# MAX32600 Low Power Mode Using RTC

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## 1 Abstract

The Real-Time Clock (RTC) can be used as a wake-up device to pull the device from low power or in-active modes to active mode. This application will demonstrate how to use the RTC as a wakeup device in a periodic fashion.

## 2 Requirements

- MAX32600B EvKit
- Olimex JTAG ARM-USB-TINY-H
- GNU ARM toolchain
- External power source; Bench style 3.0v or AAA batteries
- Optional: Multimeter capable of reading $\mu$ Amps

## 3 Setup

- Load the compiled max32600.elf file onto the MAX32600 EvKit. Remove the JTAG connector and power cycle the device. Do not power with USB. The green LED should be on.
- Remove the jumper on J10 (VDD-BRK); connect meter probes across J10 for measuring the core current.
- If using an external 3.0v supply on pins J1+ and J2-, connect a jumper on J4 (EXT V IN).
- If using batteries, connect a jumper on J5; pins 2-3
- Set jumper J75-1 to J76-2 to power the peripherals directly with supply power, therefore power measurements do not include peripherals (LEDs and others).

## 4 Observation

- Push “SW1 Test” button and the device will go to LP1 sleep mode, no LEDs on will indicate sleep mode.
- Once the RTC turns over a unit of 1 second, the unit will wake up
- After 10ms, the unit will go back to LP1 sleep and repeatedly wake up on the 1 second RTC interval.
- Pressing the full reset “RSTN” will reset the part and go back to a steady on state in LP2.

## 5 Source Code Overview

### 5.1 Drivers In Use

- Instruction cache

- Clock Manager
- Power Manager
- GPIO
- RTC

## 5.2 Interrupts Enabled

- GPIO
- RTC
- Wake Up Detect

## 5.3 Code Operation

- Set up instruction cache
- Set RTOS mode
- Set up power for peripherals
- Configure power sequencer wake-up flag mask
- Turn on trickle charger
- Set RTC prescale and enable timer
- Initialize power sequencer to a known state
- Set up the “SW1 TEST” pushbutton to trigger an interrupt when the button is released
- Set up the LEDs
- Wait for interrupt
- On button trigger; set RTC continuous alarm, disable GPIOs set power mode for LP1, go to sleep LP1.
- On RTC wakeup, wait 10ms and go back to sleep.