Lab: Estimation of power consumption

life.augmented

STM32 CubeIDE

Lab: Estimation of power consumption

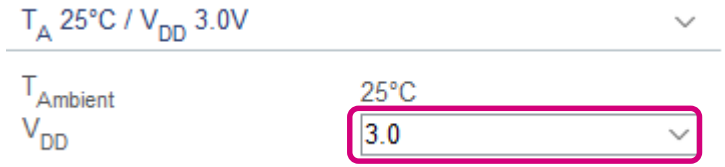
Objective:

- Use the Power tool inside the STM32CubeIDE to estimate the average power consumption of the application

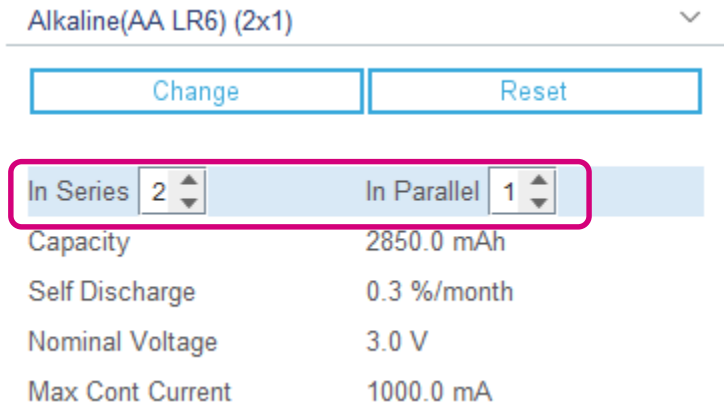
Power Supply and Power Source Selection

- Using any project done in Device Configurator of STM32CubeIDE
- Click on the Tools tab and select PCC

  - Select **3V** for **VDD**

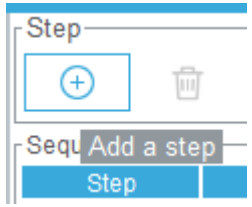


  - In the **Battery Selection** section, select **AA** Alkaline batteries (2 in series, 1 in parallel) as the power source for the application



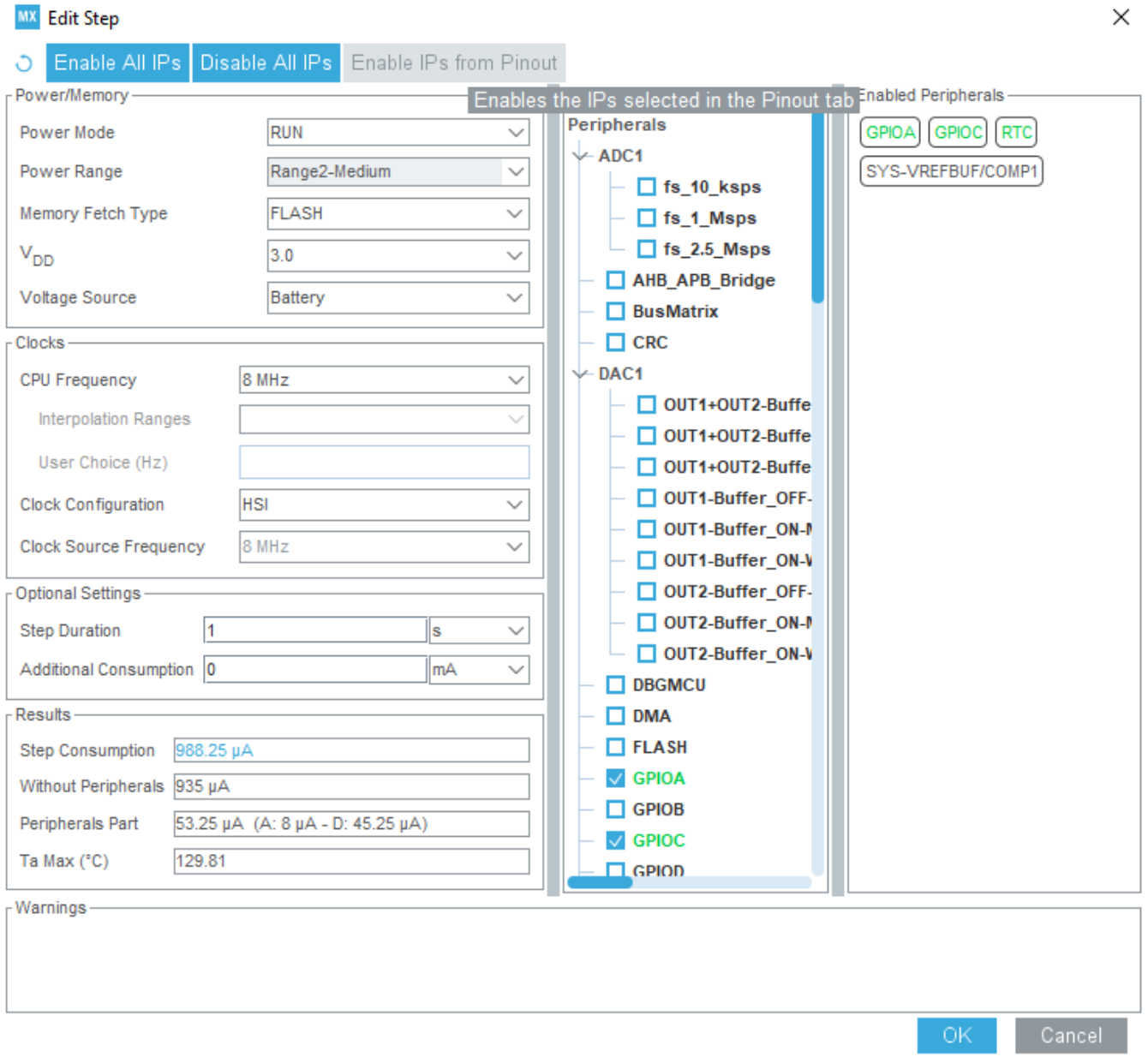
Adding a RUN mode step

- **Add a step to our power sequence:**
  - **Click: Step.. Add**



- **Configure a first step: RUN mode**
  - 8.0 MHz Range2 RUN mode
  - from Flash at 3V from battery
  - HSI clock
  - Enable IPs from Pinout function
  - Duration: 1 second
  - Click “Add”

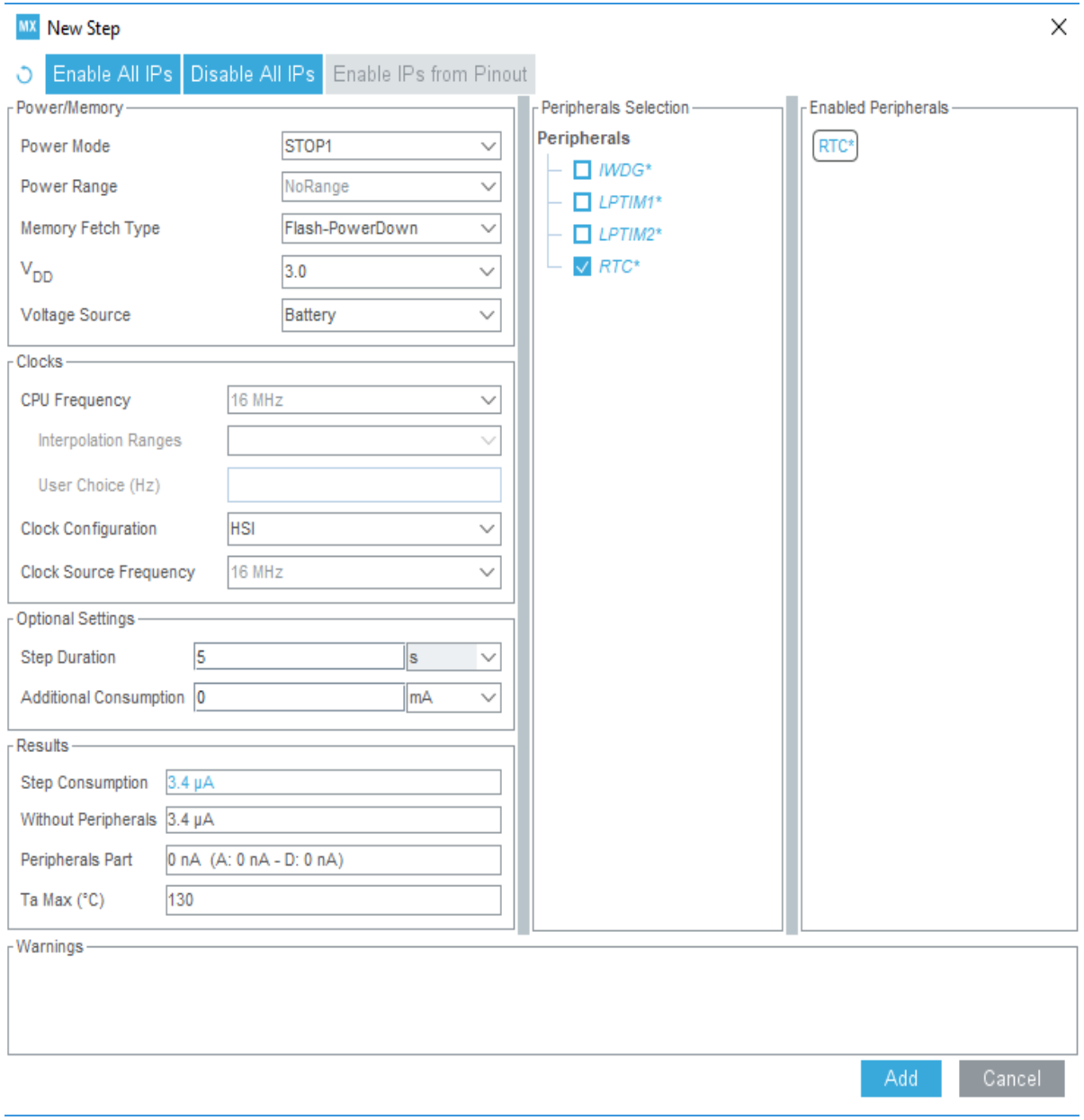
  - Resulting step consumption should be 988.25uA



Add a STOP1 mode step

- **Add a second step: STOP1 mode**
  - STOP1 mode
  - Flash is Power Down mode at 3V
  - Clocks HSI 16 MHz
  - RTC enabled (to wakeup the system)
  - Duration: 5 seconds
  - Click “Add”

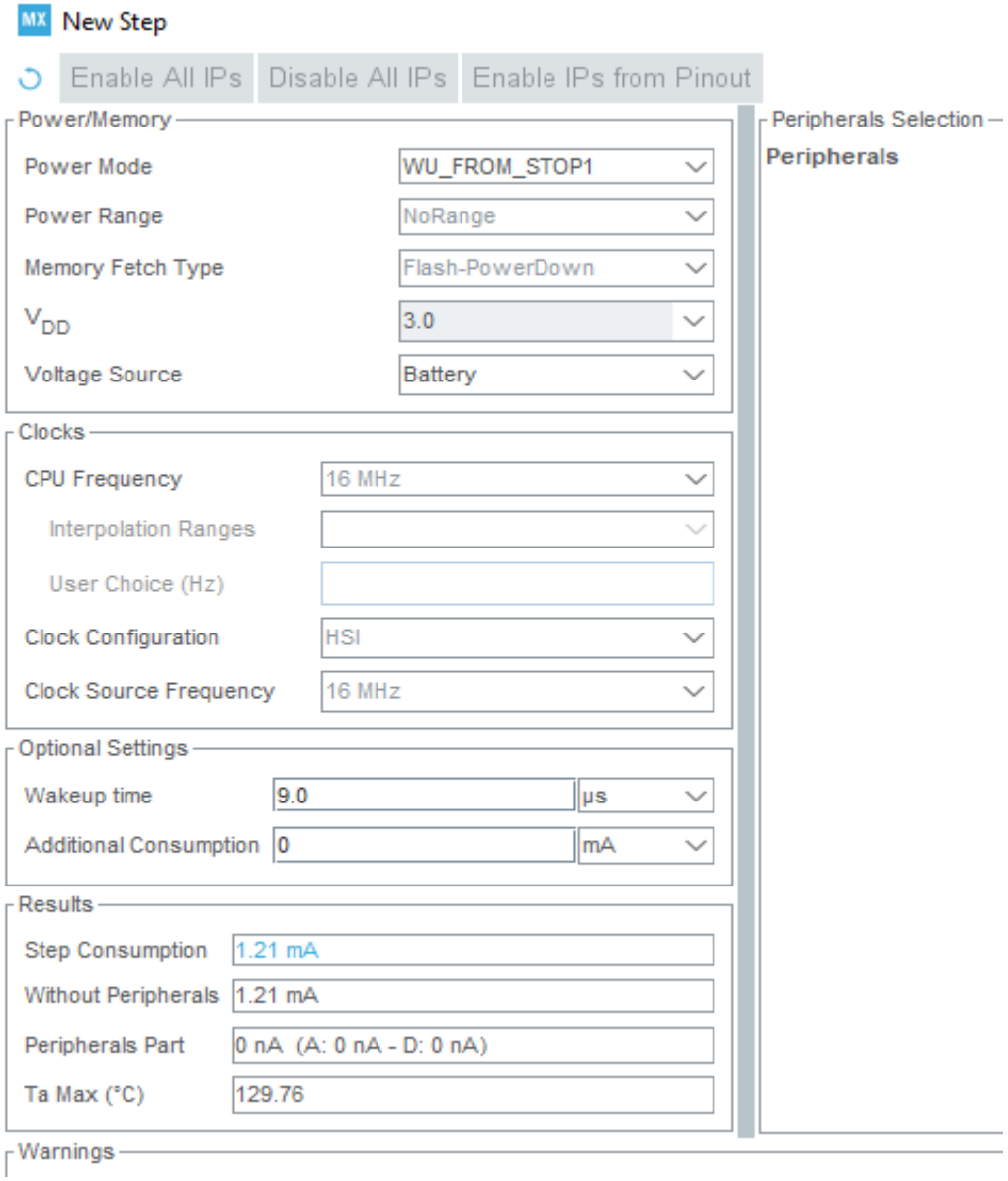
  - Resulting step consumption should be 3.4 uA



Add a Wakeup from STOP1 mode step

- **Add a last step: Wakeup from STOP1 mode**
  - VDD = 3V
  - Voltage source: Battery
  - Click “Add”

  - Resulting step consumption should be 1.21 mA



Average Current Consumption Result

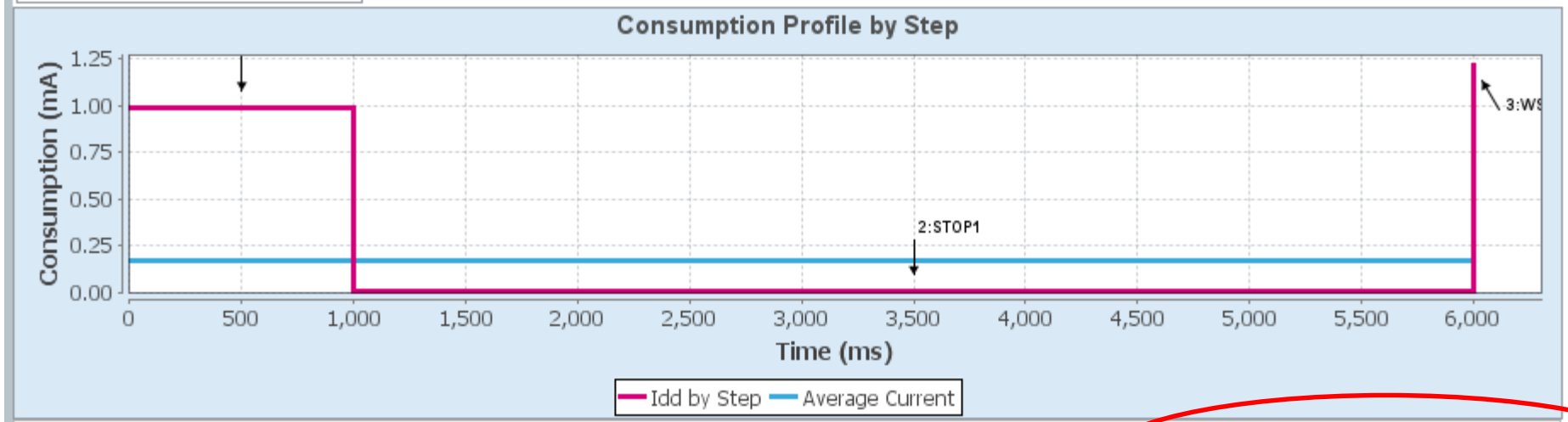
- **Note: the Current consumption numbers are for the MCU only.**

Sequence Table

Step	Mode	V_{DD}	Range/Scale	Memory	CPU/Bus Freq	Clock Config	Peripherals	Step Current	Duration
1	RUN	3.0	Range2-Medi...	FLASH	8 MHz	HSI	GPIOA GPIOC...	988.25 µA	1 s
2	STOP1	3.0	NoRange	Flash-Power...	16 MHz	HSI	RTC*	3.4 µA	5 s
3	WU_FROM_S...	3.0	NoRange	Flash-Power...	16 MHz	HSI		1.21 mA	9.0 µs

Display

Plot: All Steps



Sequence Time / Ta Max 6 s / 129.76 °C

Battery Life Estimation 1 year, 9 months, 26 days, 20 hours

Average Consumption 167.54 µA

Average DMIPS 10.0 DMIPS

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Thank you

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