

WGR613VAL Operation Principle

1. CPU, U15, TNETV1060 have a 32-bit RISC processor integrated, operation frequency is 125MHz. It needs an external 25MHz crystal for system reference frequency, and an 8.192MHz crystal for telephony interface reference frequency. This chip is responsible to control Flash/SDRAM IC, CODEC IC and LED. This chip also has two integrated 10/100 Ethernet MAC/PHY.
2. FLASH: U4, MX29LV320ABTC, 4Mbytes Flash, and 90ns. It is used to store the normal and test firmware.
3. Wireless
 - RC2326(U2): IEEE 802.11 b/g RFFE ISM Band, highly integrated 802.11 b/g radio Radio, fully integrated up/down converters, LNA, PA, TX detector and T/R switches
 - RC2422(U8): IEEE 802.11 b/g IQ/IF Transceiver With Dual VCO Synthesizers, Highly integrated 802.11 b/g radio IQ/IF Transceiver PLL ASIC, Fully integrated IF and RF VCOs and synthesizer
 - (U1)TNETW1130GVF Wireless MAC and Baseband processor
4. Switching Controller: U6, MARVELL88E6060. It is used to provide 4 ports of ethernet interface.
5. CODEC, U9/U10, Si3210-KT, Programmable CMOS SLIC/CODEC. They provide 2 channel VOIP function.
6. Power part: several regulators are used on the board. U12, FP5452 is used to generate 3.3V and 2.5V DC voltage from 12V DC power input. Q9/Q16/Q17 is used to generate 1.6V DC voltage from 3.3V DC power, and 1.6V is CPU core voltage. U1 is used to generate 1.5V DC voltage from 3.3V DC power, and 1.5V is Switch core voltage.
7. Switch button, S1, it is used to factory restore or system reboot.