Digi ConnectCore 93

Embedded, wireless system-on-module based on the NXP i.MX 93 processor, with AI/ML NPU, designed for longevity and scalability in industrial IoT applications

Digi ConnectCore® 93, based on the NXP® i.MX 93 application processor, is an integrated system-on-module (SOM) platform with Wi-Fi 6 and Bluetooth® 5.2 wireless connectivity.

The ConnectCore 93 SOM is designed for a wide range of medical, industrial, energy, and transportation applications, including Internet of Things (IoT), automation, human-machine interface (HMI), equipment monitoring, audio/voice, edge computing and machine learning (e.g. anomaly detection).

Digi ConnectCore 93 features up to two power-efficient Arm® Cortex®-A55 cores, with a Cortex-M33 core, AI/ML Arm Ethos U65 NPU and NXP PMIC for maximum power efficiency. This SOM is designed for industrial reliability and 10+ year product lifecycles of embedded devices. The Digi SMTplus® surface-mount form factor provides simplified design integration, efficiency and reliability.

Embedded device security is a critical design aspect for the growing number of connected IoT applications. **Digi ConnectCore SOM solutions** provide built-in security with **Digi TrustFence®**, a fully integrated device-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.
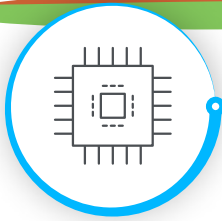
Digi Embedded Yocto®, Digi's feature-rich Linux distribution with many extensions for embedded product design provides a fully tested, validated and maintained turnkey Linux software platform This helps OEMs lower research and development costs, realize a lower total cost of ownership and streamline time-to-market.

With over twenty years of embedded SOM experience enabling millions of globally connected products, Digi is a trusted embedded and IoT solutions provider, simplifying the way customers design, build and deploy connected applications. **Digi Wireless Design Services** (WDS) also offers additional cellular integration support, certification assistance, and custom design and build services to get your products to market smarter and faster.

PMIC	Up to 32 GB eMMC	Up to 2 GB LPDDR4	Wi-Fi 6 802.11ax	Bluetooth® 5.2
Digi Microcontroller Assist™			Secure Element (optional)	

1-2x Arm® Cortex®-A55 1.7 GHz

L1 32 kB I	L1 32 kB D	
NEON	64 kB L2 Cache	FPU
256 kB L3 Cache (ECC)		

NPU

Arm Ethos U-65 high-efficiency micro NPU

Low Power Real Time Domain

SYSTEM CONTROL	LOW POWER SECURITY MCU	CONNECTIVITY AND I/O
DMA	Arm Cortex-M33	2x UART/USART, 2x SPI
Watchdog, Periodic Timer	16 kB+16kB Code+Sys Cache	2x I2C, I3C
2x Timer PWM, 2x Timer	FPU | MPU | NVIC	CAN-FD
Temperature Sensor	256 kB TCM/OCRAM w/ ECC	2-lane I2S TDM Tx/Rx
		8-ch PDM Mic Input
		MQS

Flex Domain

SYSTEM CONTROL/MEMORY	ML AND MULTIMEDIA	CONNECTIVITY AND I/O
DMA	5-lane I2S TDM Tx/Rx, SPDIF	6x UART/USART, 6x SPI
3x Watchdog, Periodic Timer	8 bpp Parallel YUV/RGHB Camera	6x I2C, I3C
2x Timer PWM, 2x Timer	24 bpp Parallel RGB Display	CAN-FD
Secure JTAG	2D Graphics	2x Flex IO
3x SD SDIO 3.0 / eMMC 5.1	MIPI-CSI 2-lane w/ PHY	ADC (4-channel, 12-bit)
Octal SPI Flash w/ Inline Crypto	MIPI-DSI 4-lane w/ PHY	2x Gigabit Ethernet (1 w/ TSN)
640 kB OCRAM w/ ECC	4-lane LVDS w/ PHY	2x USB 2.0

System Clock		External DRAM
Oscillator	PLLs	x16 LPDDR4 / LPDDR4X (Inline ECC)

EdgeLock Secure Enclave

Crypto	Tamper Detection	Secure Clock	Secure Boot	eFuse Key Storage	Random Number

Key features, benefits and applications

- Industrial i.MX 93 single/dual-core embedded SOM platform
- AI/ML Arm Ethos U65 micro neural processing unit (NPU)
- Pre-certified dual-band 802.11ax Wi-Fi 6 and Bluetooth 5.2
- Digi SMTplus® form factor (40 x 45 mm) for ultimate reliability
- Superior power management, hardware and software support
- Seamless cellular modem and **Digi XBee®** integration
- High level of pin-compatibility with **Digi ConnectCore 8 SOMs**
- Built-in **Digi TrustFence** device security, identity and privacy
- Remote management with **Digi ConnectCore Cloud Services**
- **Digi Embedded Yocto** Linux support

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

SPECIFICATIONS	DIGI CONNECTCORE 93
APPLICATION PROCESSOR	NXP i.MX 93 • Up to 2x Cortex-A55 cores at 1.7 GHz • 1x Cortex-M33 core at 250 MHz core for real-time processing
MEMORY	Up to 32 GB flash (eMMC), up to 2 GB of LPDDR4 / LPDDR4X (16-bit)
NPU	AI/ML Arm Ethos U65 micro neural processor
PMIC	NXP PCA9451
GRAPHICS / DISPLAY	2D GPU: Blended/composition, resize, color space conversion 1x 1080p 60 MIPI DSI (4-lane, 1.5 Gbps/lane) with PHY 1x 720p 60 LVDS (4-lane) 18-bit parallel RGB
CAMERA	1x 1080p 60 MIPI-CSI (2-lane, 1.5 Gbps/lane) with PHY 8-bit parallel YUV/RGB
SECURITY	**Digi TrustFence**: secure boot, filesystem encryption, tamper detection, secure JTAG, secure console, secure build environments, secure firmware updates; EdgeLock secure enclave: crypto, tamper detection, secure clock, secure boot, eFuse key storage, random number; Arm TrustZone (Cortex-A and Cortex-M)
PERIPHERALS/ INTERFACES	2x USB 2.0 OTG controllers with integrated PHY interfaces 1x Ultra Secure Digital Host Controller (uSDHC) interfaces 8x Low Power Universal Asynchronous Receiver / Transmitter (LPUART) modules 8x Low Power I2C modules, 2x I3C 8x Low Power SPI (LPSPI) modules 2x FlexCAN with flexible data-rate (FD) support 4x pulse-width modulator (PWM) with 16-bit counter 1x 12-bit ADC module with accurate internal voltage reference, up to 4 channels 3x Synchronous Audio Interface (SAI) modules (up to 4 lanes) supporting I2S, AC97, TDM, codec/DSP and DSD interfaces 1x S/PDIF input and output, including a raw capture input mode 8-channel Pulse Density Modulation (PDM) input Up to 112 GPIOs
ETHERNET	2x 10/100/1000M Ethernet with EEE, AVB and IEEE 1588 (1x TSN)
WI-FI	Wi-Fi 6 802.11ax dual-band 1x1 wireless
BLUETOOTH	Bluetooth 5.2
802.15.4	802.15.4 (optional)
ON-MODULE MICROCONTROLLER ASSIST	Digi Microcontroller Assist™ for advanced power management, security, peripheral support and system reliability (optional) • Independent Cortex-M0+ microcontroller subsystem • Supporting ultra-low power modes
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 **www.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
MECHANICAL DIMENSIONS	118 castellated vias, LGA-474, 1.27 mm pitch, 40 mm x 45 mm x 3.5 mm (1.6 in x 1.8 in x 0.1 in)
PRODUCT WARRANTY	3-year

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Part Numbers

PART NUMBERS	DIGI CONNECTCORE 93 DEVELOPMENT KIT
CC-WMX93-KIT	Digi ConnectCore 93 Development Kit with development board , i.MX 93 dual-core, NPU, 8GB eMMC, 1 GB LPDDR4 wireless SOM

PART NUMBERS	DIGI CONNECTCORE 93 SOMS
CC-WMX-YC7D-KN	Digi ConnectCore 93 — dual-core, NPU, 8 GB eMMC, 1 GB LPDDR4 wireless
CC-MX-YC7D-ZN	Digi ConnectCore 93 — dual-core, NPU, 8 GB eMMC, 1 GB LPDDR4 Ethernet
CC-WMX-ZC6D-L1	Digi ConnectCore 93 — single-core, 8 GB eMMC, 512 MB LPDDR4 wireless
CC-MX-ZC6D-Z1	Digi ConnectCore 93 — single-core, 8 GB eMMC, 512 MB LPDDR4 Ethernet

PART NUMBERS	ACCESSORIES
CC-ACC-LCDH-10	LCD application kit, including 10 in WXGA (1280x800) LCD panel with PCAP touch

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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 — 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