# WGX102 Operational Principle

The WGX102 ROHS project is to develop a wall-plugged wireless bridge between powerline network and Wireless. It includes one AC PLUG as the powerline network port, and one 802.11g wireless port.

This product uses INTELLON INT5200G as the Home Plug MAC/PHY controller, Home Plug AFE include, and MARVELL 88W8510 as wireless controller.

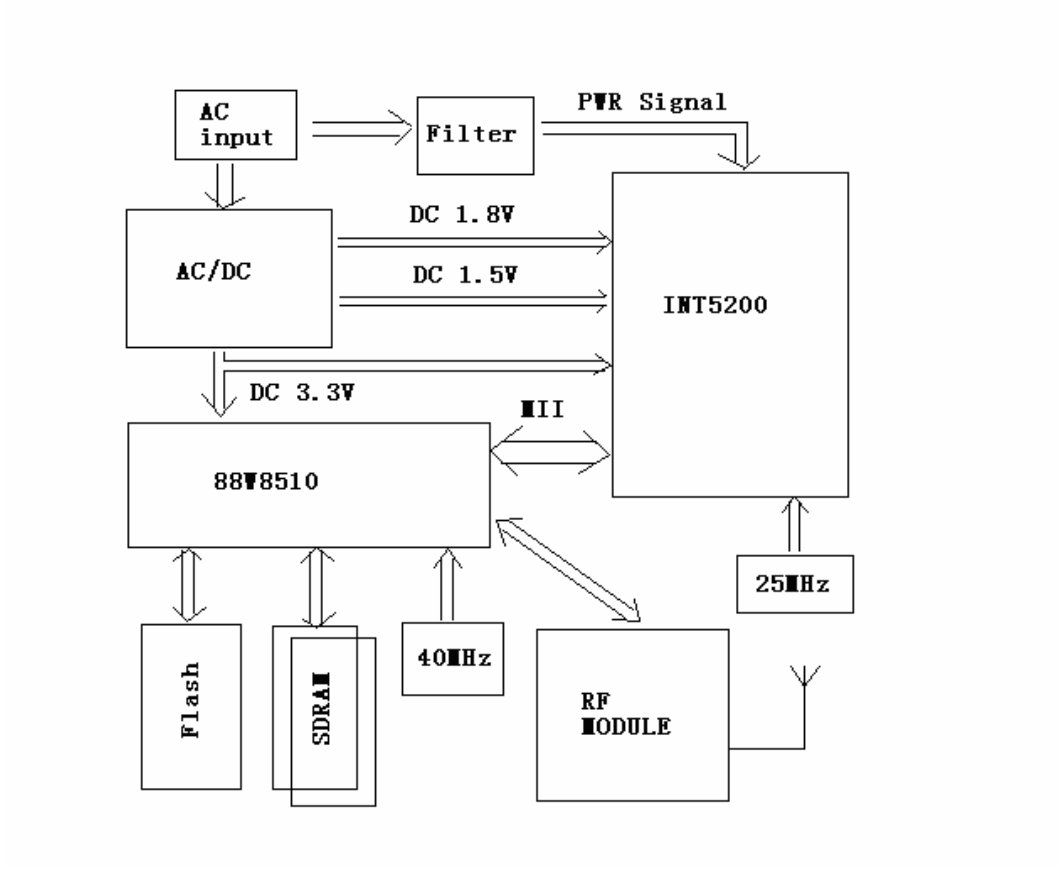
1、 The INT5200G IC is an integrated powerline MAC/PHY/AFE transceiver providing No New Wires communications to any room, over any wire, at speeds of up to 14 Mbps. The INT5200G provides PHY Interface. The INT5200G IC implements Intellon's patented PowerPacket OFDM technology and is fully compliant with the HomePlug 1.0.1 Specification.

The Digital Section of the INT5200G IC operates on 1.5V core and 3.3V /O power supplies while the analog Section operates on 1.8V and 3.3V power supplies. The Operating Clock Frequency is 25 MHz.

2、 The Marvell 88W8510 is a highly integrated wireless LAN solution that provides the combined functions of the IEEE Standard 802.11/802.11b DSSS and 802.11g OFDM baseband, Medium Access Control (MAC) processor, on-chip CPU, memory controller for internal and/or external memory, and external interfaces on a single IC. A Fast Ethernet MAC and PHY are also integrated allowing highly integrated Access Point (AP) solutions .The external input clock is 40MHz and the working frequency is 160 MHz.

The 88W8510 is designed to support the IEEE 802.11g/b payload data rates of 6, 9,12, 24, 36, 48, 54 Mbps and 1, 2, 5.5, and 11 Mbps. It also supports proprietary 22 and 72 Mbps modes. A high level of integration and full implementation of the powermanagement functions specified in the IEEE 802.11 standard minimize the system power requirements.

**The block Diagram is as follow:**




**The functional requirements of the system are as follows:**

| | |
|---|---|
| **1. Home Plug MAC/PHY** | INTELLON INT5200G |
| **2. Home Plug AFE** | INTELLON INT5200G |
| **3. Wireless CPU** | MARVELL 88W8510 |
| **4. Power** | 90-240VAC/50~60Hz |
| **5. LEDs** | Refer to Table 1 |
| **6. EMC** | FCC Part 15 Class B |
| **7. Safety** | U/L Certified |
| **8. PCB Layout** | 4 layers |

**The LED Table is as follows:**

Table 1

| Name | Color | Description | Control Method |
|---|---|---|---|
| **POWER** | **Green** | **On**: Power On<br>**Off**: Power Off | F/W |
| **HOMEPLUG LINK** | **Green** | **On**: HomePlug connection is established<br>**Off**: No HomePlug connection available | H/W |
| **WIRELESS** | **Green** | **On**: Connection is established<br>**Blinking**: Data is being transferred | F/W |