YRCN79F7026-TB

示例程序

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介绍

示例程序包括以下函数和功能:

- 微控制器的初始化
  a. I/O端口初始化
  b. TM51定时器初始化
- 主应用循环
  a. 7劃管输出控制
  b. 程序按按钮SW1状态,控制7劃管一劃一劃自动点亮

目标器件

78K0/uPD79F7026

当应用此示例程序于其他微控制器时，请根据目标微控制器规格修改程序，并对修改的程序充分进行评估。

目录

1. 执行示例程序

示例按以下顺序执行：

(1) 打开工程” tb_sampleprogram.mtpj”;

(2) 连接YRCN79F7026-TB 板到仿真器;

(3) 连接仿真器到PC上;

(4) 连接CS+内设硬件仿真器(Minicube2 或 EZ Emulator);

(5) 下载程序;

(6) 从新执行(Restart)程序;

(7) 用户通过按钮SW1操作, LED-Segment一个一个循环点亮。

- 在使用仿真器仿真前，请先明确Minicube2 /EZ-CUBE硬件设置和与目标连接是否正确。
- 具体细节请参见Minicube2 /EZ-CUBE用户手册。并请检查Minicube2 /EZ-CUBE是否使用了最新固件。

2. 操作环境

工作频率	内部时钟
综合开发环境	瑞萨电子综合开发环境 CubeSuite+ V1.02.01
示例工程	tb_sampleprogram.mtpj

3. 函数说明

此节描述示例程序中的各个函数。

[函数名称] IO_Init	
概要	I/O端口初始化
头文件	无
声明	void IO _init(void)
说明	- Pin 9 为P125/INTP功能 - P00~P03为输出口, 驱动COM1~4 - P60~P67为输出口, 驱动SEGA~F - P30为输入口, SW1按键输入
返回值	无
备注	无

[函数名称] T51_Init	
概要	T51初始化
头文件	无
声明	void T51_Init(void)
说明	- 间隔定时器 - 4ms 间隔, - 启动中断 - 启动定时器
返回值	无
备注	无

[函数名称] interrupt_inttm51	
概要	T51中断服务程序
头文件	无
声明	void Interrupt_inttm51(void)
说明	程序计数器, sys_cnt增加
返回值	无
备注	无

[函数名称] SEG_Output	
概要	7劃管控制
头文件	无
声明	void SEG_Output(void)
说明	7劃管控制程序, - 每4ms转换输出COM口, P0x - 把对应COM的SEGMENT输出到P6
返回值	无
备注	需要周期性呼叫的函数

[函数名称] Main	
概要	主应用循环
头文件	无
声明	void main(void)
说明	- 轮询sys_cnt, 判断呼叫7劃管控制程序 - 按时间, 检查按键输入, 循环输出每一劃
返回值	无
备注	无

4. 设置选项字节 (Option Byte)

uPD79F7026 闪存的0080H、0081H、0082H 、0083H和0084H 为选项字节区域。打开电源或从复位状态重启器件时，器件将自动参考选项字节设置指定功能。使用本产品时，必须使用选项字节设置下列功能。

选项字节在CS+上, CA78K0R(Built Tool)里, Link Options选项卡上,'Device'选项里, 'Use on-chip debug' 和'User option byte'中设置, 用户可按需求自行更改设置.以下是本示例使用的设置.

User option byte

```
0080        00H         ; 看门狗定时器不操作
0081        00H         ; 上电时, LVI默认为OFF
0082        01H         ; 内部高速振荡时钟频率 4 MHz (典型值)
0083        1FH         ; On-chip调试模式下, STOP后停止内部震荡, 从而停止向
                          OCD提供时钟; 设置On-chip调试模式
```

Use on-chip debug

```
0084        03H         ; On-chip 调试允许操作。 On-chip 调试安全ID 认证失败
                        ; 时，清除闪存数据。
```

备注:

有关选项字节详情, 请参考微控制器的使用手册, 第十六章 选项字节

5. 示例程序操作

i. 上电后, MCU使用内部时钟工作;

ii. 7劃管输出’7026’;

iii. 可按SW1 (不放开);

iv. 按下SW1后, 7劃管的每一劃会循环点亮;

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产品使用时的注意事项

本文对适用于单片机所有产品的“使用时的注意事项”进行说明。有关个别的使用时的注意事项请参照正文。此外，如果在记载上有与本手册的正文有差异之处，请以正文为准。

1. 未使用的引脚的处理

【注意】将未使用的引脚按照正文的“未使用引脚的处理”进行处理。

CMOS产品的输入引脚的阻抗一般为高阻抗。如果在开路的状态下运行未使用的引脚，由于感应现象，外加LSI周围的噪声，在LSI内部产生穿透电流，有可能被误认为是输入信号而引起误动作。

未使用的引脚，请按照正文的“未使用引脚的处理”中的指示进行处理。

2. 通电时的处理

【注意】通电时产品处于不定状态。

通电时， LSI内部电路处于不确定状态，寄存器的设定和各引脚的状态不定。通过外部复位引脚对产品进行复位时，从通电到复位有效之前的期间，不能保证引脚的状态。

同样，使用内部上电复位功能对产品进行复位时，从通电到达到复位产生的一定电压的期间，不能保证引脚的状态。

3. 禁止存取保留地址（保留区）

【注意】禁止存取保留地址（保留区）

在地址区域中，有被分配将来用作功能扩展的保留地址（保留区）。因为无法保证存取这些地址时的运行，所以不能对保留地址（保留区）进行存取。

4. 关于时钟

【注意】复位时，请在时钟稳定后解除复位。

在程序运行中切换时钟时，请在要切换成的时钟稳定之后进行。复位时，在通过使用外部振荡器（或者外部振荡电路）的时钟开始运行的系统中，必须在时钟充分稳定后解除复位。另外，在程序运行中，切换成使用外部振荡器（或者外部振荡电路）的时钟时，在要切换成的时钟充分稳定后再进行切换。

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