MSPM0 real time clock (RTC) module introduction
—- MSPM0 peripheral training series

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MCU level overview

--- MSPM0Lxx series

MSPM0L13x3/4/5/6

- CPU: ARM Cortex-M0+ 32 MHz
- On-chip Memory: 8, 16, 32 or 64 kB flash, 2 or 4 kB SRAM
- Data Integrity & Security: CRC accelerator (16 and 32 bit)
- Programming & Debug: ARM SWD interface
- IO: Up to 28 GPIO, Up to 2 low I/O PPA inputs
- Power & Clocking: POR / BOR / SVS, Internal LF 32kHz (5%), Internal HF 4-32MHz (1%)
- Communication: UART w/ LIN (1), UART (1), SPI (1), I2C (2) w/ FastMode+
- Precision Analog: 12-bit SAR ADC 1Mps (1)
- Timers: General purpose 16-bit 2 CC (4), Windowed watchdog
- No-lead packages: QFN-16, VOFN-44/32

32 MHz MCU with up to 64kB flash, 32 pins, 12-bit ADC, dual zero-drift OPA/PGA, COMP

--- MSPM0Gxx series

MSPM0G350x/310x/150x/110x

- CPU: Arm Cortex-M0+ 80 MHz
- On-chip Memory: 32, 64, or 128 kB flash [ECC], 16 or 32 kB SRAM [ECC]
- Data Integrity & Security: CRC accelerator (16 and 32 bit), AES256 accelerator + TRNG
- Programming & Debug: ARM SWD interface, UART & I2C bootloader
- Power & Clocking: POR / BOR / SVS, External HF 32kHz XTAL, Internal HF 4-48MHz XTAL
- Communication: UART w/ LIN (1), UART (3), SPI (2), I2C (2) w/ FastMode+, CAN-FD (1)
- Programmers & Debug: ARM SWD interface, UART & I2C bootloader
- Precision Analog: 12-bit ADG 4Msps (6-ch), 12-bit ADG 4Msps (6-ch)
- Accelarators: Math (DIV, SQRT, TRIG, MAC)
- Accelerator: Math (DIV, SQRT, TRIG, MAC)
- Timers: Advanced control 16-bit 4 CC (1), Advanced control 16-bit 2 CC (1), General purpose 32-bit 2 CC (1), General purpose 16-bit 2 CC (2), Low power 16-bit 2 CC (2), Windowed watchdog (2), Real-time clock (1)

80 MHz MCU with up to 128kB flash, 64 pins, advanced analog, AES/TRNG, CAN-FD
MSPM0G350x RTC module introduction

Key Features
- Real-time clock and calendar mode providing seconds, minutes, hours, day of week, day of month, and year
- Selectable binary or BCD format
- Leap-year correction (valid for year 1901 through 2099)
- Two customizable calendar alarm interrupts
- Interrupt capability down to STANDBY mode
- Calibration for crystal offset error and crystal temperature drift (up to ±240ppm total)

Key Differences between G and L MCUs
- MSPM0G350x MCUs have 1 RTC module
# Clock module quick start

## Academy
- **RTC introduction lab**

## DriverLib Examples

**MSPM0G350x:**
- `rtc_calendar_alarm_standby`
- `rtc_offset_calibration_lfixt`
- `rtc_periodic_alarm_lfosc_standby`
- `rtc_periodic_alarm_lfixt_standby`

## Related Links
- **MSPM0 online resource**
- **MSPM0 Quick start guide**
- **MSPM0 Sysconfig user's guide**
- **MSPM0G350x datasheet**
- **MSPM0Gxx technical reference manual**

## Launchpad

### LP-MSPM0G3507

#### Entrance for RTC Setting

**Step 1:**
- **RTC**

**Step 2:**
- **Basic Configuration**
- **RTC Calendar Date:** 19:32:58 (HH:MM:SS) April 5, Monday, 2021
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