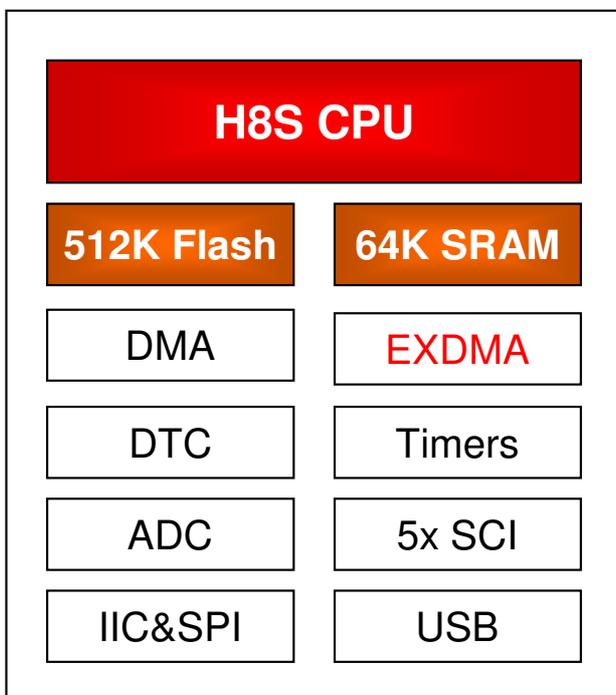# Low-Cost H8S 16-bit Microcontrollers
with Zero Wait-State Flash, USB and TFT Drive

H8S/245x
H8S/242x

Description

The H8S/245x and H8S/242x microcontrollers (MCUs) offer an extremely low-cost way to generate TFT-LCD based GUI solutions with medium graphic animation and a touch screen. No need for higher-frequency, higher-cost microprocessor (MPU) systems, simply order our development kit and get started immediately using the hardware and firmware reference platform.

H8S CPU	
512K Flash	64K SRAM
DMA	EXDMA
DTC	Timers
ADC	5x SCI
IIC&SPI	USB

The **EXDMA** unit becomes the TFT-LCD controller, requiring only 5% of CPU bandwidth for example when refreshing a WQVGA TFT-LCD panel at 60Hz, moving graphic RGB data from external RAM into the TFT panel. Plenty of CPU bandwidth remains to drive the remainder of the application and to create medium animation.

Key Features

- High performance 33MHz CPU with very deterministic operation due to zero wait-state Flash memory
- Eight 32-bit general-purpose registers and hardware multiplier
- ROM-less, 128K, 256K, and 512K embedded full-speed Flash memory with up to 64K SRAM
- USB-FS 2.0 Device interface w/PHYon H8S/245x
- External DMA (EXDMA) to drive TFT-LCD panels up to WQVGA (480 x 272) with 16-bit color depth
- 4 channel internal DMA and DTC
- Strong timer resources (2x TPU, TMR, WDT)
- 5x USART (incl ISO7816 and IrDA), 4x IIC, SPI
- 16-channel 10-bit ADC, 2-channel 8-bit DAC
- External CPU Bus interface
- Low-power modes including deep standby
- Choice of 120-pin and 144-pin LQFP packages
- Operating voltage choices of 3.3V and 5V
- 32-bit H8SX upgrade devices (H8SX/166x, H8SX/165x) with up to 1MB Flash and 50 DMIPS. These MCUs can can drive up to VGA (640 x 480) TFT-LCD resolution with 16 bpp color depth

Applications

The Renesas H8 family is widely used in Europe in thousands of products from all areas of the consumer and industrial world. Examples include building and industrial automation, metering, white goods, office automation, medical applications and electronic point of sales.

Want to know more?
Please contact your local Renesas sales representative or Renesas distributor.

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• For Fast & Easy Development:

Renesas H8S/TFT-LCD Development Kit, YLCDRSK2456S

- H8S/2456 MCU starter kit board
- WQVGA (480 x 272) TFT-LCD panel with touch screen
- E10A JTAG debugger/programmer
- High-Performance Embedded Workshop (HEW) Integrated Development Environment (IDE) with 60-day full trial license
- **Free Graphics API (GAPI) and library** supporting simple GUI objects like buttons, sliders, bitmaps, proportial fonts, basic shapes and gradient coloring
- TFT-LCD firmware drivers and demo applications
- Full documentation with application notes, design guide, and GAPI users guide
- All cabling and power supply
- Suggested resale price: €599.-

Instant-on display ! Near-zero boot time!

For non TFT-LCD applications, there is a standard development kit for the H8S/245x and H8S/242x MCU groups, partnumber R0K524568S000BE, suggested resale price €399.-. Kit includes the MCU board, E10A JTAG debugger/programmer, 60-day full trial license for HEW, all cabling, firmware examples, and documentation.