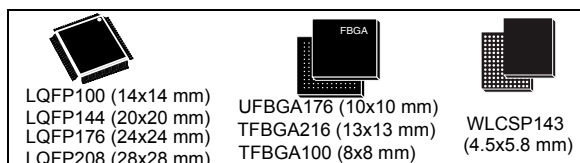


ARM[®]-based Cortex[®]-M7 32b MCU+FPU, 462DMIPS, up to 1MB Flash/320+16+ 4KB RAM, crypto, USB OTG HS/FS, ethernet, 18 TIMs, 3 ADCs, 25 com itf, cam & LCD

Datasheet - production data

Features

- Core: ARM[®] 32-bit Cortex[®]-M7 CPU with FPU, adaptive real-time accelerator (ART Accelerator[™]) and L1-cache: 4KB data cache and 4KB instruction cache, allowing 0-wait state execution from embedded Flash memory and external memories, frequency up to 216 MHz, MPU, 462 DMIPS/2.14 DMIPS/MHz (Dhrystone 2.1), and DSP instructions.
- Memories
 - Up to 1MB of Flash memory
 - 1024 bytes of OTP memory
 - SRAM: 320KB (including 64KB of data TCM RAM for critical real-time data) + 16KB of instruction TCM RAM (for critical real-time routines) + 4KB of backup SRAM (available in the lowest power modes)
 - Flexible external memory controller with up to 32-bit data bus: SRAM, PSRAM, SDRAM/LPSDR SDRAM, NOR/NAND memories
- Dual mode Quad-SPI
- LCD parallel interface, 8080/6800 modes
- LCD-TFT controller up to XGA resolution with dedicated Chrom-ART Accelerator[™] for enhanced graphic content creation (DMA2D)
- Clock, reset and supply management
 - 1.7 V to 3.6 V application supply and I/Os
 - POR, PDR, PVD and BOR
 - Dedicated USB power
 - 4-to-26 MHz crystal oscillator
 - Internal 16 MHz factory-trimmed RC (1% accuracy)
 - 32 kHz oscillator for RTC with calibration
 - Internal 32 kHz RC with calibration
- Low-power
 - Sleep, Stop and Standby modes
 - V_{BAT} supply for RTC, 32×32 bit backup registers + 4KB backup SRAM
- 3×12-bit, 2.4 MSPS ADC: up to 24 channels and 7.2 MSPS in triple interleaved mode
- 2×12-bit D/A converters
- Up to 18 timers: up to thirteen 16-bit (1x low-power 16-bit timer available in Stop mode) and two 32-bit timers, each with up to 4 IC/OC/PWM or pulse counter and quadrature (incremental) encoder input. All 15 timers running up to 216 MHz. 2x watchdogs, SysTick timer



- General-purpose DMA: 16-stream DMA controller with FIFOs and burst support
- Debug mode
 - SWD & JTAG interfaces
 - Cortex[®]-M7 Trace Macrocell[™]
- Up to 168 I/O ports with interrupt capability
 - Up to 164 fast I/Os up to 108 MHz
 - Up to 166 5 V-tolerant I/Os
- Up to 25 communication interfaces
 - Up to 4× I²C interfaces (SMBus/PMBus)
 - Up to 4 USARTs/4 UARTs (27 Mbit/s, ISO7816 interface, LIN, IrDA, modem control)
 - Up to 6 SPIs (up to 50 Mbit/s), 3 with muxed simplex I²S for audio class accuracy via internal audio PLL or external clock
 - 2 × SAls (serial audio interface)
 - 2 × CANs (2.0B active) and SDMMC interface
 - SPDIFRX interface
 - HDMI-CEC
- Advanced connectivity
 - USB 2.0 full-speed device/host/OTG controller with on-chip PHY
 - USB 2.0 high-speed/full-speed device/host/OTG controller with dedicated DMA, on-chip full-speed PHY and ULPI
 - 10/100 Ethernet MAC with dedicated DMA: supports IEEE 1588v2 hardware, MII/RMII
- 8- to 14-bit parallel camera interface up to 54 Mbyte/s
- Cryptographic acceleration: hardware acceleration for AES 128, 192, 256, triple DES, HASH (MD5, SHA-1, SHA-2), and HMAC
- True random number generator
- CRC calculation unit
- RTC: subsecond accuracy, hardware calendar
- 96-bit unique ID

Table 1. Device summary

Reference	Part number
STM32F756xx	STM32F756VG, STM32F756ZG, STM32F756IG, STM32F756BG, STM32F756NG