BlueChip PLC is the world's first fully compliant IEEE1901 single chip HD-PLC Powerline Communications (PLC) IC. It provides the smallest form factor, highest performance and lowest power of any commercially available PLC solution. BlueChip PLC reliably delivers robust communications, superb noise immunity, and high quality of service (QoS) over both AC and DC power lines.

*HD-PLC is trademark of Panasonic Corporation.

**Features**
- IEEE1901 and HD-PLC compliant MAC/PHY with 32bit RISC processor
- QoS Support for high definition AV over AC and DC powerlines
- Fully supports PLC Coexistence requirements; ISP for IEEE 1901 and G.9972 for ITU-T G.hn.
- Maximum PHY rate: 240Mbps
- Power consumption:
  - 0.4W @full operation
  - 0.07W @power save mode
- CENELEC EMC standard EN50561-1 compliant

**Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency band</td>
<td>2-28MHz</td>
</tr>
<tr>
<td>Modulation</td>
<td>Wavelet OFDM</td>
</tr>
<tr>
<td>PHY/MAC</td>
<td>IEEE1901 full compliant</td>
</tr>
<tr>
<td>PHY Rate</td>
<td>240Mbps</td>
</tr>
<tr>
<td>Error correction</td>
<td>Reed-Solomon, LDPC-CC</td>
</tr>
<tr>
<td>CPU</td>
<td>ARM946E-S</td>
</tr>
<tr>
<td>System Clock</td>
<td>125MHz</td>
</tr>
<tr>
<td>Peripheral I/F</td>
<td>Full access</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>Power Save mode</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>1.2, 3.3V</td>
</tr>
<tr>
<td>Operating Temp Range</td>
<td>-40~85℃</td>
</tr>
<tr>
<td>Encryption</td>
<td>AES-128bit</td>
</tr>
<tr>
<td>Package</td>
<td>TQFP, 144pin, 16x16mm</td>
</tr>
</tbody>
</table>

**Applications**

BlueChip PLC has been optimized for multimedia distribution, surveillance camera, home networking, IPTV, Smart Energy Management, Smart meter, BEMS networking, network extension and distribution.
Software Development Kit (SDK)
Software development kit for product design, evaluation, and verification are available. Sample programs and a tool manager are also provided for reduce the development time and simplify the evaluation.

[Contents]
Sample firmware and specifications required for the development of a wide range of applications, such as communication and measurement tools.
※Sample programs are provided as reference examples and MegaChips does not guarantee the operation.
Master ROM tools
- Sample firmware
- External command datasheet
- External command sample program
- Tool Manager
  1. Power Control tool
  2. Channel Monitor tool
- Net Test Tool

【Tool Manager】
1. Power Control Tool
   Setting TX power
2. Channel Monitor Tool
   Monitoring status of the line

【Net Test Tool】
Measuring TCP/UDP

BlueChip PLC communication evaluation Kit “Mole”
Mole is the evaluation kit for evaluating 100V/200V PLC communication on a three line Single phase power distribution system. This evaluation Kit also has RS485 terminal block for demonstration.

【Features and functions】
- Size: H38xW100xD160mm [Don’t include protrusions]
- Corresponding AC100/200V PLC (Single-phase two-wire, single-phase three-wire)
- Built-in two PLC module with relay function
- Serial bridge function (with RS-485 terminal block)
- LAN I/F [※] (10Base-T/100Base-TX)
- RS-485 terminal block [※]
  Non-isolated, three-terminal (+, -, GND), half-duplex communication (Max. 115.2Kbps)

Reference Design
Reference Design is provided and it helps to shorten the period of development.
- Schematic, Layout, BOM, Hardware application notes