Focusing on real-time performance and scalability, ST’s new Value lines lower the barrier to access STM32H7 microcontrollers with products keeping just the essential Flash memory.

With execution performance up to 2778 CoreMark at the heart of a secure, power-efficient architecture, the new Value line microcontrollers are the entry point to IoT innovation in medical, industrial and consumer applications.

STM32H730, STM32H750 & STM32H7B0 devices embed 128-Kbyte Flash memory to accommodate the most critical and secure code, while supporting external memory extension using NOR, NAND, SDRAM, dual-mode Quad SPI or Octal-SPI Flash memory.

### CORE, MEMORIES
- Arm® Cortex®-M7 core up to 550 MHz
- Up to 32-Kbyte data and 32-Kbyte instruction cache
- Up to 4 DMA controllers
- 128-Kbyte Flash memory and up to 1.4-Mbyte RAM
- ITCM/DTCM1: 64-Kbyte ITCM RAM + 128-Kbyte DTCM RAM for time-critical routines

### CONNECTIVITY
- Up to 2 x USB 2.0 OTG FS/HS with embedded FS PHY
- USART, UART, SPI, and PC
- Up to 3 x CAN FD
- Ethernet MAC
- FMC supporting SDRAM in 32-bit mode, PSRAM, NOR and NAND
- Dual-mode Quad-SPI or dual Octal-SPI supporting Octal Flash and HyperRAM™
- 2 x SDMMC

### EMBEDDED FLASH
- Secure Boot for customer Root of Trust
- Fast boot time
- High-execution speed from ultra fast embedded memory

### ENERGY EFFICIENT
- Flexible power mode
- Gated power domains
- On-chip power management

### AUDIO
- 3 x I²S + audio PLL
- Up to 4 x SAI
- 2 x 12-bit DAC
- SPDIF-RX

### GRAPHICS
- LCD TFT controller
- JPEG Codec
- Chrom-ART Accelerator™
- Chrom-GRC™

### OTHER
- 8- to 14-bit Camera interface
- Crypto and Hash hardware acceleration
- DFSDM interface to connect microphone MEMs or sigma delta ADC front ends
- 16- and 32-bit timers
- Up to 3 x ADCs with up to 16-bit resolution (up to 3.6 MSPS)
- 1 x 12 bit ADC (up to 5 MSPS)
- Analog (comparators and Op amps)
- Power supply down to 1.62 V
- Security services option

Notes:
1. Tightly Coupled Memories
2. Digital Filters for Sigma Delta Modulator
STM32 HIGH-PERFORMANCE VALUE LINES

<table>
<thead>
<tr>
<th>Product lines</th>
<th>Core</th>
<th>fCPU (MHz)</th>
<th>ID cache</th>
<th>ITCM/DTCM (KB)</th>
<th>Flash memory (KB)</th>
<th>Total RAM (KB)</th>
<th>Graphic</th>
<th>Advanced analog</th>
<th>USB OTG</th>
<th>Ethernet</th>
<th>Camera I/F</th>
<th>CAN</th>
<th>Security &amp; Crypto/Hash acceleration</th>
<th>Packages</th>
</tr>
</thead>
<tbody>
<tr>
<td>STM32H730</td>
<td>CM7</td>
<td>550</td>
<td>32 + 32</td>
<td>64/128</td>
<td>128</td>
<td>564</td>
<td>TFT-LCD</td>
<td>1x 12-bit ADCs (up to 5 MSPS), 2x 16-bit ADCs (up to 3.6 MSPS) 2x Opamps, 2x Comparators, 2x 12-bit DACs</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1 TFFD CAN, 2 FDCAN</td>
<td>LQFP100, TFBGA100⁴, LQFP144, UFPGA144⁴, UFPGA169⁴, LQFP176, UFPGA176⁵</td>
</tr>
<tr>
<td>STM32H750</td>
<td>CM7</td>
<td>480</td>
<td>16+16</td>
<td>64/128</td>
<td>128</td>
<td>1060</td>
<td>Chrom-ART</td>
<td>3x 16-bit ADCs (3.6 MSPS), 2x Opamps, 2x Comparators, 2x 12-bit DACs</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1 TFFD CAN, 2 FDCAN</td>
<td>LQFP100, TFBGA100⁴, LQFP144, UFPGA144⁴, UFPGA169⁴, LQFP176, UFPGA176⁵</td>
</tr>
<tr>
<td>STM32H7B0</td>
<td>CM7</td>
<td>280</td>
<td>376</td>
<td>64/128</td>
<td>128</td>
<td>1376</td>
<td>Chrom-GRC™</td>
<td>1x 12-bit ADC (up to 5 MSPS), 2x 16-bit ADCs (up to 3.6 MSPS) 2x Opamps, 2x Comparators, 2x 12-bit DACs</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>UFPGA169⁵, LQFP176, UFPGA176⁵</td>
</tr>
</tbody>
</table>

1. PCROP: Proprietary Code Read Out Protection (protects part of the Flash memory to execution access only)
2. SFI: Secure Firmware Install. Security service and keys available on standard parts to securely install a Root of Trust (RoT)
3. (0.65 mm pitch)
4. (0.8 mm pitch)
5. (0.5 mm pitch)

STM32H730 VALUE LINE BLOCK DIAGRAM

**System**
- SMPS, LDO, USB and backup regulators
- POR/PDR/PVD/BOR
- Multi-power domains
- Xtal oscillators: 32 kHz + 4 ~48 MHz
- Internal RC oscillators: 32 kHz + 4, 48 & 64 MHz
- 3x PLL
- Clock control
- RTC/AWU
- 1x SysTick timer
- 2x watchdogs (independent and window)
- 119/121/128 I/Os
- Cyclic redundancy check (CRC)
- Unique ID
- Digital Temperature sensor

**Chrom-ART Accelerator™**
- Arm® Cortex®-M7
- 550 MHz
- Cache I/D 32+32 Kbytes

**Floating point unit (DP-FPU)**
- Nested vector interrupt controller (NVIC)
- JTAG/SW debug/ETM

**Control**
- 2x 16-bit motor control
- PWM synchronized AC timer
- 10x 16-bit timers
- 4x 32-bit timers
- 5x Low-power timer

**AXI and Multi-AHB bus matrix**
- 4x DMA
- True random number generator (RNG)

**Analog**
- 2x 12-bit, 2-channel DACs (up to 3.6 MSPS)
- 18 channels
- 1x 12-bit ADC (up to 5 MSPS)
- 12 channels
- 2x COMP
- 2x OpAmp

**Crypto/Hash processor**
- 3DES, AES 256, GCM, CCM
- SHA-1, SHA-256, MD5, HMAC
- Security services SFI and SB-SFU

**Connectivity**
- TFT LCD controller
- HDMI-CEC
- 6x SPI, 4x I²S, 5x I²C
- Camera interface, PSSI
- Ethernet MAC 10/100 with IEEE 1588 MDIO slave
- 3x FDCAN (Flexible Data rate)
- 1x USB 2.0 OTG FS/HS
- 2x SDMMC
- 5x USART + 5 UART
- LIN, smartcard, IrDA, modem control
- 1x Low-power UART
- 2x SAI (Serial audio interface)
- SDPIF input X4
- DFSDM (8 inputs/4 filters)
- SWP (Single Wire Protocol)
The STM32Trust ecosystem combines knowledge, design tools, and ready-to-use original ST software to build strong cyber-protection into new IoT devices, leveraging industry best-practices. www.st.com/stm32trust

**HARDWARE TOOLS**

All existing STM32H7 hardware development tools are fully compatible with the new Value lines. Dedicated tools are also available for the Value lines.
http://www.st.com/stm32evaltools

<table>
<thead>
<tr>
<th><strong>Evaluation boards</strong></th>
<th><strong>Discovery kits</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Full feature STM32H7 evaluation</td>
<td>Flexible prototyping &amp; demo</td>
</tr>
</tbody>
</table>