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2010年4月1日
瑞萨电子公司

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7544 群
定时器 X 运行（事件计数器模式）

要点
这是定时器 X 的事件计数器模式的应用例子。

动作确认器件
本资料说明的应用例子适合下列单片机和使用条件：

・ 单片机：7544 群

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1. 应用例子的说明

■ 要点
在一定时间内（100ms）对由水流量产生的脉冲进行计数，计算该时间内水流量。

■ 说明
将由水流量产生的脉冲输入到P14/CNTR0管脚，通过定时器X进行计数。在从脉冲计数开始经过100ms后产生的定时器A中断处理程序中读取定时器X的内容，计算100ms内的水流量。

运行时钟使用f(XIN)=8MHz高速模式。

1.1 外围电路例子
外围电路例子如图1所示。

![图1 外围电路例子](image)

1.2 水流量的测定方法
水流量的测定方法如图2所示。

![图2 水流量的测定方法](image)

1.3 控制步骤例子
控制步骤例子如图3所示。
定时器 X 运行（事件计数器模式）

水流量测定程序

- 给 CNTR0 中断允许位设定 “0” (禁止 CNTR0 中断)
- 给定时器 X 中断允许位设定 “0” (禁止定时器 X 中断)
- 给定时器 A 中断允许位设定 “0” (禁止定时器 A 中断)

将端口 P1 (与 CNTR0 兼用) 设定为输入模式

定时器模式寄存器的设定
- TXM(2B) (2B 位地址)
  - 选择事件计数器模式
  - 对时隙计数
  - 停止定时器 X 计数
  - 寄存器和定时器同时写

定时器 A 模式寄存器的设定
- TAM(1D) (1D 位地址)
  - 选择定时器模式
  - 停止定时器 A 计数

定时器计数值设定寄存器 2 的设定
- TCSS2 (2F 位地址)
  - 定时器 A 计数值
  - 选择 f(XIN)/16

给定时器 X 设定值
- “FF” 预定标号 X(2C 位地址)
  - 定时器 X(2D 位地址)
- “FF” 预定标号 X(2C 位地址)

给定时器 A 设定值 (注)
- “4F” 定时器 A 低 (1E 位地址)
- “C3” 定时器 A 高 (1F 位地址)
- “4F” 定时器 A 低 (1E 位地址)
- “C3” 定时器 A 高 (1F 位地址)

给定时器 A 中断请求位设定 “0”

给定时器 A 中断允许位设定 “1” (允许定时器 A 中断)

定时器 X 模式寄存器的设定
- TXM(2B) (2B 位地址)
  - 开始定时器 X 计数

定时器 A 模式寄存器的设定
- TAM(1D) (1D 位地址)
  - 开始定时器 A 计数

图 3 控制步骤例子

注：100ms = 1/8MHz × 16 × (C34F16 + 1)
  - 定时器 A 分频比
  - 定时器 A 设定值
2. 参考文献

数据表

7544群数据表（最新版本请从瑞萨科技网页取得）

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## 修订记录

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