Practical

TIMER

tick value = 1/frequency.

```
time delay = count * tick value.
```

Example,

```
f=16MHz
t= 1/16M = 0.0625 &micro;s

If Time delay = 2 sec, tick value = 0.0625 &micro;s
then, count=?

count = time delay / tick value
count = 2/(0.0625x10^-6) = 32x10^6.
```

PWM

```
DUTY CYCLE = Ton/(Ton+Toff) * 100

Ton is ON Time
Toff is OFF Time
```

PWM frequency

```
PWM frequency = Timer Frequency /(Prescalar * (Duty Cycle + 1))
```

Example,

```
Timer freq = 16MHz, Prescalar = 16, Duty Cycle = 99;
PWM freq = (16x10^6)/(16x(99+1)) = (16x10^6)/(1600)) = 10kHz

PWM time = 1/10x10^3 = 0.1ms = 100us.
```

DRIVERS/CMSIS/Device/ST/stm32f407xx.h contains data structures and addr mapping of all peripherals. Which part of code uses which cmsis..........

APSR, Core regusters, PSR are found in DRIVERS/CMSIS/INCLUDE/core_cm3.h

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Read operation - set MSB to 1
Write operation - set MSB to 0

I2C

Start condition: The SDA line switches from HIGH to LOW level before SCL line switches from HIGH to LOW.

Stop condition: The SDA line switches from LOW to HIGH level before SCL line switches from LOW to HIGH.