

Based on MPU from STM32MP1 family

- ▶ Solderable system on module: 29 x 29 x 3.2 mm
- ▶ Solder-on module enables cost-effective, automated assembly
- ▶ Enhanced security features
- ▶ Cost- and energy-efficient SOM with Mainline Linux
- ▶ All SoC features available on mainboard
- ▶ STPMIC1 supports low power modes
- ▶ Guaranteed long-term availability of 10+ years

## Technical Data

Board type	Solderable SOM
5-Cent Cooling available	✘
CPU details	1x ARM Cortex-A7 up to 1 GHz
CPU vendor	ST
CPU type	Cortex-A7
Co-processor available	✘

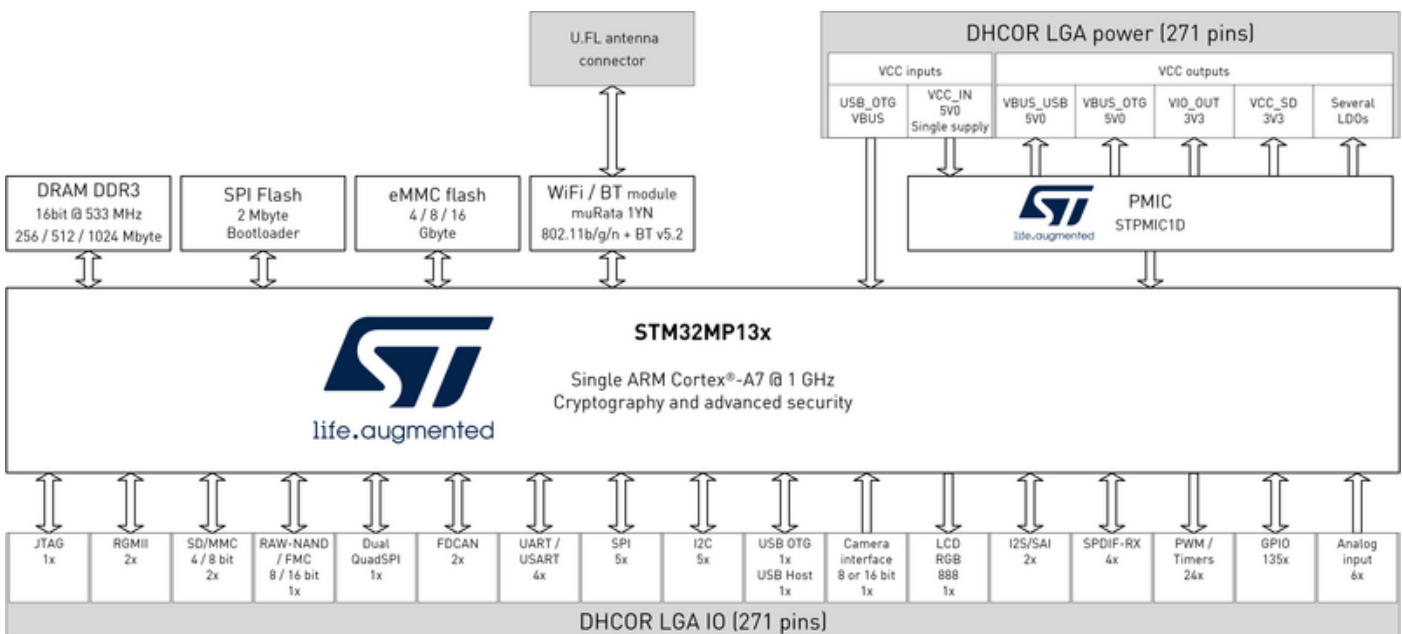
Number of cores	1
GPU available	✗
PMIC	STPMIC1D
Security	Crypto Engine, Secure Boot   3072-bit fuses including 96-bit unique ID, up to 1280 bits available for user and 256-bit HUK to protect AES 256 keys   Hardware acceleration: AES 128, 192, 256 DES/TDES   AES 128, 256 with DPA protection   PKA ECC/RSA with DPA protection   AES 128 on-the-fly DRAM encryption and decryption   HASH (SHA-1, SHA-224, SHA-256, SHA-384, SHA-512, SHA-3), HMAC   1 x true random number generator (6 triple oscillators)   1 x CRC calculation unit
DDR3 DRAM	128 / 256 / 512 / 1024 MB
eMMC flash	4 / 8 / 16 GB
SPI NOR flash	2 MB
Bluetooth available	✓
Bluetooth version	Bluetooth® v5.2
WiFi available	✓
WiFi version	Single band 802.11b/g/n
BSP	Linux Yocto (Debian on request)
Power supply	5.0 VDC
Typ. power consumption	1.0 W
Operating temperature	-40 to +85 °C
Storage temperature	-40 to +85 °C
Dimensions	29.0 x 29.0 x 3.2 mm

## Available interfaces for LGA (271 pins)

Bus interface	8 / 16 Bit
Ethernet	2x Gbit, IEEE 1588v2, MII/RMII/RGMII
MMC/SD	2x SDMMC up to 8 bits (SD/eMMC™/SDIO)
NAND	8 / 16 Bit interface Raw MLC / SLC, 8 Bit ECC
Quad SPI	Dual Quad SPI
CAN	2x FDCAN / 1x TTCAN
UART	4x UART, 4x USART up to 12.5 Mbit/s
SPI	5x up to 50 Mbit/s
I2C	5x up to 1 Mbit/s
USB host	1x USB 2.0 High-speed Host
USB OTG	1x USB 2.0 High-speed OTG
Embedded USB PHYs	2 × HS shared between Host and OTG
CSI (parallel camera)	8- to 16-bit camera interface, 3 Mpix @30 fps or 5Mpix @15 fps in color or monochrome with pixel clock @120 MHz (max freq)
Display RGB	24 Bit   up to WXGA (1366 × 768) @60 fps or up to Full HD (1920 x 1080) @ 30 fps   pixel clock up to 90 MHz Bit
ADC	2 × ADCs with 12-bit max. resolution up to 5 Msps   1 x digital filter for sigma-delta modulator (DFSDM) with 4 channels and 2 filters   Internal or external ADC reference VREF+
SPDIF	2x Tx, 4x Rx
Temperature sensor	1x
I2S / SAI	2x

Number of GPIOs	135
PWM / Timer	Up to 24 timers, 2 watchdogs and PWM   2 × 32-bit timers with up to 4 IC/OC/PWM or pulse counter and quadrature (incremental) encoder input   2 × 16-bit advanced timers   10 × 16-bit general-purpose timers (including 2 basic timers without PWM)   5 × 16-bit low-power timers   Secure RTC with sub-second accuracy and hardware calendar   4 Cortex®-A7 system timers (secure, non-secure, virtual, hypervisor)   2 × independent watchdogs
RTC	Secure RTC
Debug interface	JTAG interface

## Block Diagrams



## Configurations

Item Number	Model (other configurations on request)	Product description
HS00032	DHCR-STM32MP135F-C100-R051-EE-F0409-WBT-I-01LG	DHCOR STM32MP135F, 1 GHz, 512 MByte RAM, 256 kbit EEPROM, 4096 Mbyte eMMC, WiFi and Bluetooth® via Murata 1YN module with U.FL connector, -40 to +85 °C, DHCOR revision, LGA connection

\* Other configurations on request

What is the model number for ordering?

**DHCR-CPU-Cxxx-Rxxx-Vxx[-SPI]-X-01LG**

CPU	STM32MP157C: Dual Cortex®-A7, HW Crypto, 3D GPU, FDCAN, MIPI®-DSI STM32MP157A: Dual Cortex®-A7, 3D GPU, FDCAN, MIPI®-DSI STM32MP153C: Dual Cortex®-A7, HW Crypto, FDCAN STM32MP153A: Dual Cortex®-A7, FDCAN STM32MP151C: Single Cortex®-A7, HW Crypto STM32MP151A: Single Cortex®-A7
Cxxx	650 MHz: C065, 800 MHz: C080
Rxxx	256 Mbyte: R025, 512 Mbyte: R051, 1024 Mbyte: R102
Vxx	1V8 IO voltage: V18, 3V3 IO voltage: V33
X	Commercial temperature range (0 to +70 °C): C, Industrial temperature range (-40 to +85 °C): I Industrial temp. range is -20 to +85 °C for 800 MHz version. Please contact us for more details.
01LG	DHCOR Revision, LGA connection
Options	
[-SPI]	2 Mbyte SPI boot flash