



VertexCom

VC632X

Product Brief

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General Description

VC632X is a broadband Power Line Communication (PLC) Processor. It integrates a 32-bit ARM Cortex M4 MCU and 32-bit DSP, embedded Flash or SDRAM memory (by different packages), 7 UART interfaces, 3 SPI interfaces, 2 I²C interfaces, one SDIO interface, one 10/100M Ethernet MAC, PLC MAC/PHY layer functions, Analog-Front-End and high current Line Driver. VC632X is a true single chip SoC that supports multiple modern broadband PLC standards for Smart Grid and other IIoT applications. VC632X 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 Broadband PLC Standards:
 - China SGCC Q/GDW 11612
 - IEEE 1901.1
- Support Frequency bands:
 - SGCC HPLC 0 - 12 MHz
 - ✓ Band0: 1.95 ~ 12MHz
 - ✓ Band1: 2.4 ~ 5.6MHz
 - ✓ Band2: 0.78 ~ 2.93MHz
 - ✓ Band3: 1.76 ~ 2.93MHz
- Integrates high linearity, high current and power efficient Line Driver to offer the lowest BOM cost for Broadband PLC applications.
- Support modulations: BPSK, QPSK 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 RMIi interface
- One SDIO interface
- AES-128/192/256 and SM2/SM3/SM4 Crypto Accelerator

VC632X Product Brief

Broadband Power Line Communication Processor



- Embedded SDRAM memory
 - VC6328: 8MB
 - VC6322TF: 2MB
- 128 KB SRAM
- 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 (VC6320T)
 - TX Normal Mode: typical 900 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°C

Ordering Information

Part No.	Description	Frequency Band	Standards	Flash	SDRAM	PKG	Body Size
VC6328	Broadband PLC SoC (QFN-88) w/Integrated Line Driver for CCO application required large memory	SGCC band 0~12MHz • Band0: 1.95 ~ 12MHz • Band1: 2.4 ~ 5.6MHz • Band2: 0.78 ~ 2.93MHz • Band3: 1.76 ~ 2.93MHz	China SGCC Q/GDW 11612, IEEE 1901.1	N/A	8MB	QFN-88	10 x 10mm
VC6320	Broadband PLC SoC (QFN-88) w/Integrated Line Driver for CCO application	SGCC band 0~12MHz • Band0: 1.95 ~ 12MHz • Band1: 2.4 ~ 5.6MHz • Band2: 0.78 ~ 2.93MHz • Band3: 1.76 ~ 2.93MHz	China SGCC Q/GDW 11612, IEEE 1901.1	2MB	N/A	QFN-88	10 x 10mm
VC6322TF	Broadband PLC SoC (QFN-60) w/Integrated Line Driver for STA application required large memory	SGCC band 0~12MHz • Band0: 1.95 ~ 12MHz • Band1: 2.4 ~ 5.6MHz • Band2: 0.78 ~ 2.93MHz Band3: 1.76 ~ 2.93MHz	China SGCC Q/GDW 11612, IEEE 1901.1	2MB	2MB	QFN-60	7 x 7mm
VC6320T	Broadband PLC SoC (QFN-60) w/Integrated Line Driver for STA application	SGCC band 0~12MHz • Band0: 1.95 ~ 12MHz • Band1: 2.4 ~ 5.6MHz • Band2: 0.78 ~ 2.93MHz Band3: 1.76 ~ 2.93MHz	China SGCC Q/GDW 11612, IEEE 1901.1	2MB	N/A	QFN-60	7 x 7mm

Functional Block Diagram

