

# 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 dual-band Wi-Fi 6 (tri-band 6E ready) 802.11ax and Bluetooth® 5.4, 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 an ISP.

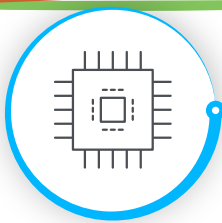
Embedded device security is a critical design aspect for connected IoT applications. **Digi ConnectCore SOM solutions** provide built-in security with **Digi TrustFence®**, a fully integrated IoT security framework simplifying the process of securing connected devices. **Digi ConnectCore Cloud Services**, **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.

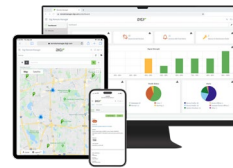
PMIC	Up to 128 GB eMMC	Up to 2 GB DDR4	Wi-Fi 6 (6E ready) 802.11ax	Bluetooth® 5.4
<div>Arm® dual Cortex®-A35 1.2 GHz</div> <div>Arm® NEON™ and Arm® TrustZone®</div> <div>L1 32 kB I/D    512 kB L2 cache</div>			<div>Arm® Cortex®-M33 400 MHz</div> <div>FPU    MPU</div> <div>Arm® Cortex®-M0+ 200 MHz</div>	
EDGE AI AND COMPUTER VISION				
NPU 1.2 TOPS / up to 800 MHz		ISP (color conversion, contrast, exposure control, RawBayer to RGB demosaicing)		
CONNECTIVITY		GRAPHICS / VIDEO		SECURITY
2x or 3x Gigabit Ethernet / TSN GMAC, 2+1 switch; IEEE 1588v2		3D GPU — VeriSilicon at 800 MHz OpenGL ES 3.2.8 — Vulkan 1.2		Digi TrustFence™
1x USB 2.0 HS host w/ PHY 1x USB 2.0/3.0 HS/SuperSpeed dual role (OTG) w/ PHY		OpenCL™ 3.0 / OpenVX™ 1.3		TrustZone®
2x Camera (1x MIPI CSI-2, 1x parallel)		VPU (encoder / decoder)		AES-256 with SCA, DES/TDES
1x PCI Express w/ PHY		MIPI DSI™ controller		Trusted Platform Module (opt)
3x CAN FD including 1x TTCAN		LCD-TFT controller		HASH (SHA-1, SHA-224, SHA-256, SHA3), HMAC
Multifunction digital filter Up to 8 channels / 8 filters		FPD-1 and OpenLDI (LVDS)		8x tamper input pins 8x active tamper output pins
Up to 8x SPI (50 Mbit/s) including 3x I2S		SYSTEM / CONTROL		PKA for RSA with SCA
8x I2C FM+ (1 Mbit/s)		Power supply regulators		Secure boot / Secure RTC
5x UART + 4x USART (12.5 Mbit/s)		Crystal and internal oscillators		Analog true RNG
4x I3C (12.5 Mbit/s)		Cyclic Redundancy Check		RIF: isolation, safe sharing
Audio digital filter		96-bit unique ID		SPI OTFDEC decryption
Up to 4x SAI		Up to 7x watchdogs (I and W)		DDR encryption/decryption
SPDIF Rx with 4 inputs		Up to 172 GPIOs		
		3x 16-bit motor control timers		
		10x 16-bit timers		
		4x 32-bit timers		
		5x 16-bit low-power timers		
				ANALOG
				3x 12-bit ADCs (5 Msps each)
				Temperature sensor

## 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 6 (tri-band 6E ready) 802.11ax and Bluetooth 5.4
- 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**



## 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® STM32MP255C, Arm® 64-bit dual Cortex®-A35 at 1.2 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 800 MHz, 1.2 TOPS

#### VIDEO / GRAPHICS

3D GPU — VeriSilicon at 800 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 STM32MP257 MPU,  
TSN, IEEE 1588v2 hardware, MII/RMII/RGMII

#### WIRELESS

Pre-certified Wi-Fi 6 dual-band (tri-band 6E ready) 802.11a/b/g/n/ac/ax 1x1 radio with strong enterprise authentication/encryption;  
-40 °C to 85 °C (-40 °F to 185 °F) full temperature range; Bluetooth 5.4 (Basic Rate, Enhanced Data Rate and Bluetooth Low Energy)



## 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 <a href="https://www.digi.com/resources/certifications">digi.com/resources/certifications</a> 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 60068-2-27, 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](https://www.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
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### PART NUMBERS

#### DIGI CONNECTCORE MP2 SYSTEM-ON-MODULES

##### DIGI CONNECTCORE MP255 — SECURE WIRELESS MODULE

CC-WST-J17D-NK	Digi ConnectCore MP255 dual A35 1.2 GHz, M33, GPU, ISP, NPU, 1 GB DDR4, 8 GB eMMC, secure boot, -40 to 85 °C (-40 to 185 °F), pre-certified Wi-Fi 6 (tri-band 6E ready) 802.11ax and Bluetooth 5.4
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##### DIGI CONNECTCORE MP255 — SECURE ETHERNET MODULE

CC-ST-J17D-ZK	Digi ConnectCore MP255 dual A35 1.2 GHz, M33, GPU, ISP, NPU, 1 GB DDR4, 8 GB eMMC, secure boot, -40 to 85 °C (-40 to 185 °F)
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### 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



For more information, please visit [digi.com](https://digi.com).



For more information about Digi ConnectCore MP2, visit [digi.com/connectcore-mp2](https://digi.com/connectcore-mp2).

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