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瑞萨电子公司网址：<http://www.renesas.com>

2010年4月1日
瑞萨电子公司

【发行】瑞萨电子公司（<http://www.renesas.com>）

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中断响应时间的问题

Trouble

用户反映，R8C 单片机在应用于电机控制时，中断响应时间过长，增加了系统负担。

Analyze

检查程序，发现用户处理中断函数声明时，没有很好的使用 R8C 单片机的两个寄存器组

Do

函数声明：`#pragma INTERRUPT/B +中断中断函数名`。因为在进入中断程序后需要保存现场，考虑到中断函数是不可预知的，稳妥的做法是保护所有的寄存器（R0，R1，R2，R3，A0，A1，SB，FB），这样由于保护和恢复现场所需要的时间是 32 个时钟周期

考虑到 R8C/1B 的 CPU 内部有两个寄存器组，因此在进入中断程序后不保护现场而直接使用另外一组寄存器组将大大缩短（2 个时钟周期）这个过程

`#pragma INTERRUPT/B +中断中断函数名`，则 C 编译器将自动使用切换寄存器组的代码（FSET B）来保护现场。

MCU

文档适用于 Renesas M16c 内核的 MCU