

## 免责声明

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## ATM Timer说明

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在定时/计数器模式下，比较器 A 或 P 分别将计数器与对应的 CCRA 或 CCRP 寄存器设置值进行比较，当比较结果相同时触发 CCRA 或者 CCRP 中断。定时/计数器模式无输出功能，一般应用于通用计时、计数功能需求场合。

## example 说明

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此范例演示了 ATM 的 Timer 模式的使用

### 程序说明

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#### 1. `config sys clock`

ATM clock 来自系统时钟，因此系统时钟一定要配置正确

#### 2. `config ATM to timer mode`

- 范例设置：时钟源为  $F_{sys}/4$ ，count = 500

$$T = 1/(F_{sys}/4) * count$$

- 4M :  $T=1/(4/4)*count = 500\text{ us}$
- 8M :  $T=1/(8/4)*count = 250\text{ us}$
- 12M :  $T=1/(12/4)*count = 166\text{ us}$

3. enable ATM

4. enable Interrupt : Non-required

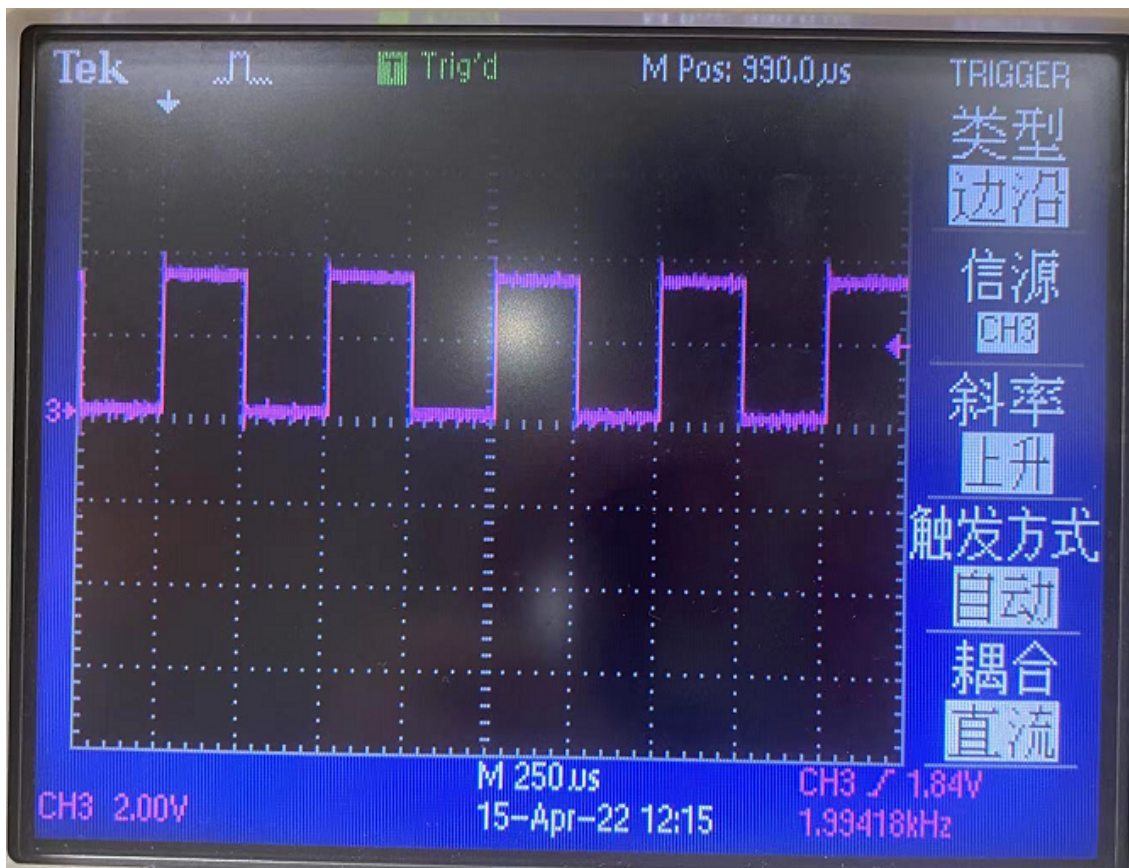
根据需求设定

## 现象说明

连接 e-link 和目标板，将程序下载到 MCU 并运行

通过示波器测量 PA1 对应的输出波形

下图为 8 MHz 下 PA1 的波形提供参考，Timer周期为250 us



## FAQ

1. compare match output模式与timer模式有啥区别

两者的差异仅仅在于compare match output会输出信号到引脚，而Timer不会有任何信号输出到引脚，可将对应引脚作为普通 IO 使用

2. timer 模式和 counter 模式有什么区别

timer 模式和 count 本质没有任何区别，若计数时钟频率来自系统本身则可称之为 Timer 模式，若计数时钟频率来自外部引脚输入(通过设置 clockSource 实现)，则可称之为 counter 模式。