



## GigaDevice Launches New EtherCAT® SubDevice Controller Chip: An Excellent Choice for Industrial Automation

With its high integration, flexibility, and stability, the GDSCN832 is ideal for applications such as motor motion control, data acquisition, industrial automation, communication modules, and sensors. The series comes in a compact QFN64 package, along with a development and evaluation board, providing a cost-effective EtherCAT® SubDevice Controller device solution for developers.

The GDSCN832 series is a 2/3-port EtherCAT® SubDevice Controller integrating two internal PHYs and one MII extension interface. It has a dual-channel integrated Ethernet physical layer device, with each channel offering a full-duplex 100BASE-TX transceiver supporting 100 Mbps operation. This series supports eight Fieldbus Memory Management Units (FMMU) and eight Sync Manager entities for efficient memory management, enhancing data processing performance and security to improve system response time and real-time performance. The GDSCN832 series includes up to 8 KB of Dual-Port RAM (DPRAM), facilitating large data processing capabilities for complex control systems. It incorporates a 64-bit distributed clock with a host bus interface that achieves equivalent functionality through high-speed synchronous/asynchronous device interfaces, with a precision below 1  $\mu$ s. This product series supports 8/16-bit serial/parallel port communication, SPI/QSPI/OSPI device interfaces with communication speeds up to 100 MHz, and EXMC synchronous mode. Its diverse interface options provide users with greater flexibility in interface configuration. The GDSCN832 supports HP Auto-MDIX, enabling direct or crossover LAN cable connections. Four low-power modes are available to balance energy efficiency and power consumption.

### GDSCN832 series EtherCAT® SubDevice Controller

- ◆ 2 built-in PHYs + 1 MII expansion interface
- ◆ 8 Fieldbus Memory Management Units (FMMUs)
- ◆ 8 Sync Manager Entities
- ◆ 8 KB DPRAM
- ◆ 64-bit distributed clock supporting MDevice-SubDevice synchronization with a precision of less than 1  $\mu$ s
- ◆ Supports 8/16-bit serial/paralleled communication, SPI/QSPI/OSPI slave interfaces, and EXMC synchronous mode
- ◆ Supports variable voltage I/O from 1.8V to 3.3V
- ◆ Provide QFN64 package option



GDSCN832  
GigaDevice





# GD32H75E Series EtherCAT® Industrial Automation MCUs: Combining Superior Control and Efficient Communication Capabilities

GigaDevice has launched the GD32H75E series, its first high-performance MCU product authorized by Beckhoff to integrate the EtherCAT® SubDevice Controller. Combining the GD5CN832 series chip with a high-performance MCU, this product offers a seamless solution for diverse industrial automation applications, including servo motor control, variable frequency drives, industrial PLCs, and communication modules.

## High Performance

- ◆ ARM® Cortex®-M7, 600 MHz
- ◆ 1552 DMIPS, CoreMark® 2888
- ◆ DSP, double-precision FPU
- ◆ Built-in Embedded Trace Macrocell (ETM) providing advanced debugging support
- ◆ Integrated trigonometric function accelerator (TMU) and filtering algorithm accelerator (FAC)

## Large Memory Space

- ◆ Up to 3840 KB Flash, 1024 KB SRAM
- ◆ Up to 512 KB on-chip tightly coupled memory (TCM)
- ◆ 32 KB I-Cache, 32 KB D-Cache
- ◆ Support QSPI/OSPI/EXMC interface external memory expansion

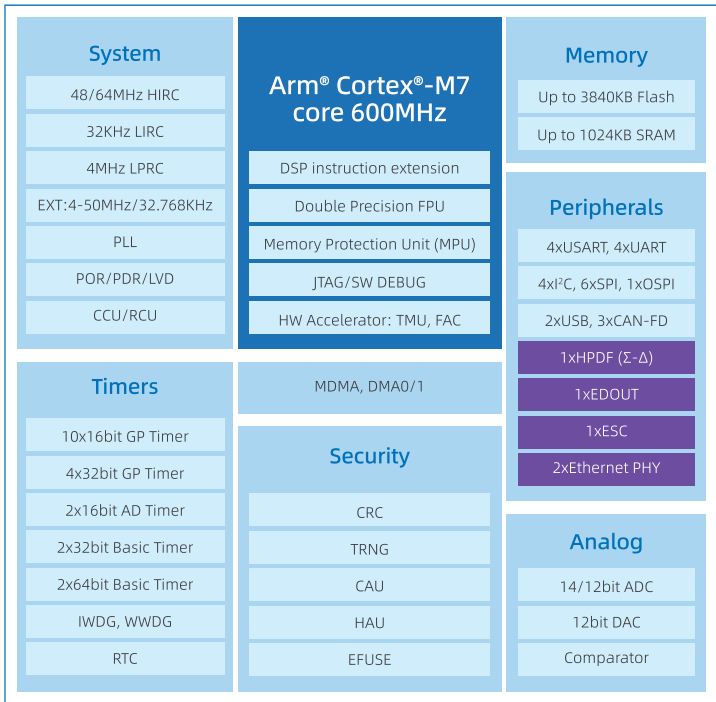
## Equipped with EtherCAT® SubDevice Controller

- ◆ 2 built-in PHYs + 1 MII expansion interface
- ◆ 8 Fieldbus Memory Management Units (FMMUs)
- ◆ 8 Sync Manager Entities
- ◆ 8 KB DPRAM
- ◆ 64-bit distributed clock supporting MDevice-SubDevice synchronization with a precision of less than 1 μs
- ◆ Supports 8/16-bit serial/paralleled communication, SPI/QSPI/OSPI device interfaces, and EXMC synchronous mode
- ◆ Supports variable voltage I/O from 1.8V to 3.3V

## Rich Peripheral Resources

- ◆ Multiple mainstream general-purpose interfaces: 8x U(S)ART, 4x I<sup>2</sup>C, 6x SPI, 1x OSPI
- ◆ Advanced communication interfaces: USB OTG, 3x CAN-FD
- ◆ Abundant 64/32/16-bit timers
- ◆ Provides sampling rates of up to 4 MSPS for 14-bit ADC and 5.3 MSPS for 12-bit ADC
- ◆ Supports 12-bit DAC and comparators
- ◆ Built-in high-performance digital filter module (HPDF) for external Σ-Δ modulators
- ◆ Supports encoder frequency division output controller (EDOUT)

## GD32H75E Block Diagram



## GD32H75E Ecosystem

The GD32H75E series includes two BGA240 package models, supporting internal PHY or bypass mode for flexible configuration based on application needs. The corresponding documentation and software resources are available on GigaDevice's official website for easy access. Additionally, GigaDevice provides a free development environment, GD32 IDE, along with debugging and programming tools like GD-LINK and GD32 All-In-One Programmer. Leading embedded tool providers, including Arm® KEIL, IAR, and SEGGER, also offer full support for development, compilation, and trace debugging tools, delivering a user-friendly development and debugging experience.