BlueChip PLC — MegaChips

MLKHN1500 — Single-Chip HD-PLC

■ **GENERAL DESCRIPTION**

MLKHN1500 is the world's first fully compliant IEEE 1901 HD-PLC Power line Communications (PLC) solution delivering bi-directional, IP based, high-speed communication over AC/DC power lines, COAX and twisted pair wiring, where wider bandwidths, robustness, long-range, support for larger number of nodes, and highly secure network is required.

The MLKHN1500 combines the Physical (PHY), Media-Access-Control (MAC), 128Mb/256Mb RAM, and a fully integrated Analog-Front-End (AFE) with high precision A/D, D/A data converters and programmable gain amplifiers (PGA) in a single compact package. The modem is based on an Orthogonal Frequency Division Multiplexing (OFDM), using advanced Forward-Error-Correction (FEC) techniques to allow the most robust data communication over poor channels, especially in environments with high implosive noise such as the harsh AC power lines. Security is provided by a 128-bit AES encryption engine meeting today's Internet-of-Things (IoT) requirements.

Evaluation boards, reference design, Software Development Kits (SDK) and Hardware Development Kits (HDK) are now available to help speed up your evaluation and development projects.
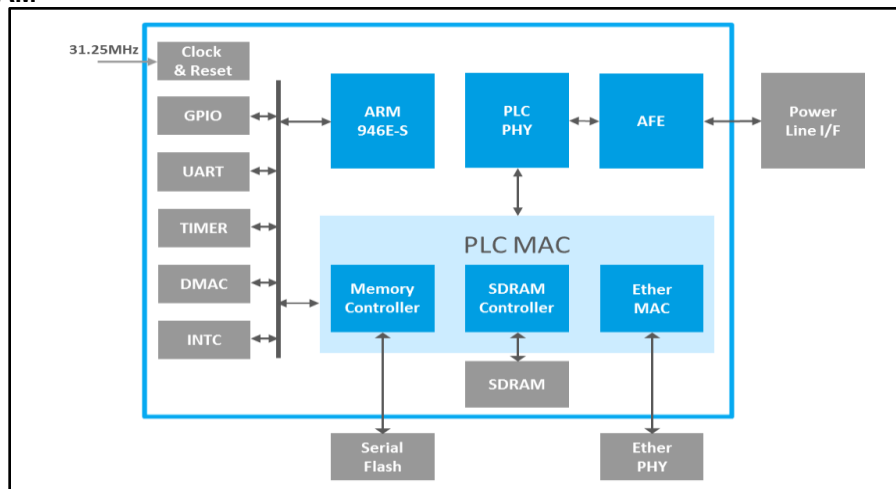
■ **FEATURES**

- Channel Access: CSMA/CA
- HD-PLC/Ethernet/RS485 bridge
  - Ethernet⇔PLC⇔Ethernet
  - RS485⇔PLC⇔RS485
- High noise immunity (0dB)
- Supports IPv4/IPv6
- Low power: 0.57W (typ)
- Meets EN50561-1 EMC requirements
- Free Topology
- Plug-and-Play
- Operating Temp: -40°C to +85°C

■ **APPLICATIONS**

- Smart Grid/AMI
- Smart Buildings/Homes
- Video Entry Systems
- Security/Surveillance
- Outdoor Lighting
- HVAC
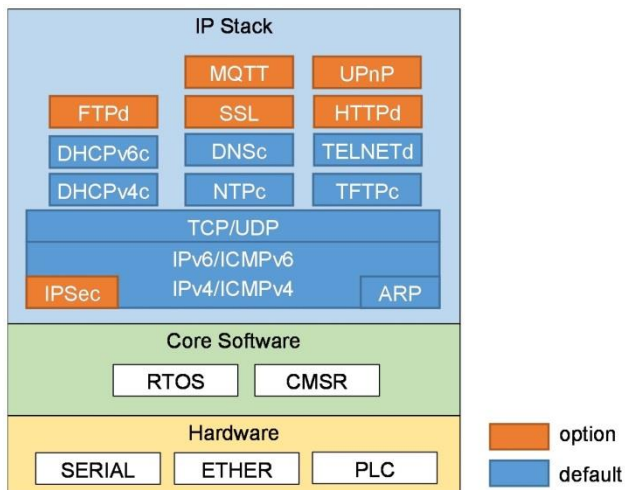- Industrial Automation
- Solar Power

■ **BLOCK DIAGRAM**

MLKHN1500　　　　Single-Chip HD-PLC

■ KEY SPECIFICATIONS

PLC Method	Frequency band	2-28MHz	Peripheral I/F		GPIO,UART, MII/RMII
	Modulation	Wavelet OFDM	Power Consumption	Full access	0.57W(Typ)
	PHY/MAC	IEEE1901 full compliant		Standby mode	0.12W(Typ)
	PHY Rate	240Mbps	Supply Voltage		1.2, 3.3V
	Error correction	Reed-Solomon, LDPC-CC	Operating Temp Range		-40℃ to 85℃
CPU		ARM w/16 Kb Cache	Encryption		AES 128bit
Memory (SDRAM)		128Mb/256Mb	EMC		EN50561-1
System Clock		125MHz	Package		LBGA 238pin, 18x15mm

■ SOFTWARE DEVELOPMENT KIT

MegaChips offer various reference designs to qualified customers including schematics, layout, BoM and technical support.
Contents:
 Master ROM tools
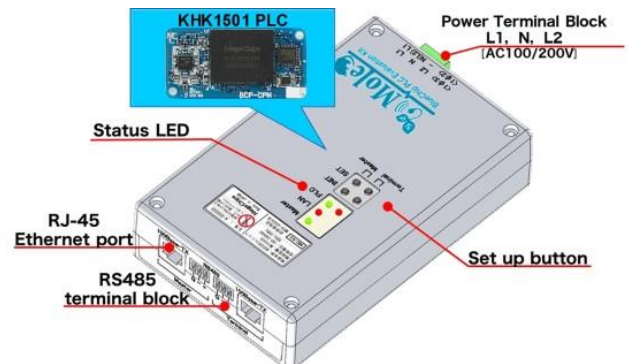- Sample firmware
- External command sample program

Evaluation tools
- Tool Manager
  (1) Power Control tool
  (2) Channel Monitor tool
- Net test tool

■ EVALUATION KIT

MegaChips offers a comprehensive set of tools to help customers shorten their design time.

Our evaluation kit includes all the hardware, software, and documentation to easily set-up and evaluate the performance of the system under various conditions and configurations. The included BlueChip PLC Network Manager helps customers to configure, monitor and manage complex networks.

MegaChips Corporation	
Corporate Headquarters Shin-Osaka Hankyu Building 1-1-1 Miyahara, Yodogawa-ku Osaka 532-0003, Japan	Tokyo Office 17-6 Ichibancho, Chiyoda-ku, Tokyo 102-0082, Japan
Tel : +81-6-6399-2884	Tel: +81-3-3512-5083
E-mail : plc_inquiry@megachips.com	
URL : https://hd-plc.megachips.com/	