ChatGPT STM32 PWM

Write a code snippet for STM32F411 using Arduino IDE control 6 pin for independent PWM output with 1MHz fequency and 256 resolution of duty including stm32f4xx\_hal.h, the 6 pwm pin should be PA6,PA7,PA0,PA1,PA2,PA3 and use Timer3 and Timer5 for all pwm output. All PWM should start in the same time.

how many pwm pin can be controlled by STM32F411

how can I start 2 timers at the same time in STM32F411

**TIM2 (General Purpose Timer)**

* **TIM2\_CH1**: PA0
* **TIM2\_CH2**: PA1
* **TIM2\_CH3**: PA2
* **TIM2\_CH4**: PA3

**TIM3 (General Purpose Timer)**

* **TIM3\_CH1**: PA6
* **TIM3\_CH2**: PA7

**TIM1 (Advanced Control Timer)**

* **TIM1\_CH1**: PA8 (AF1)
* **TIM1\_CH2**: PA9 (AF1)
* **TIM1\_CH3**: PA10 (AF1)
* **TIM1\_CH4**: PA11 (AF1)

**TIM2 (General Purpose Timer)**

* **TIM2\_CH1**: PA0 (AF1), PA5 (AF1), PA15 (AF1)
* **TIM2\_CH2**: PA1 (AF1), PB3 (AF1)
* **TIM2\_CH3**: PA2 (AF1), PB10 (AF1)
* **TIM2\_CH4**: PA3 (AF1), PB11 (AF1)

**TIM3 (General Purpose Timer)**

* **TIM3\_CH1**: PA6 (AF2), PB4 (AF2), PC6 (AF2)
* **TIM3\_CH2**: PA7 (AF2), PB5 (AF2), PC7 (AF2)
* **TIM3\_CH3**: PB0 (AF2), PC8 (AF2)
* **TIM3\_CH4**: PB1 (AF2), PC9 (AF2)

**TIM4 (General Purpose Timer)**

* **TIM4\_CH1**: PB6 (AF2)
* **TIM4\_CH2**: PB7 (AF2)
* **TIM4\_CH3**: PB8 (AF2)
* **TIM4\_CH4**: PB9 (AF2)

**TIM5 (General Purpose Timer)**

* **TIM5\_CH1**: PA0 (AF2)
* **TIM5\_CH2**: PA1 (AF2)
* **TIM5\_CH3**: PA2 (AF2)
* **TIM5\_CH4**: PA3 (AF2)

**TIM9 (General Purpose Timer)**

* **TIM9\_CH1**: PA2 (AF3)
* **TIM9\_CH2**: PA3 (AF3)

**TIM10 (General Purpose Timer)**

* **TIM10\_CH1**: PB8 (AF3)

**TIM11 (General Purpose Timer)**

* **TIM11\_CH1**: PB9 (AF3)

**Summary of PWM-capable Pins:**

* **PA0**: TIM2\_CH1 (AF1), TIM5\_CH1 (AF2)
* **PA1**: TIM2\_CH2 (AF1), TIM5\_CH2 (AF2)
* **PA2**: TIM2\_CH3 (AF1), TIM5\_CH3 (AF2), TIM9\_CH1 (AF3)
* **PA3**: TIM2\_CH4 (AF1), TIM5\_CH4 (AF2), TIM9\_CH2 (AF3)
* **PA5**: TIM2\_CH1 (AF1)
* **PA6**: TIM3\_CH1 (AF2)
* **PA7**: TIM3\_CH2 (AF2)
* **PA8**: TIM1\_CH1 (AF1)
* **PA9**: TIM1\_CH2 (AF1)
* **PA10**: TIM1\_CH3 (AF1)
* **PA11**: TIM1\_CH4 (AF1)
* **PA15**: TIM2\_CH1 (AF1)
* **PB0**: TIM3\_CH3 (AF2)
* **PB1**: TIM3\_CH4 (AF2)
* **PB3**: TIM2\_CH2 (AF1)
* **PB4**: TIM3\_CH1 (AF2)
* **PB5**: TIM3\_CH2 (AF2)
* **PB6**: TIM4\_CH1 (AF2)
* **PB7**: TIM4\_CH2 (AF2)
* **PB8**: TIM4\_CH3 (AF2), TIM10\_CH1 (AF3)
* **PB9**: TIM4\_CH4 (AF2), TIM11\_CH1 (AF3)
* **PB10**: TIM2\_CH3 (AF1)
* **PB11**: TIM2\_CH4 (AF1)
* **PC6**: TIM3\_CH1 (AF2)
* **PC7**: TIM3\_CH2 (AF2)
* **PC8**: TIM3\_CH3 (AF2)
* **PC9**: TIM3\_CH4 (AF2)