The STM32H7 series offer the performance of the Cortex-M7 core running up to 400 MHz. Combined with a smart architecture based on a multi-power domain, developers can always use the best configuration to optimize data transfers and CPU load while staying gentle on the power budget when needed.

The embedded hardware accelerators and the extensive digital and analog peripheral set make the STM32H7 very well suited for industrial applications where fast reaction time is key or HMI applications where the graphic and audio support will allow an unprecedented user experience with an embedded microcontroller.
STM32H753xI BLOCK DIAGRAM

**System**
- Main, USB and backup regulators
- POR/POR/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)
- 82/114/140/168 I/Os
- Cyclic redundancy check (CRC)
- Unique ID

**Arm® Cortex®-M7 400 MHz**
- Cache I/D 16+16 Kbytes
- JPEG Codec Acceleration
- Chrom-ART Accelerator™
- 2-Mbyte dual-bank Flash memory
- 1-Mbyte SHAM + 64-Kbyte ITCM RAM
- FMC/SRAM/NOR/NAND/SDRAM
- Dual Quad-SPI
- 32 registers + 4-Kbyte backup RAM

**Connectivity**
- TFT LCD controller
- HDMI-CEC
- 6x SPI, 3x PS, 4x PC
- Camera interface
- Ethernet MAC 10/100 with IEEE 1588
- MDIO slave
- 2x FDCAN
  - (Flexible Data rate)
- 1x USB 2.0 OTG FS/HS
- 1x USB 2.0 OTG FS
- 2x SDMMC
- 4x USART + 4 UART
- LIN, smartcard, IRDA, modem control
- 1x Low-power UART
- 4x SAI
  - (Serial audio interface)
- SPDIF input x4
- DFSDM (8 inputs/4 filters)
- SWP
  - (Single Wire Protocol)

**Analog**
- 2x 12-bit, 2-channel DACs
- 3 x 16-bit ADC
  - (up to 3.6 Msps)
- 20 channels/up to 2 MSPS
- Temperature sensor
- 2x COMP
- 2x OpAmp

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

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

**STM32H7 PORTFOLIO**

**Flash memory size / RAM size (bytes)**
- 2 M / 1 M
- 1 M / 1 M
- 128 K / 1 M

**Legend:**
- Value line
- without HW crypto/hash
- with HW crypto/hash

**HARDWARE TOOLS**

A full set of evaluation boards enables flexible prototyping as well as full STM32H7 evaluation.

**Evaluation boards**
- STM32H743I-EVAL and STM32H753I-EVAL

**Nucleo boards**
- NUCLEO-H743ZI (144-pin Nucleo)

**SOFTWARE TOOLS**

STM32CubeMX enables fast development thanks to its MCU clock configurator, power consumption calculator and code generation tools.

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