Manage this device with Digi Remote Manager
Secure OTA firmware updates

DIGI CONNECTCORE MP1

Intelligent, wireless and secure embedded system-on-module based on the STM32MP1 MPU family, with turnkey Linux support in the robust Digi SMTplus standard form factor

Digi ConnectCore® MP1 modules deliver a highly integrated and secure connected system-on-module solution. The Digi SMTplus® surface-mount form factor provides simplified design integration, flexibility and reliability.

Built on the STM32MP157C microprocessor with dual Arm® Cortex®-A7 and a Cortex-M4 core, the module is the intelligent communication engine for today's secure connected devices. It seamlessly integrates pre-certified dual-band Wi-Fi 5 (802.11a/b/g/n/ac) with Bluetooth® 5 and Gigabit Ethernet connectivity.

The integrated 3D graphics processing unit (GPU) and display interface options make Digi ConnectCore MP15 the ideal platform for advanced HMI development.
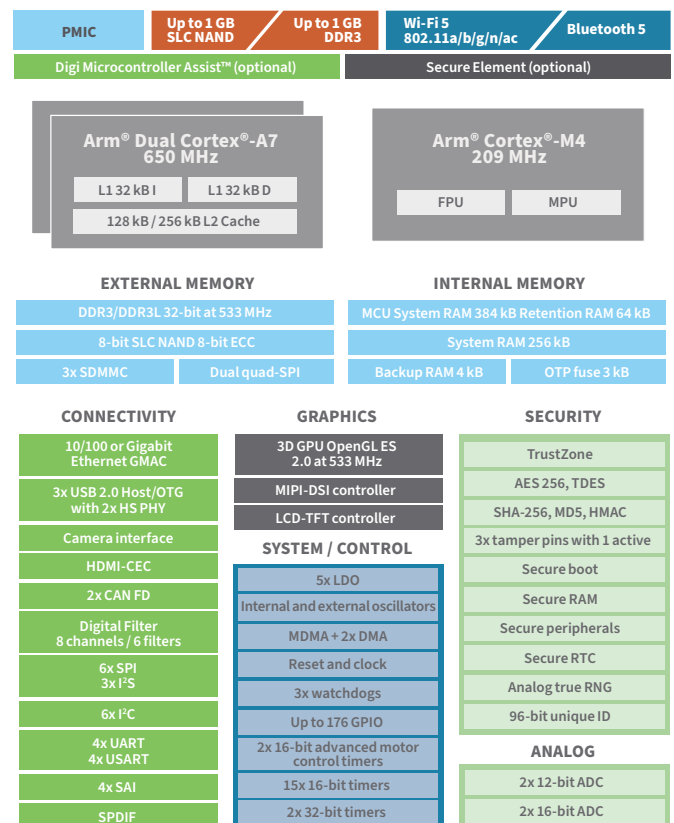
Embedded device security is a critical design aspect for the growing number of connected IoT applications. The Digi ConnectCore MP1 removes the implementation barriers by providing you with Digi TrustFence®, a fully integrated device-security framework that simplifies the process of securing connected devices, and complete Linux® software support.

Digi ConnectCore MP1 is designed for industrial and medical use with high levels of security, reliability, performance and 10+ year longevity.

FEATURES AND BENEFITS

- Industrial STM32MP1 single/dual-core system-on-module
- 3D GPU, rich display and camera capabilities
- Pre-certified dual-band Wi-Fi 5 (802.11ac) and Bluetooth 5.0
- Digi SMTplus® form factor (29 x 29 mm) for ultimate reliability
- Power management with hardware and software support
- Digi Microcontroller Assist™ for ultra-low power mode
- Seamless cellular modem and Digi XBee® integration
- High level of pin-compatibility with Digi ConnectCore 6UL SOMs
- Built-in Digi TrustFence device security, identity and privacy
- Digi Remote Manager® cloud monitoring and management
- Digi Embedded Yocto Linux support
- Turnkey development services available from Digi WDS

DIGI CONNECTCORE® MP15 BLOCK DIAGRAM

PMIC	Up to 1 GB SLC NAND	Up to 1 GB DDR3	Wi-Fi 5 802.11a/b/g/n/ac	Bluetooth 5

Digi Microcontroller Assist™ (optional) | Secure Element (optional)

Arm® Dual Cortex®-A7 650 MHz
- L1 32 kB I | L1 32 kB D
- 128 kB / 256 kB L2 Cache

Arm® Cortex®-M4 209 MHz
- FPU | MPU

EXTERNAL MEMORY
- DDR3/DDR3L 32-bit at 533 MHz
- 8-bit SLC NAND 8-bit ECC
- 3x SDMMC | Dual quad-SPI

INTERNAL MEMORY
- MCU System RAM 384 kB Retention RAM 64 kB
- System RAM 256 kB
- Backup RAM 4 kB | OTP fuse 3 kB

CONNECTIVITY
- 10/100 or Gigabit Ethernet GMAC
- 3x USB 2.0 Host/OTG with 2x HS PHY
- Camera interface
- HDMI-CEC
- 2x CAN FD
- Digital Filter 8 channels / 6 filters
- 6x SPI 3x I²S
- 6x I²C
- 4x UART 4x USART
- 4x SAI
- SPDIF

GRAPHICS
- 3D GPU OpenGL ES 2.0 at 533 MHz
- MIPI-DSI controller
- LCD-TFT controller

SYSTEM / CONTROL
- 5x LDO
- Internal and external oscillators
- MDMA + 2x DMA
- Reset and clock
- 3x watchdogs
- Up to 176 GPIO
- 2x 16-bit advanced motor control timers
- 15x 16-bit timers
- 2x 32-bit timers

SECURITY
- TrustZone
- AES 256, TDES
- SHA-256, MD5, HMAC
- 3x tamper pins with 1 active
- Secure boot
- Secure RAM
- Secure peripherals
- Secure RTC
- Analog true RNG
- 96-bit unique ID

ANALOG
- 2x 12-bit ADC
- 2x 16-bit ADC

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RELATED PRODUCTS

LCD Application Kit

Digi Remote Manager®

ConnectCore® 6 UL

ConnectCore® 8M Nano

Digi XBee® Modules

SPECIFICATIONS	DIGI CONNECTCORE® MP15
FEATURES	
APPLICATION PROCESSOR	ST STM32MP157C, Arm® dual Cortex®-A7 at 650 MHz; Cortex®-M4 at 209 MHz with FPU/MPU, 3D GPU, secure boot, crypto engine
MEMORY	Up to 1 GB SLC NAND flash, up to 1 GB DDR3L
PMIC	ST STPMIC1
VIDEO / GRAPHICS	3D GPU (Vivante® - OpenGL® ES 2.0) running at up to 533 MHz, with performance up to 26 Mtriangle/s, 133 Mpixel/s Parallel LCD-TFT controller, up to 24-bit digital RGB888, up to WXGA (1366 × 768) at 60 fps or up to Full HD (1920 × 1080) at 30 fps MIPI® DSI 2 data lanes up to 1 Gbps each, up to WXGA at 60 fps (63 M pixels/s) or up to Full HD (1920 × 1080) at 30 fps
CAMERA	8- to 14-bit camera
SECURITY	Secure boot, TrustZone® peripherals, active tamper, 2x TRNG, 2x CRC calc. units, 2x cryptographic processors, hardware acceleration with DMA support; Encryption/decryption: DES/TDES: ECB (electronic codebook) and CBC (cipher block chaining) 64-, 128- or 192-bit key; AES: ECB, CBC, GCM, CCM, and CTR (counter mode) chaining algorithms, 128-, 192- or 256-bit key; Universal HASH: SHA-1, SHA-224 and SHA-256 (secure HASH algorithms), MD5, HMAC; Cortex®-M4 resources isolation; Digi TrustFence® embedded security framework
PERIPHERALS / INTERFACES	6x I2C, 4x UART + 4x USART, 6x SPI (3 with full duplex I2S), 4x SAI (stereo audio: I2S, PDM, SPDIF Tx), SPDIF Rx (4 inputs) HDMI-CEC, 3x SDMMC up to 8-bit (SD / eMMC™ / SDIO) 2x CAN FD (incl. 1 x TTCAN), 2x USB 2.0 high-speed host + 1x USB 2.0 full-speed OTG Up to 176 I/O ports with interrupt capability 2x ADCs (up to 16-bit), 1x temperature sensor, 2x 12-bit D/A converters (1 MHz) 1x Digital Filter for Sigma Delta Modulator (DFSDM) with 8 channels/6 filters, internal or external ADC/DAC reference VREF+ 2x 32-bit timers with up to 4 IC/OC/PWM or pulse counter and quadrature (incremental) encoder input 2x 16-bit advanced motor control timers, 10x 16-bit general-purpose timers (including 2 basic timers without PWM) 5x 16-bit low-power timers, RTC, 2x 4 Cortex®-A7 system timers (secure, nonsecure, virtual, hypervisor), 1x SysTick M4 timer 3x watchdogs (2x independent and window)
ETHERNET	10/100 M or Gigabit Ethernet GMAC IEEE 1588v2, MII/RMII/GMII/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° to 85° C (–40° to 185° F) full temperature range; Bluetooth® 5 (Basic Rate, Enhanced Data Rate and Bluetooth Low Energy)
MICROCONTROLLER ASSIST	Ultra-low power ARM® Cortex®-M0+, up to 48 MHz
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	Relative humidity 5% to 90% (non-condensing)
RADIO APPROVALS***	US, Canada, EU, Japan, Australia/New Zealand
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)
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	Common Digi SMTplus® surface mount footprint using 76-pad edge castellated pads (1.27 mm pitch) or 245-pad LGA (1.27 mm pitch) option
MECHANICAL DIMENSIONS	29 mm x 29 mm x 3.5 mm (1.14 in x 1.14 in x 0.14 in)
PRODUCT WARRANTY	3-year

DIGI®

PART NUMBERS	DIGI CONNECTCORE® MP1
KITS	
CC-WMP157-KIT	Digi ConnectCore MP157 development kit with development board and Digi ConnectCore MP157 dual 512 MB/512 MB wireless SOM
DIGI CONNECTCORE MP15 – SECURE WIRELESS MODULE	
CC-WST-DW69-NM	Digi ConnectCore MP157 dual 650 MHz, M4, GPU, 512 MB DDR3L, 512 MB SLC NAND flash, secure boot, MCA, -40 to 85° C (-40 to 185° F), Wi-Fi 5, Bluetooth 5.0
DIGI CONNECTCORE MP15 – SECURE ETHERNET MODULE	
CC-ST-DW69-ZM	Digi ConnectCore MP157 dual 650 MHz, M4, GPU, 512 MB DDR3L, 512 MB SLC NAND flash, secure boot, MCA, -40 to 85° C (-40 to 185° F)
ACCESSORIES	
CC-ACC-LCDH-10	LCD application kit, including 10 in WXGA (high resolution) LCD panel

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

PART NUMBERS	DIGI REMOTE MANAGER®
DIGI-RM-CC-STD-1YR	Digi Remote Manager for ConnectCore — Essential 1-year subscription
DIGI-RM-CC-STD-3YR	Digi Remote Manager for ConnectCore — Essential 3-year subscription
DIGI-RM-CC-STD-5YR	Digi Remote Manager for ConnectCore — Essential 5-year subscription
DIGI-RM-CC-PRM-1YR	Digi Remote Manager for ConnectCore — Premium 1-year subscription
DIGI-RM-CC-PRM-3YR	Digi Remote Manager for ConnectCore — Premium 3-year subscription
DIGI-RM-CC-PRM-5YR	Digi Remote Manager for ConnectCore — Premium 5-year subscription
DIGI-RM-CC-DATA-1GB	Digi Remote Manager for ConnectCore — Additional data (1 GB)

FOR MORE INFORMATION

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