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 PA0,PA1,PA2,PA3,PA6,PA7 and use Timer2 and Timer3 for all pwm output

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)