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Advanced Low-Power MCU with the Industry-Leading Arm® Cortex®-M23 Core

Manufactured on the 40nm Ultra-Low Power Process for Energy-Saving Applications

The GD32L233 series of MCUs provide excellent power consumption efficiency and optimized processing performance with multiple operating and sleep modes. Compared with similar low-power MCU products in the industry, it has richer peripheral resources and application flexibility, paving the way for continuous optimization of system-level power consumption. The new series can be widely used in typical markets ranging from industrial meters, small consumer electronic devices, portable medical equipment, battery management systems, data acquisition, and transmission.

The Low Power Consumption Concept Runs Through the Entire Chip Design Process

- Adopts the industry-leading 40nm ultra-low-power manufacturing technology with low-leakage currents, thus reducing power consumption at the hardware level
- Specially optimized low-power analog IP to reduce power consumption effectively
- Follows a variety of low-power digital design concepts, including multi-voltage domain design

Key Features

Arm® Cortex®-M23 core
64MHz

Up to 256KB of eFlash
Up to 32KB of SRAM

66μA/MHz @ max frequency
and full-speed active mode

up to 93%
GPIO multiplexing rate

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Innovative Solutions Provided by Rich Peripheral Interfaces

Clock, Reset and Supply Management

- Internal 16MHz+48MHz RC
- Internal 32KHz RC oscillators
- Integrated system clock PLL
- Power Supply 1.7 to 3.6V
- Supply Supervisor: POR/PDR/LVD
- Multiple Power Saving Modes

Timers

- 1x 32-bit low power timer
- 4x 16-bit general timers
- 2x 16-bit basic timers
- Up to 4 channels of PWM
- 2x Watchdogs
- 1x 24-bit SysTick timer
- 1x RTC

Arm® Cortex®-M23 core 64 MHz

- Single-cycle Multiplication & Hardware divider
- Nested Vectored Interrupt Controller (NVIC)
- SW Debug

Peripherals

- Up to 59 GPIOs
- 7-channel DMA Request Multiplexer (DMAMUX)
- Segment LCD Controller (SLCD): 8*28 segments & 4*32 segments

Memory

- Up to 256 KB Embedded Flash
- Up to 32 KB SRAM

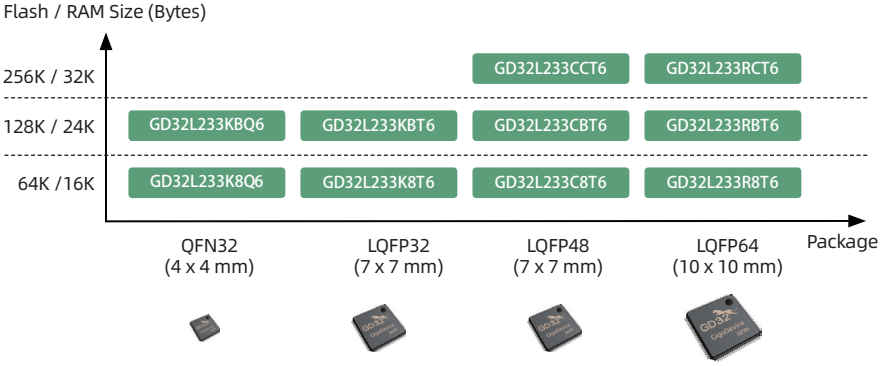
Connectivity

- 2x USART
- 2x UART
- 1x LPUART
- 3x I²C
- 2x SPI
- 1x I²S
- 1x Full-Speed USB 2.0

Analog

- 1x 12-bit SAR ADC
- 1x 12-bit DAC
- 2x Comparators

GD32L233 Low-Power Portfolio



Development tools

GD32L233R-EVAL

A full-featured evaluation board based on the GD32L233RCT6. Supports software development, debugging and demonstrates the complete functional capabilities of the device.

GD32L233C-START / GD32L233K-START

Entry-level learning boards based on the GD32L233CCT6 / GD32L233KBT6. These correspond to different package types to support simpler application development and debugging.

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For more information on GD32 MCU products and solutions, visit **GD32MCU.com/en**

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