

T91 Basic Idle project for AT91RM9200DK

Introduction

The goal of this demonstration project is to show how to move the AT91RM9200 in IDLE state

This very small application is controlled through the DBGU serial port messages.

User can send 'p' or 'c' characters to move the core in idle mode. Other characters **send while in idle mode** will activate the core.

Description

There are 2 ways to go in IDLE mode:

- • • Configuring the processor clock bit in the PMC (power management controller)
- • • Using the CP15 function "Wait for Interrupt" of the ARM920T: MCR p15, 0, Rd, c7, c0,4

While running the application send characters each seconds through the DBGU. An interrupt is triggered when a character is received.

If this character is 'P' then the AT91RM9200 goes in idle mode configuring the power management controller. If character sent is 'C' then the AT91RM9200 goes in idle mode using CP15 function.

DBGU Trace and Command

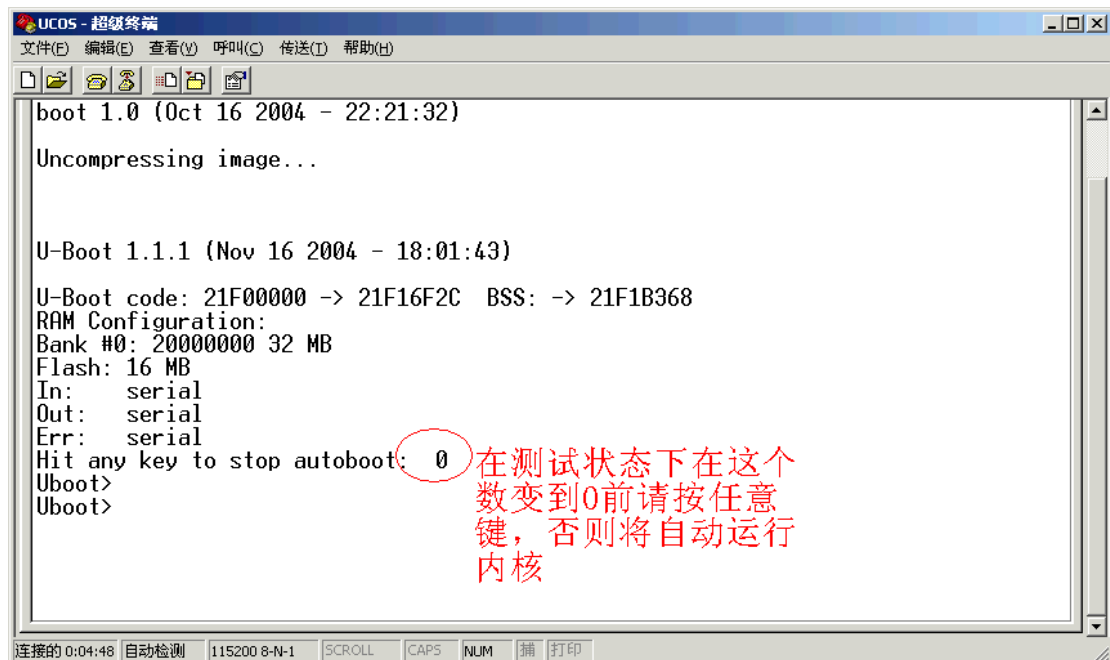
```
-I- =====  
-I- AT91RM9200 idle mode example  
-I- -----  
-I- Hit P to enter in idle mode using PMC  
-I- Hit C to enter in idle mode using CP15  
-I- Hit another key to exit idle mode  
-I- =====
```

IDLE 模式测试方法

下面来说明用 JTAG/ICE 的方式来做 EBD9200IDLE 模式的测试。基本条件如下：

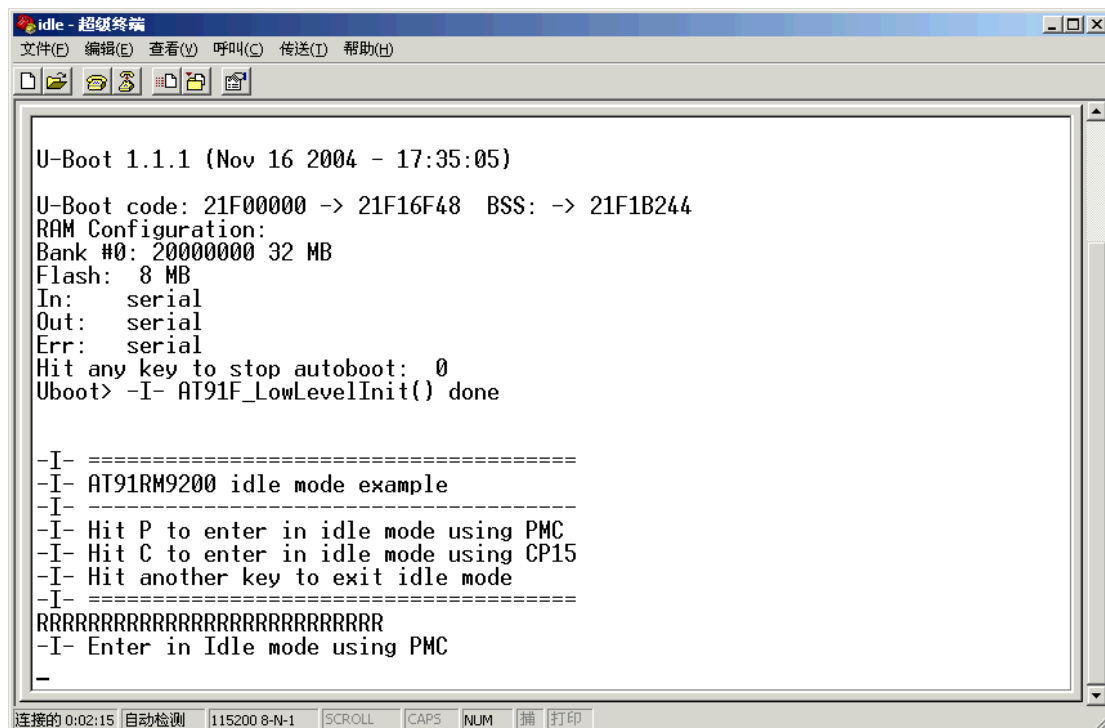
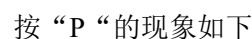
1. 9 针串口插在底版上标号为“P1”的串口插座上，25 针并口线一头插在 PC 机并口，另一头插在 JTAG/ICE 转换器上，JTAG/ICE 转换器的排线一头插在底版上标号为“J22”的 20Pins 槽上，另一头插在 JTAG/ICE 转换器的右边即靠近 SN74HC244 10 脚这边；
2. 将底版上标号为“J23”的跳线跳到靠近 J5 这边；
3. 核心板上标号“J2”的跳线跳到靠近“C18”的这边；
4. 底版上其它跳线配置为：J13，J16 要插好，JP1 插在靠近 C14 这边，J12 插在靠近 C22 这边；
5. 9V 电源线（**最好用我公司提供的专用产品**）插在标号为“JACK1”的 DC 插座上。

当您上电后 ARM9 调试代理软件 EBD9200 超级终端的现象和电路板的现象如下图所示的话就说明连接正确：



参 加 汇 编 和 文 件 目 录 :

AT91RM9200-BasicIdle-ARM1 2-2 0/AT91RM9200-BasicIdle/compil/BasicIdle.mcp



按“C”的现象如下

The screenshot shows a Windows terminal window titled "idle - 超级终端". The menu bar includes "文件(F)", "编辑(E)", "查看(V)", "呼叫(C)", "传送(T)", and "帮助(H)". The toolbar contains icons for file operations like opening, saving, printing, and copying. The main text area displays the following output:

```
U-Boot code: 21F00000 -> 21F16F48 BSS: -> 21F1B244
RAM Configuration:
Bank #0: 20000000 32 MB
Flash: 8 MB
In: serial
Out: serial
Err: serial
Hit any key to stop autoboot: 0
Uboot> -I- AT91F_LowLevelInit() done

-I- =====
-I- AT91RM9200 idle mode example
-I- =====
-I- Hit P to enter in idle mode using PMC
-I- Hit C to enter in idle mode using CP15
-I- Hit another key to exit idle mode
-I- =====
RRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRR
-I- Enter in Idle mode using PMC
-I- Interrupt received, exit Idle mode

-I- Enter in Idle mode using CP15
```

At the bottom of the window, there is a status bar with the text "连接的 0:02:43 自动检测" followed by several function keys: "115200 8-N-1", "SCROLL", "CAPS", "NUM", "捕", and "打印".

按其它键的现象如下

The screenshot displays a terminal window with the title "idle - 超级终端". The menu bar includes options like "文件(F)", "编辑(E)", "查看(V)", "呼叫(C)", "传送(T)", and "帮助(H)". Below the menu is a toolbar with icons for file operations. The main text area contains the following sequence of commands and outputs:

```
Hit any key to stop autoboot: 0
Uboot> -I- AT91F_LowLevelInit() done

-I- =====
-I- AT91RM9200 idle mode example
-I- -----
-I- Hit P to enter in idle mode using PMC
-I- Hit C to enter in idle mode using CP15
-I- Hit another key to exit idle mode
-I- =====
RRRRRRRRRRRR
-I- Enter in Idle mode using PMC
-I- Interrupt received, exit Idle mode

-I- Enter in Idle mode using CP15
-I- Interrupt received, exit Idle mode

-I- Enter in Idle mode using PMC
-I- Interrupt received, exit Idle mode

-I- Enter in Idle mode using CP15
-I- Interrupt received, exit Idle mode
RRRRRRRRRRRRRRRRRRR_
```

A red circle is drawn around the last line of output, "RRRRRRRRRRRRRRRRRRR_". A red arrow points from the Chinese text "按其它键又继续出“R”" (Pressing other keys will continue to output "R") towards this circled text.

测试完毕。