

## Based on MPU from STM32MP1 family

- ▶ Solderable system on module in postage stamp size with only 29 x 29 x 3.2 mm
- ▶ MPU from the famous STM32MP1 series by STMicroelectronics
- ▶ Solder-on module enables cost-effective, automated assembly
- ▶ Optimal for motor control due to PWM synchronized AC timer
- ▶ Suitable for powerful graphical user interfaces
- ▶ Avenger96 as reference design
- ▶ Guaranteed long-term availability of 10+ years

## Technical Data

Board type	Solderable SOM
5-Cent Cooling available	✓
CPU details	2x ARM Cortex-A7 up to 800 MHz 1x ARM Cortex-M4 up to 209 MHz
CPU vendor	ST
CPU type	Cortex-A7 Cortex-M4

Co-processor available	✓
Number of cores	1   2
GPU available	✓
GPU type	3D GPU Vivante® @533 MHz - OpenGL® ES 2.0
PMIC	STPMIC1A
Security	Crypto Engine, Secure Boot
DDR3 DRAM	256 / 512 / 1024 MB
SPI NOR flash	2 MB
Bluetooth available	✗
WiFi available	✗
BSP	Linux (Debian, Yocto)
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)

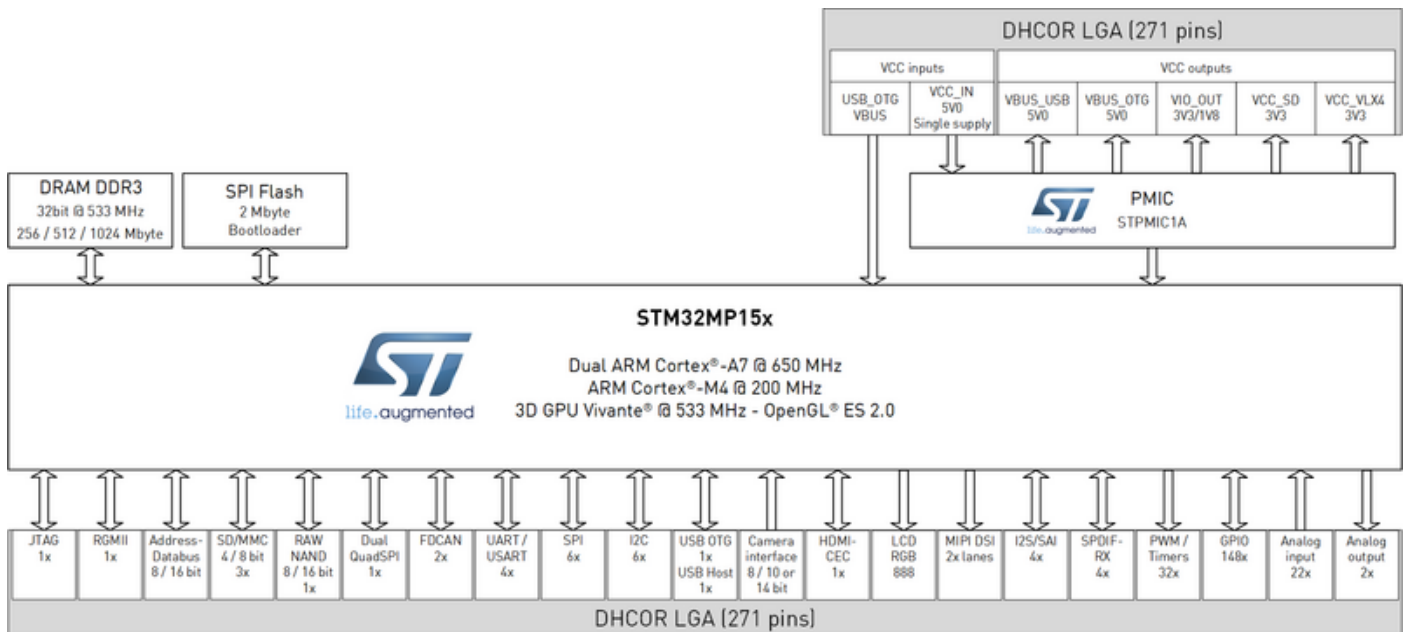
Bus interface	8 / 16 Bit
Ethernet	1x Gbit, IEEE 1588, 1x MDIO
MMC/SD	3x SDIO 3.0 / SD 3.0 / eMMC 4.51
NAND	8 / 16 Bit interface Raw MLC / SLC, 8 Bit ECC
Quad SPI	Dual Quad SPI

CAN	2x FDCAN / TTCAN
UART	4x UART, 4x USART up to 12.5 Mbit/s
SPI	6x up to 50 Mbit/s
I2C	6x
USB host	2x USB 2.0 High-speed
USB OTG	1x OTG 2.0 Full-speed / High-speed
Embedded USB PHYs	2x High-speed, 1x Full-speed
CSI (parallel camera)	1x 8 / 10 / 14 Bit
Display RGB	24 Bit
MIPI-DSI	MIPI®-DSI 2 data lanes
HDMI-CEC	1x
ADC	2x 16 Bit synchronized up to 22 channels
DAC	2x 12 Bit
ADC / DAC VREF	Internal 1.5 / 1.8 / 2.048 / 2.5 V or VREF+ Input
SPDIF	4x Tx, 4x Rx
Temperature sensor	1x
I2S / SAI	4x
Number of GPIOs	148
PWM / Timer	2x 16-Bit motor control PWM-synchronized AC timer 10x 16 Bit timer 5x 16 Bit LP timer 2x 32 Bit timer
RTC	Secure RTC
DFSDM	1x 8 channels / 6 filters

Debug interface

JTAG interface

## Block Diagrams



## Configurations

Item Number	Model (other configurations on request)	Product description
HS00028	DHCR-STM32MP151A-C065-R051-V33-SPI-I-01LG	DHCOR STM32MP151A, 650 MHz, 512 MByte DRAM, 3.3 V IO voltage, 2 MByte SPI boot flash, -40 to +85 °C, DHCOR revision, LGA connection
HS00023	DHCR-STM32MP153C-C065-R051-V33-SPI-I-01LG	DHCOR STM32MP153C, 650 MHz, 512 MByte DRAM, 3.3 V IO voltage, 2 MByte SPI boot flash, -40 to +85 °C, DHCOR revision, LGA connection
HS00012	DHCR-STM32MP157C-C065-R051-V33-SPI-I-01LG	DHCOR STM32MP157C, 650 MHz, 512 MByte DRAM, 3.3 V IO voltage, 2 MByte SPI boot flash, -40 to +85 °C, DHCOR revision, LGA connection

Item Number	Model (other configurations on request)	Product description
HS00022	DHCR-STM32MP157F-C080-R102-V33-SPI-I-01LG (-20°C - 85°C)	DHCOR STM32MP157F, 800 MHz, 1024 MByte DRAM, 3.3 V IO voltage, 2 MByte SPI boot flash, -20 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