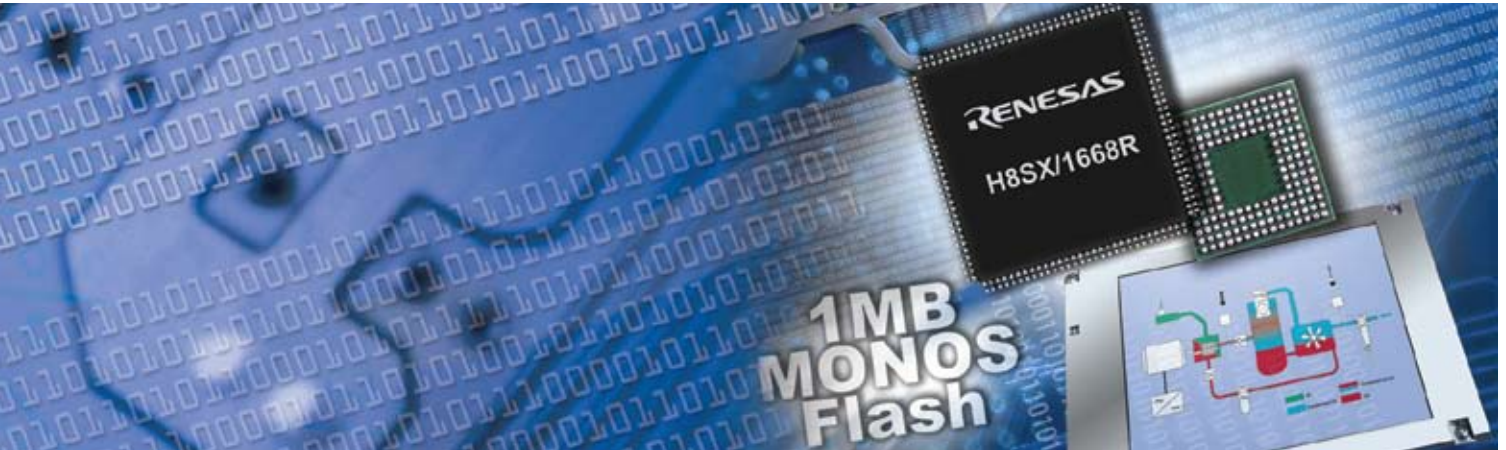


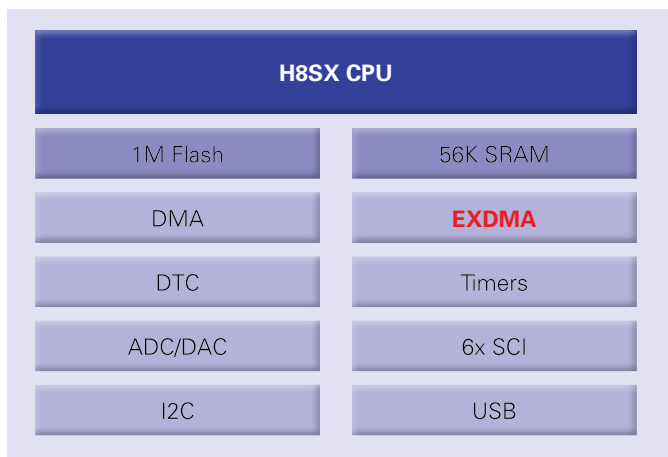
# Low-cost H8SX 32-bit microcontrollers with zero wait-state Flash, USB and **TFT drive**



## H8SX/166x

### Description

The H8SX/166x microcontrollers (MCUs) offer an extremely low-cost way to generate TFT-LCD based GUI solutions with 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.



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 50MHz CPU with very deterministic operation due to zero wait-state Flash memory
  - eight 32-bit general-purpose registers and hardware multiplier/divider
  - 384K, 512K and 1MB embedded full-speed Flash memory with up to 56K SRAM
  - USB-FS 2.0 Device interface w/PHY
  - External DMA (EXDMA) to drive TFT-LCD panels up to VGA (640 x 480) with 16-bit color depth
  - 4 channel internal DMA and DTC
  - Strong timer resources (2x TPU, 8x TMR, WDT)
  - PPG to drive e.g. stepper motors
  - 6x USART (incl ISO7816 and IrDA), 2x I2C
  - 16-channel 10-bit ADC, 2-channel 10-bit DAC
  - External CPU Bus interface
  - Low-power modes including deep standby
  - 32KHz subclock
  - POR/LVD on M-versions
  - 144-pin LQFP, 145-pin LGA (9x9mm) and 176-pin BGA package
  - Operating voltage 3.3V
- Roadmap to RX with enhanced features.

### 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.



**INSTANT-ON!  
TOUCH  
CONTROL!**

**For Fast & Easy Development:**

**Renesas H8SX/TFT-LCD Development Kit, YLCDRSK1668S**

- H8SX/1668R MCU board with 1MB embedded Flash
- 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, proportional fonts, basic shapes and gradient coloring

- TFT-LCD firmware drivers and demo applications
- SD-card connector and USB function interface
- Audio output via head set connector
- Full documentation with application notes, design guide, and GAPI users guide
- All cabling and power supply

Visit [www.renesas.eu](http://www.renesas.eu) for more information.



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