DK8051RC Application Note

1. **Introduction**

   This Application Note includes Hardware TCP/IP Chip- W3100A embedded on EVB8051 & relay module to remotely control power on/off through the Internet. The EVB8051 consist of 8051 MCU, memory control, NM7010A(W3100A+Ethernet PHY+Transformer+RJ45). Remote Control(RC) Module consist of transistor switch, relay, connectors.
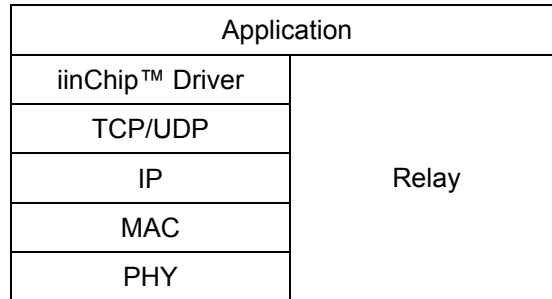
2. **Implementation**

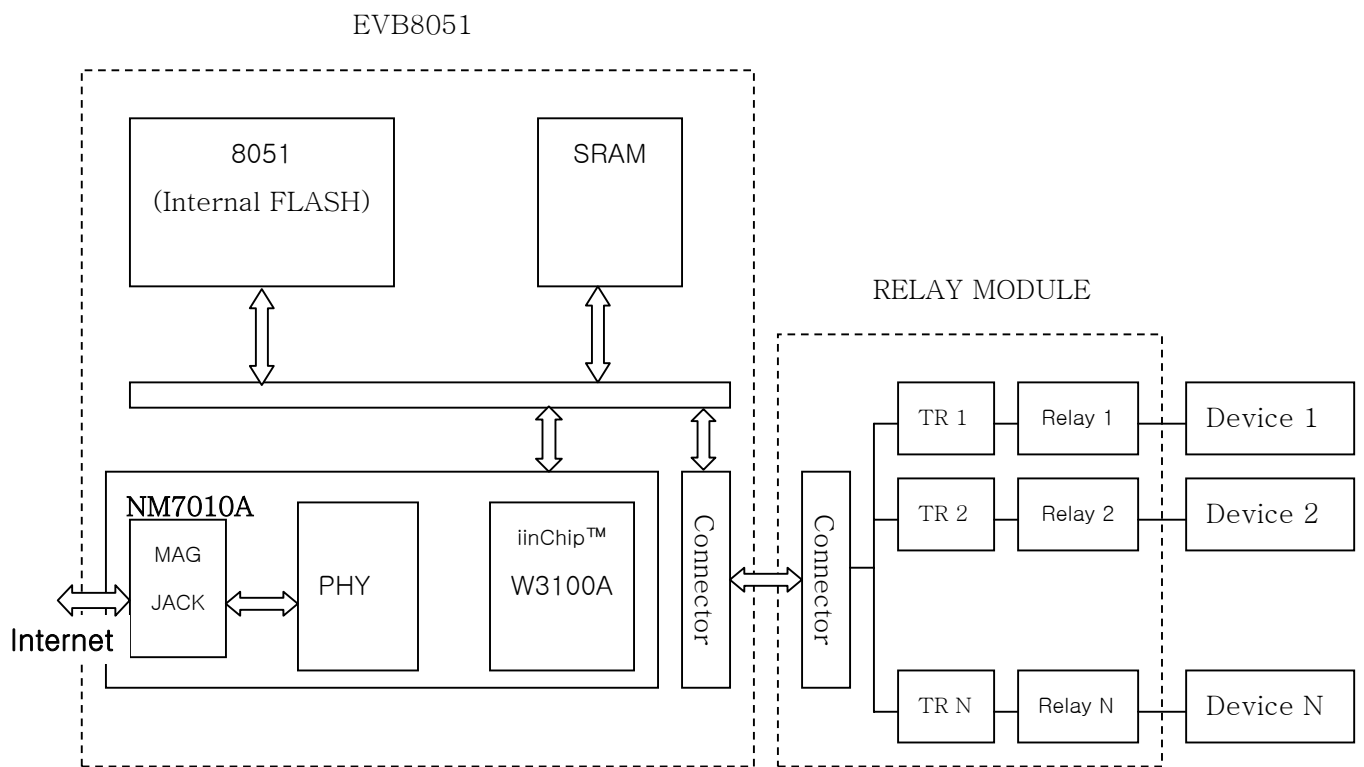   Picture 1-1 shows DK8051RC. The EVB8051 is connected to the RC module.

Picture 1-1.　DK8051RC

Picture 1-2 and Picture 1-3 shows DK8051RC's protocol stack and configuration block diagram.

Application	
iinChip™ Driver	
TCP/UDP	
IP	Relay
MAC	
PHY	

Picture 1-2.   Protocol Stack

Picture 1-3   Configuration Block Diagram

2.1 Features

2.1.1 Internet Connection

Hardwire TCP/IP chip W3100A does not require OS, just low-end MCU W3100A to enable Internet usage.

   * Detail specifications of W3100A are available on datasheet
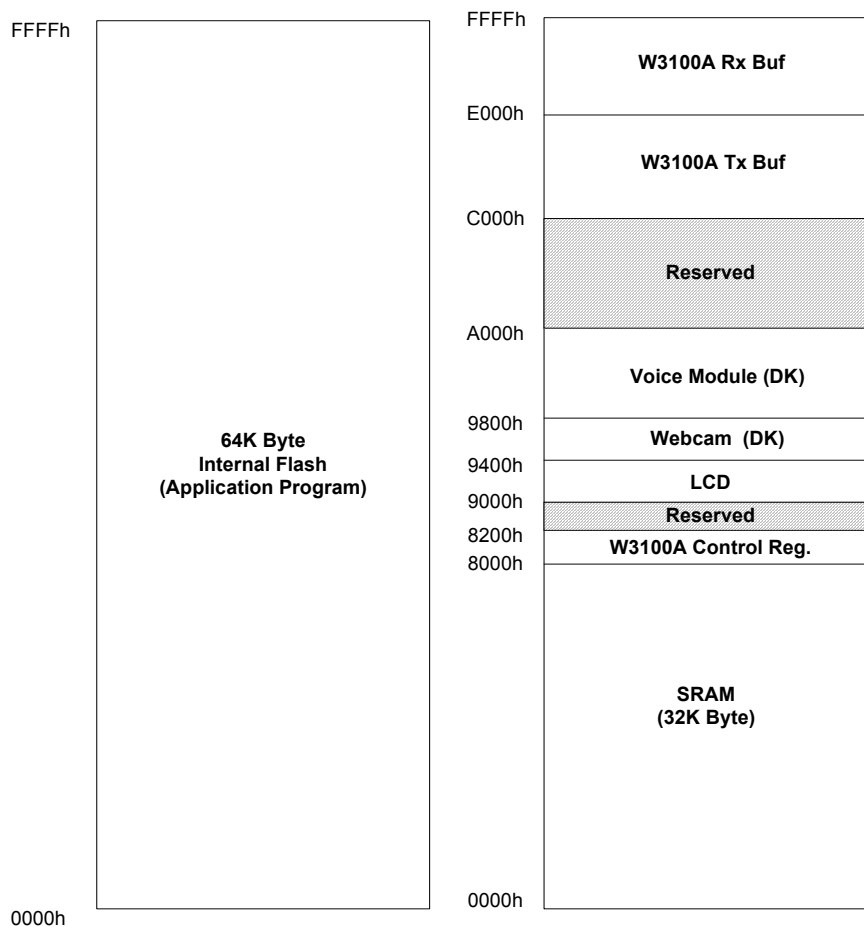
2.1.2 RC Module

 - 110V/220V Relay Function

2.2 Operation

Through the Internet, remote control of power ON/OFF using 8051 MCU with W3100A receiving data control information through remote control module to transfer data.

2.3 Memory Map

ATMEL Version (EVB)

Address		Address	
FFFFh		FFFFh	**W3100A Rx Buf**
		E000h	**W3100A Tx Buf**
		C000h	**Reserved**
		A000h	**Voice Module (DK)**
	64K Byte Internal Flash (Application Program)	9800h	**Webcam (DK)**
		9400h	**LCD**
		9000h	**Reserved**
		8200h	**W3100A Control Reg.**
		8000h	**SRAM (32K Byte)**
0000h		0000h	

2.4 Components

2.4.1 EVB8051

Model	Description
89C51RD2	MCU(Atmel)
IS62LV256-70T	32K x 8, SRAM(ISSI)
ATF16V8-15JC	20pin, PAL(Atmel)
MAX232	Dual RS232
NM7010A	W3100A + PHY + TRANSFORMER + RJ45

2.4.2 Relay Module

Model	Description
DY1S-5H	10A 120AVC Relay(Dong Yang Relay)

* Detail specification is available on individual datasheet

3. Summary

By using DK8051RC, electronic devices can be powered on/off through the Internet. DK8051RC Applications can be applied to various applications like remote metering, home automations, factory automations, security and industrial control.