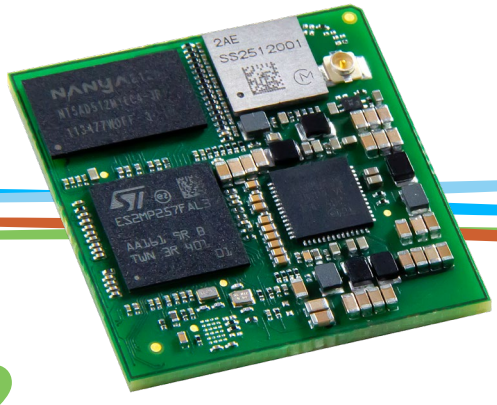


PRELIMINARY DATASHEET

Digi ConnectCore MP2

Versatile, secure, wireless system-on-module with NPU and ISP for edge AI and computer-vision applications and complete Linux support in Digi SMTplus form factor

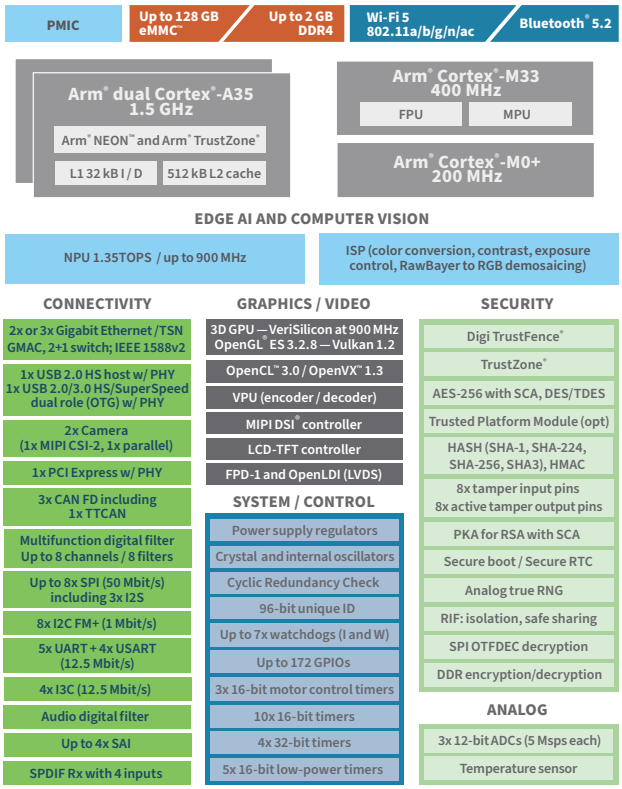
Digi ConnectCore® MP2 is a versatile, secure and cost-effective wireless system-on-module (SOM) designed for industrial applications and smart connected devices. STMicroelectronics' STM32MP25 adds a neural processing unit (NPU) and image signal processor (ISP) for edge AI and computer vision applications. The fully integrated wireless connectivity, time-sensitive networking (TSN) and the compact SMTplus® form factor (30 x 30 mm) make it ideal for small portable devices and **Industry 4.0**. The SOM is designed for maximum power efficiency to support battery powered applications.

Digi ConnectCore MP25 offers industrial-rated design for longevity in demanding 24/7/365 operation and 10+ year product lifecycles, backed by Digi's industry-leading 3-year warranty. **Digi Embedded Yocto®**, combined with powerful **Digi ConnectCore Cloud Services** and **Digi ConnectCore Security Services**, makes Digi ConnectCore MP2 a complete solution for creating and maintaining secure connected devices throughout their lifecycle.

The scalable Digi ConnectCore MP2 module family provides a wide range of wireless connectivity options with pre-certified 802.11ac Wi-Fi 5 and Bluetooth 5.2, along with PCIe Gen2, USB 3.0, CAN-FD and Gigabit Ethernet with TSN support. In addition, it includes high end graphics capabilities such as a 3D GPU, video encoder and decoder (VPU), high resolution MIPI, LVDS or parallel display interfaces as well as a MIPI camera port with a image signal processor (ISP).

Embedded device security is a critical design aspect for connected IoT applications. **Digi ConnectCore SOM solutions** provide built-in security with **Digi TrustFence®**, a fully integrated IoT security framework simplifying the process of securing connected devices. **Digi ConnectCore Cloud Services**, **Digi ConnectCore Security Services** and **Expert Support** provide additional capabilities for development, deployment and maintenance throughout the entire product lifecycle.

Our decades of embedded experience and millions of deployed devices tell our story; Digi is a trusted solutions provider dedicated to simplifying the way OEMs design, build, deploy and maintain secure connected products. **Digi Wireless Design Services** (WDS) provides additional integration support, certification assistance, custom design and build services to get your products to market smarter and faster.



Key features, benefits and applications

- Industrial-grade, scalable, embedded SOM platform
- NPU and ISP providing edge AI and computer-vision capabilities
- Pre-certified dual-band Wi-Fi 5 (802.11ac) and Bluetooth 5.2
- Power management with hardware and software support
- Digi SMTplus form factor (30 x 30 mm) for ultimate reliability
- Seamless cellular modem and **Digi XBee®** integration
- **Digi ConnectCore Cloud Services** for remote access, device management, OTA firmware updates and IoT application enablement
- **Digi Embedded Yocto** Linux and **Digi TrustFence** security support
- Turnkey development services available from **Digi WDS**

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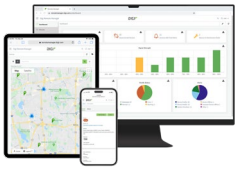
DIGI CONNECTCORE MP2
Specifications



Connect this device with
Digi ConnectCore Cloud Services.
Create. Configure. Deploy. Manage.

SPECIFICATIONS	DIGI CONNECTCORE MP255 SOM
FEATURES	
APPLICATION PROCESSOR	STMicroelectronics® STM32MP255F, Arm® 64-bit dual Cortex®-A35 at 1.5 GHz; Cortex-M33 at 400 MHz with FPU/MPU; Cortex M0+ at 200 MHz in SmartRun domain
MEMORY	Up to 128 GB Flash (eMMC™), up to 2 GB DDR4 (16-bit)
PMIC	STMicroelectronics Power Management IC — STPMIC25A
ARTIFICIAL INTELLIGENCE	Neural Processing Unit (NPU) — VeriSilicon® at 900 MHz, 1.35 TOPS
VIDEO / GRAPHICS	3D GPU — VeriSilicon at 900 MHz; OpenGL® ES 3.2.8 — Vulkan 1.2; Open CL™ 3.0, OpenVX™ 1.3; up to 138 Mtriangle/s, 900 Mpixel/s; LCD-TFT controller, up to 24-bit digital RGB888; up to FHD (1920 x 1080) at 60 fps, 3 layers including a secure layer; YUV support, 90° output rotation; MIPI DSI®, 4x data lanes, up to 2.5 Gbit/s each; up to QXGA (2048 x 1536) at 60 fps; FPD-1 and OpenLDI JEIDA/VESA (LVDS), 1x link of 4x data lanes, up to 1.1 Gbit/s each, up to 1080p at 60 fps
CAMERA	Camera interface #1 (5 Mpixels at 30 fps); MIPI CSI-2®, 2x data lanes up to 2.5 Gbit/s each; 8- to 16-bit parallel, up to 120 MHz; RGB, YUV, JPG, RawBayer with basic ISP, downscaling, cropping, 3-pixel pipelines; Camera interface #2 (1 Mpixels at 15 fps); 8- to 14-bit parallel, up to 80 MHz; RGB, YUV, JPG, cropping; Digital parallel interface up to 16-bit input or output
SECURITY	Secure boot, TrustZone® peripherals, up to 8 tamper input pins + 8 active tamper output pins, 1x CRC calculation unit, 2x cryptographic processors, hardware acceleration with DMA support; environmental monitors, display secure layers; Encryption/decryption: AES-128/192/256, DES/TDES; secure AES-256 with SCA; RSA, ECC, ECDSA with SCA; HASH (SHA-1, SHA-224, SHA-256, SHA3), HMAC; true random number generator; “on-the-fly” DDR encryption/decryption (AES-128); “on-the-fly” OTFDEC Octo-SPI flash memory decryption (AES-128); Complete resource isolation framework; **Digi TrustFence** embedded security framework
PERIPHERALS / INTERFACES	8x I2C FM+ (1 Mbit/s, SMBus/PMBus®); 4x I3C (12.5 Mbit/s); 5x UART + 4x USART (12.5 Mbit/s, ISO7816 interface, LIN, IrDA, SPI slave); 8x SPI (50 Mbit/s, including 3 with full duplex I2S audio class accuracy via internal audio PLL or external clock); 4x SAI (stereo audio: I2S, PDM, SPDIF Tx); SPDIF Rx with 4 inputs; 3x SDMMC up to 8-bit, out of which one is used for eMMC and one for Wi-Fi; up to 3x CAN controllers supporting CAN FD protocol, out of which one supports time-triggered CAN (TTCAN); 1x USB 2.0 high-speed Host with embedded 480 Mbits/s PHY; 1x USB 2.0/3.0 high-speed/SuperSpeed dual role data with embedded 480 Mbits/s and 5 Gbits/s PHY (5 Gbits/s PHY shared with PCI Express); 1x USB Type-C® Power Delivery control with two CC lines PHY; 1x PCI Express with embedded 5 Gbits/s PHY (PHY shared with USB 3.0 SuperSpeed); up to 172 secure I/O ports with interrupt capability; up to 6 wake-up inputs; up to 8 tamper input pins + 8 active tamper output pins; 3x ADCs with 12-bit max. resolution (up to 5 Msps each, up to 24 channels); Internal temperature sensor; 1x multifunction digital filter (MDF) with up to 8 channels/8 filters; 1x audio digital filter with 1 filter and sound activity detection; Internal or external ADC reference VREF+; 4x 32-bit timers with up to 4 IC/OC/PWM or pulse counter and quadrature (incremental) encoder input; 3x 16-bit advanced motor control timers; 10x 16-bit general-purpose timers (including 2 basic timers without PWM); 5x 16-bit low-power timers; Secure RTC with subsecond accuracy and hardware calendar; up to 2x 4 Cortex-A35 system timers (secure, non-secure, virtual, hypervisor); 2x SysTick M33 timer (secure, non-secure); 1x SysTick M0+ timer; 7x watchdogs (5x independent and 2x window)
ETHERNET	2x Gigabit Ethernet with external PHY interfaces, optional 3x Gigabit Ethernet GMAC interfaces and 2+1 switch with STM32MP257F MPU; TSN, IEEE 1588v2 hardware, MII/RMII/RGMII
WIRELESS	Wi-Fi 5 dual-band 802.11a/b/g/n/ac 1x1 radio (up to 433.3 Mbps) with strong WPA3-Enterprise authentication/encryption; −40 °C to 85 °C (−40 °F to 185 °F) full temperature range; Bluetooth 5.2 (Basic Rate, Enhanced Data Rate and Bluetooth Low Energy)

The information provided in this document is preliminary and may be subject to change without notice.

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DIGI CONNECTCORE MP2

Specifications and Part Numbers

SPECIFICATIONS	DIGI CONNECTCORE MP255 SOM
FEATURES	
OPERATING TEMPERATURE	Industrial: –40 °C to 85 °C (–40 °F to 185 °F); depending on use case and enclosure/system design
STORAGE TEMPERATURE	–50 °C to 125 °C (–58 °F to 257 °F)
RELATIVE HUMIDITY	5% to 90% (non-condensing)
RADIO APPROVALS*	US, Canada, EU, Japan, Australia/New Zealand, Brazil, Mexico
EMISSIONS / IMMUNITY / SAFETY*	FCC Part 15 Class B, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, ICES- 003 Class B, VCCI Class II, AS 3548 FCC Part 15 Subpart C Section 15.247, IC (Industry Canada), RSS-210 Issue 5 Section 6.2.2(o), EN 300 328, EN 301 489-17, EN 55024 EN 301 489-3, Safety (IEC 62368-1); visit **digi.com/resources/certifications** for latest updates
DESIGN VERIFICATION*	Temperature: IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-78; vibration/shock: IEC 60068-2-6, IEC 60068-2-64, IEC 60068-2-27, HALT
MOUNTING / PIN COUNT	Digi SMTplus (30 mm x 30 mm) surface mount footprint using 333-pad LGA (1.27 mm pitch) with option for simple carrier board designs supporting subset of interfaces
MECHANICAL DIMENSIONS	30 mm x 30 mm x 3 mm (1.18 in x 1.18 in x 0.12 in)
PRODUCT WARRANTY	3-year

*Visit **digi.com/resources/certifications** for latest updates.

PART NUMBERS	DIGI CONNECTCORE MP2 DEVELOPMENT KITS
DIGI CONNECTCORE MP255 DEVELOPMENT KIT	
CC-WMP255-KIT	Digi ConnectCore MP255 Development Kit with development board and Digi ConnectCore MP255 dual 1 GB DDR4, 8 GB eMMC, wireless SOM including Digi ConnectCore Cloud Services Premium 1-year license

PART NUMBERS	DIGI CONNECTCORE MP2 SYSTEM-ON-MODULES
DIGI CONNECTCORE MP255 — SECURE WIRELESS MODULE	
CC-WST-J17D-NK	Digi ConnectCore MP255 dual A35 1.5 GHz, M33, GPU, ISP, NPU, 1 GB DDR4, 8 GB eMMC, secure boot, –40 to 85 °C (–40 to 185 °F), 802.11a/b/g/n/ac Wi-Fi 5 1x1, Bluetooth 5.2
DIGI CONNECTCORE MP255 — SECURE ETHERNET MODULE	
CC-ST-J17D-ZK	Digi ConnectCore MP255 dual A35 1.5 GHz, M33, GPU, ISP, NPU, 1 GB DDR4, 8 GB eMMC, secure boot, –40 to 85 °C (–40 to 185 °F)

PART NUMBERS	DIGI CONNECTCORE MP2 ACCESSORIES
ACCESSORIES	
CC-ACC-LCDH-10	LCD application kit, including 10 in WXGA (high resolution) LCD panel

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DIGI CONNECTCORE MP2

Part Numbers

PART NUMBERS	DIGI CONNECTCORE CLOUD SERVICES
CC-CS-ESS-1-1YR	Digi ConnectCore Cloud Services — Essential 1-year (1 device)
CC-CS-ESS-100-1YR	Digi ConnectCore Cloud Services — Essential 1-year (100 devices)
CC-CS-ESS-100-3YR	Digi ConnectCore Cloud Services — Essential 3-year (100 devices)
CC-CS-ESS-100-5YR	Digi ConnectCore Cloud Services — Essential 5-year (100 devices)
CC-CS-PRM-1-1YR	Digi ConnectCore Cloud Services — Premium 1-year (1 device)
CC-CS-PRM-100-1YR	Digi ConnectCore Cloud Services — Premium 1-year (100 devices)
CC-CS-PRM-100-3YR	Digi ConnectCore Cloud Services — Premium 3-year (100 devices)
CC-CS-PRM-100-5YR	Digi ConnectCore Cloud Services — Premium 5-year (100 devices)

PART NUMBERS	DIGI CONNECTCORE SECURITY SERVICES
CC-SEC-ESS	Digi ConnectCore Security Services — Essential 1-year
CC-SEC-PRM	Digi ConnectCore Security Services — Premium 1-year
CC-SEC-ENT	Digi ConnectCore Security Services — Enterprise 1-year
CC-SEC-ENT-ADD	Digi ConnectCore Security Services — Enterprise for additional product (same duration as main contract)

PART NUMBERS	EXPERT SUPPORT
DG-EXPE-12	Expert 12x5 support for end users
DG-EXPE-24	Expert 24x7 support for end users

yocto PROJECT · edge ai + vision ALLIANCE · CRANK · Bluetooth · MIKROE Time-saving embedded tools

DIGI TrustFence · powered by aws · MEMBER Wi Fi ALLIANCE · Authorized Partner life.augmented

For more information, please visit digi.com.

For more information about Digi ConnectCore MP2, visit digi.com/connectcore-mp2.

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