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# STM32 GUI solutions

# Advanced HMI now achievable on embedded systems


## High-end GUI enabled with real-time determinism, lower software complexity, faster boot time and longer battery life

Our wide offer of graphics-enabled STM32 MCUs brings smartphone-like graphical user interfaces to embedded systems, reducing the amount of time and resources invested in acquiring complex MPU and rich OS know-how.

Thanks to the graphics acceleration, memory integration, advanced display interfaces and smart architecture of STM32 microcontrollers, you can now enrich your applications with a high-end user experience with a limited total cost of ownership.

Graphics-enabled STM32 MCUs are available in different performance ranges and package types and sizes from 100 up to 240 pins.

### GRAPHICS ACCELERATION

- Chrom-ART Accelerator™
  - Offloads the main CPU from repetitive graphical operations
  - Enables high-end user interfaces in parallel with real-time processing
  - Offers an efficient font management capability enabling multi-language support with limited memory size impact
- Hardware JPEG codec
  - Brings additional branding and tutorial video capabilities to your HMI

### DISPLAY INTERFACES

- 8080/6800 parallel interface
  - Ideal for small-sized displays
- LCD-TFT controller
  - For mid-sized displays
  - Supports up to XGA resolution
- MIPI-DSI® controller
  - For new-generation displays with higher pixel density, lower EMI and lower pin count

### INTEGRATION AND MEMORY EXTENSIONS

- Up to 2 Mbytes of internal Flash memory, NOR and NAND Flash extentions, and up to 1 Mbyte of internal SRAM
  - Optimum support of up to WQVGA resolutions with no exernal RAM
- Chrom-GRC™ «unsquares» round displays and saves 20% RAM memory resources
- SDRAM and PSRAM extensions
  - Enabling up to XGA resolution with support through memory extensions

### POWER EFFICIENCY

All STM32 MCUs bring low or even ultra-low-power capabilities enabling advanced UIs and longer battery life on consumer, medical, and industrial portable devices.

## STM32 GRAPHICS ECOSYSTEM

STM32 graphics-enabled MCUs come with a rich hardware and software ecosystem enabling easy and efficient product prototyping and development.

### Development kits

Each product line offers a discovery kit and an evaluation board that embed a display panel, external memory extensions as well as a rich set of connectivity features enablingeasy prototyping of your GUI design.

### Embedded software

STM32Cube software brings all the hardware abstraction layer drivers, software middleware and implementation examples allowing you to quickly and efficiently benefit from STM32 MCUs and their IPs.

### Graphic libraries and tools

A wide choice of leading graphic software libraries and tools taking full advantage of STM32 graphics acceleration, display interfaces and smart architecture is also available to help you easily achieve the most advanced GUI design for STM32 MCUs.

### Software examples

Development kits come preloaded with a graphics interface and application examples using different display solutions and demonstrating advanced graphical user interfaces.

STemWin FREE

TouchGFX FREE

EmbeddedWizard

## ... and many others

## STM32 ADVANCED GUI-ENABLED MCU PORTFOLIO

| Product lines | Core and frequency | Graphic acceleration | Embedded Flash Memory | Embedded RAM | Display Interfaces | External memory interfaces |
|---|---|---|---|---|---|---|
| **STM32L496** STM32 L4 | Cortex-M4 @ 80 MHz | Chrom-ART Accelerator™ | Up to 1 Mbyte | 320 Kbytes | Parallel IF | SRAM / PSRAM / NOR / NAND parallel Flash / Dual Quad-SPI NOR Flash |
| **STM32L4R9** STM32 L4+ | Cortex-M4 @ 120 MHz | Chrom-ART Accelerator™ | Up to 2 Mbytes | 640 Kbytes Chrom-GRC™ | Parallel IF LCD-TFT IF MIPI-DSI® | SRAM / PSRAM / NOR / NAND parallel Flash / Octal-SPI NOR Flash |
| **STM32F429** STM32 F4 | Cortex-M4 @ 180 MHz | Chrom-ART Accelerator™ | Up to 2 Mbytes | 256 Kbytes | Parallel IF LCD-TFT IF | SRAM / PSRAM / SDRAM / NOR / NAND parallel Flash |
| **STM32F469** STM32 F4 | Cortex-M4 @ 180 MHz | Chrom-ART Accelerator™ | Up to 2 Mbytes | 384 Kbytes | Parallel IF LCD-TFT IF MIPI-DSI® | SRAM / PSRAM / SDRAM / NOR / NAND parallel Flash / Dual Quad-SPI NOR Flash |
| **STM32F746** STM32 F7 | Cortex-M7 @ 216 MHz | Chrom-ART Accelerator™ | Up to 1 Mbyte | 320 Kbytes | Parallel IF LCD-TFT IF | SRAM / PSRAM / SDRAM / NOR / NAND parallel Flash / Dual Quad-SPI NOR Flash |
| **STM32F750** STM32 F7 | Cortex-M7 @ 216 MHz | Chrom-ART Accelerator™ | 64 Kbytes | 512 Kbytes | Parallel IF LCD-TFT IF MIPI-DSI® | SRAM / PSRAM / SDRAM / NOR / NAND parallel Flash / Dual Quad-SPI NOR Flash |
| **STM32F769** STM32 F7 | Cortex-M7 @ 216 MHz | Chrom-ART Accelerator™ Hardware JPEG codec | Up to 2 Mbytes | 512 Kbytes | Parallel IF LCD-TFT IF MIPI-DSI® | SRAM / PSRAM / SDRAM / NOR / NAND parallel Flash / Dual Quad-SPI NOR Flash |
| **STM32H743** STM32 H7 | Cortex-M7 @ 400 MHz | Chrom-ART Accelerator™ Hardware JPEG codec | Up to 2 Mbytes | 1024 Kbytes | Parallel IF LCD-TFT IF | SRAM / PSRAM / SDRAM / NOR / NAND parallel Flash / Dual Quad-SPI NOR Flash |
| **STM32F750** STM32 F7 | Cortex-M7 @ 400 MHz | Chrom-ART Accelerator™ Hardware JPEG codec | 128 Kbytes | 1024 Kbytes | Parallel IF LCD-TFT IF | SRAM / PSRAM / SDRAM / NOR / NAND parallel Flash / Dual Quad-SPI NOR Flash |



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