Three SPI interfaces:
 - One SPI Master with 4 chip selects. It can be used to control wireless transceiver, metering or other SPI devices
 - One SPI Slave interface for alternative data interface with Host Processor
 - 3rd SPI interface which can be configured as Master or Slave
- Two I²C interfaces
- Four 16-bit PWM timers
- One Ethernet MAC with RMI interface (available in VC6318 package)
- AES-128/192/256 Crypto Accelerator
- Embedded SDRAM memory
 - VC6318: 8MB
 - VC6312TF: 2MB
- 128 KB SRAM

VC631X Product Brief

Narrowband Power Line Communication Processor



- Support In-System Programming of Flash memory via UART0 or SPI Slave interface
- Up to 53 programmable GPIOs for maximal flexibility
- 3.3V digital I/O
- Integrated DC/DC (3.3V to 1.2V) buck converter
- Chip power consumption (VC6310T for G3-PLC, FCC band application)
 - TX Normal Mode: typical 850 mW at 50Ω load
 - RX Listen Mode: typical 230 mW
- Package:
 - List in the ordering information
- Operating temperature: -40 ~ +85°C
- Storage temperature: -40 ~ +125°

Ordering Information

Part No.	Description	Frequency Band	Standards	Flash	SDRAM	PKG	Body Size
VC6310T	Narrowband PLC SoC w/Integrated Line Driver for node application	0 - 500 KHz • (FCC, CENELEC, ARIB)	G3-PLC, IEEE P1901.2, ITU-T G.hnem	2MB	N/A	QFN-60	7 x 7mm
VC6310	Narrowband PLC SoC w/Integrated Line Driver for concentrator application	0 - 500 KHz (FCC, CENELEC, ARIB)	G3-PLC, IEEE P1901.2, ITU-T G.hnem	2MB	N/A	QFN-88	10 x 10mm
VC6312TF	Narrowband PLC SoC w/Integrated Line Driver for node application required large memory	0 - 500 KHz (FCC, CENELEC, ARIB)	G3-PLC, IEEE P1901.2, ITU-T G.hnem	2MB	2MB	QFN-60	7 x 7mm
VC6318	Narrowband PLC SoC w/Integrated Line Driver for concentrator application required large memory	0 - 500 KHz (FCC, CENELEC, ARIB)	G3-PLC, IEEE P1901.2, ITU-T G.hnem	N/A	8MB	QFN-88	10 x 10mm

Functional Block Diagram

