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Autore	Gay Warren
Titolo	Beginning STM32 : Developing with FreeRTOS, libopencm3 and GCC / / by Warren Gay
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Nota di contenuto	Chapter 1 -- Introduction -- Chapter 2 -- Software Setup -- Chapter 3 -- Power up and Blink -- Chapter 4 -- GPIO -- Chapter 5 -- FreeRTOS -- Chapter 6 -- USART -- Chapter 7 -- USB Serial -- Chapter 8 -- SPI Flash -- Chapter 9 -- Code Overlays -- Chapter 10 -- Real Time Clock (RTC) -- Chapter 11 -- I2C -- Chapter 12 -- SPI OLED -- Chapter 13 -- OLED Using DMA -- Chapter 14 -- ADC -- Chapter 15 -- Clock Tree -- Chapter 16 -- PWM With Timer 2 -- Chapter 17 -- PWM Input with Timer 4 -- Chapter 18 -- CAN Bus -- Chapter 19 -- CAN Bus Software -- Chapter 20 -- New Projects -- 21 -- Troubleshooting -- 22 -- Appendix A Answers to Exercises -- 23 -- Appendix B.
Sommario/riassunto	Using FreeRTOS and libopencm3 instead of the Arduino software environment, this book will help you develop multi-tasking applications that go beyond Arduino norms. In addition to the usual peripherals found in the typical Arduino device, the STM32 device includes a USB controller, RTC (Real Time Clock), DMA (Direct Memory Access controller), CAN bus and more. Each chapter contains clear explanations of the STM32 hardware capabilities to help get you started with the device, including GPIO and several other ST Microelectronics peripherals like USB and CAN bus controller. You'll learn how to download and set up the libopencm3 + FreeRTOS development environment, using GCC. With everything set up, you'll leverage FreeRTOS to create tasks, queues, and mutexes. You'll also learn to

work with the I2C bus to add GPIO using the PCF8574 chip. And how to create PWM output for RC control using hardware timers. You'll be introduced to new concepts that are necessary to master the STM32, such as how to extend code with GCC overlays using an external Winbond W25Q32 flash chip. Your knowledge is tested at the end of each chapter with exercises. Upon completing this book, you'll be ready to work with any of the devices in the STM32 family. Beginning STM32 provides the professional, student, or hobbyist a way to learn about ARM without costing an arm!