Digi ConnectCore 91/93

Embedded, wireless system-on-module based on the NXP i.MX 91/93 processor, with AI/ML NPU, designed for longevity and scalability in industrial IoT applications

Digi ConnectCore® 91/93, based on the NXP® i.MX 91/93 application processor, is a secure, integrated system-on-module (SOM) platform with dual-band Wi-Fi 6 and Bluetooth® 5.4 wireless connectivity.
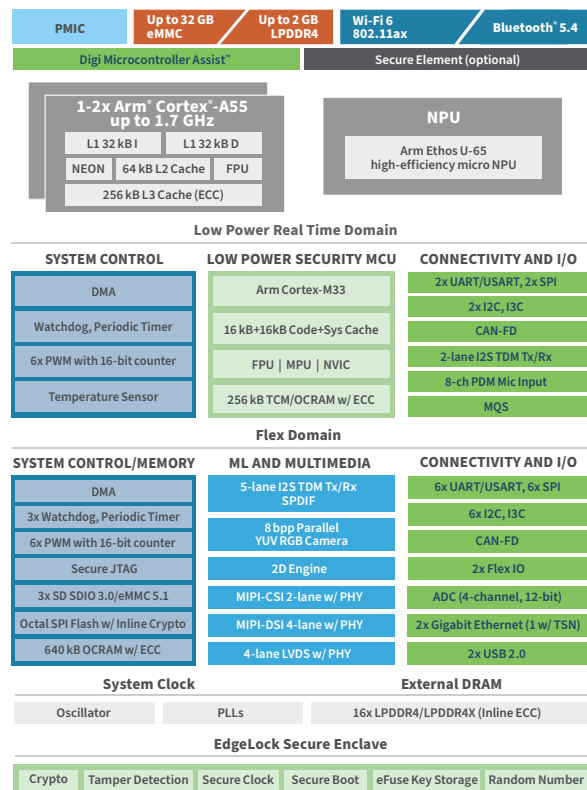
The Digi ConnectCore 91/93 SOM is designed for reliability across a wide range of medical, industrial, energy, and transportation applications, including Internet of Things (IoT), automation, human-machine interface (HMI), equipment monitoring, audio/voice, edge computing and machine learning (e.g. anomaly detection).

Digi ConnectCore 91/93 features up to two power-efficient Arm® Cortex®-A55 cores and NXP PMIC for maximum power efficiency. Digi ConnectCore 93 includes a Cortex-M33 core and AI/ML Arm Ethos U65 NPU, plus video and graphics capabilities. The SOMs are 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. Digi ConnectCore 91 is also pin-compatible with ConnectCore 93.

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 Linux software platform. This helps OEMs lower research and development costs, realize a lower total cost of ownership and streamline time to market.
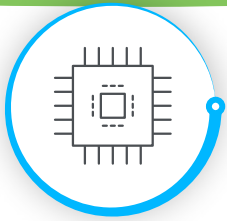
Our decades of embedded experience and millions of deployed devices tell our story; Digi is a trusted solutions provider dedicated to simplifying the way OEMs design, build, deploy and maintain secure connected products. **Digi Wireless Design Services** (WDS) is an engineering team that provides additional integration support, certification assistance, and custom design and build services to get your products and solutions to market smarter and faster.

*Digi ConnectCore 93 block diagram highlights key features and capabilities. Digi ConnectCore 91 offers similar performance with a subset of features, see specifications for details.

Key features, benefits and applications

- Industrial i.MX 91/93 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 5.4
- 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

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

Specifications	Digi ConnectCore 91	Digi ConnectCore 93
APPLICATION PROCESSOR	NXP i.MX 91 • 1x Cortex-A55 core, up to 1.4 GHz	NXP i.MX 93 • Up to 2x Cortex-A55 cores, up to 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)	
ARTIFICIAL INTELLIGENCE		Arm Ethos U65 micro NPU at 1.0 GHz, 1.0 TOPS
PMIC	NXP PCA9451 and Energy Flex architecture for maximum power efficiency	
GRAPHICS / DISPLAY	I2C/SPI only Audio	2D Engine: 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)
CAMERA	8-bit parallel YUV/RGB	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 for ConnectCore 91, Cortex-A and Cortex-M for ConnectCore 93)	
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 6x 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 5.4	
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 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	

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

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Part Numbers	Digi ConnectCore 91/93 Development Kit
CC-WMX93-KIT	Digi ConnectCore 91/93 Development Kit with development board and Digi ConnectCore 93 dual, NPU, 1 GB LPDDR4, 8 GB eMMC, wireless SOM including Digi ConnectCore Cloud Services Premium 1-year license

Part Numbers	Digi ConnectCore 91 SOMs
CC-WMX-F26D-L1	Digi ConnectCore 91 — i.MX 91, single-core A55 1.4 GHz, 512 MB LPDDR4, 8 GB eMMC, secure boot, −40 °C to 85 °C (−40 °F to 185 °F), pre-certified Wi-Fi 6 802.11ax and Bluetooth 5.4
CC-MX-F26D-Z1	Digi ConnectCore 91 — i.MX 91, single-core A55 1.4 GHz, 512 MB LPDDR4, 8 GB eMMC, secure boot, −40 °C to 85 °C (−40 °F to 185 °F)

Part Numbers	Digi ConnectCore 93 SOMs
CC-WMX-YC7D-KN	Digi ConnectCore 93 — i.MX 93, dual-core A55 1.7 GHz, NPU, 1 GB LPDDR4, 8 GB eMMC, secure boot, −40 °C to 85 °C (−40 °F to 185 °F), pre-certified Wi-Fi 6 802.11ax and Bluetooth 5.4
CC-MX-YC7D-ZN	Digi ConnectCore 93 — i.MX 93, dual-core A55 1.7 GHz, NPU, 1 GB LPDDR4, 8 GB eMMC, secure boot, −40 °C to 85 °C (−40 °F to 185 °F)
CC-WMX-ZC6D-L1	Digi ConnectCore 93 — i.MX 93, single-core A55 1.7 GHz, 512 MB LPDDR4, 8 GB eMMC, secure boot, −40 °C to 85 °C (−40 °F to 185 °F), pre-certified Wi-Fi 6 802.11ax and Bluetooth 5.4
CC-MX-ZC6D-Z1	Digi ConnectCore 93 — i.MX 93, single-core A55 1.7 GHz, 512 MB LPDDR4, 8 GB eMMC, secure boot, −40 °C to 85 °C (−40 °F to 185 °F)

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 — Enterprise for additional product (same duration as main contract)

Part Numbers	Expert Support
DG-EXPE-24-15HRS	Expert Support Agreement — 1 year

For more information, visit digi.com.

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