



SECURE, CONNECTED
SYSTEM-ON-MODULE



CONNECTCORE® 8X

Intelligent and connected embedded system-on-module based on the NXP i.MX 8X, with scalable dual/quad-core performance for industrial IoT applications.

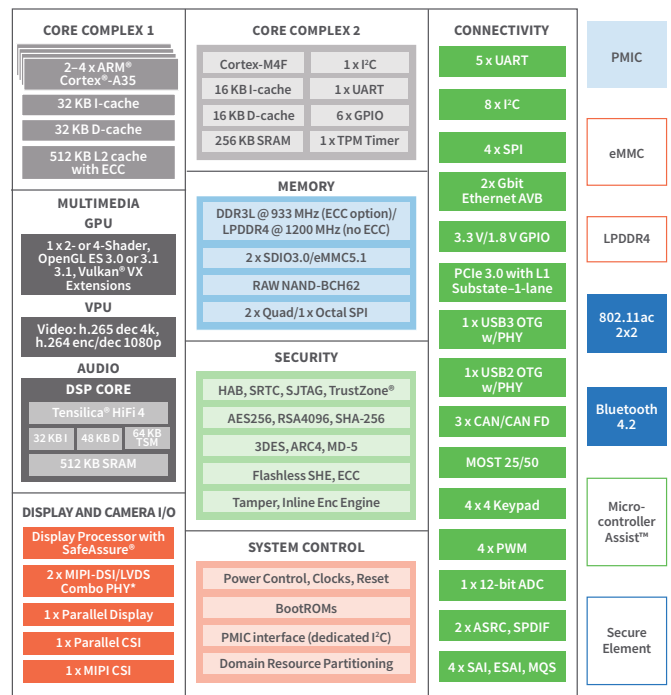
Digi ConnectCore® 8X delivers a secure and extremely cost-effective connected System-on-Module platform that measures in at just 40mm x 45mm. Its patent-pending Digi SMTplus® surface mount form factor allows you to choose simplified design integration leveraging proven and easy-to-use edge-castellated SMT technology, or a versatile LGA option for ultimate design flexibility with access to virtually all interfaces.

Built on the NXP i.MX 8X application processor, the module is the intelligent communication engine for today's secure connected devices. The ConnectCore 8X can help jump-start development of streaming video/audio devices, voice control and general human-machine interface solutions. With a multitude of high performance interconnect options, including 1x USB 3.0 port, dual Gigabit Ethernet, PCIe 3.0, and pre-certified dual-band 2x2 MU-MIMO WLAN, the ConnectCore 8X is ideal for development of a wide range of embedded and IoT applications.

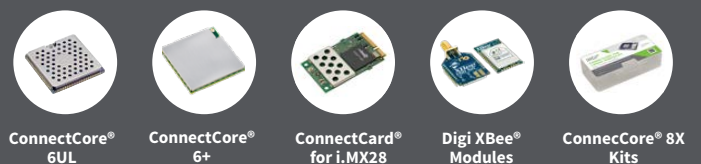
BENEFITS

- Industrial i.MX 8X quad/dual-core SOM and SBC platform family
- Digi SMTplus® form factor (40 x 45 mm) for ultimate reliability and design freedom
- Power Management – both hardware and software support for low-power designs
- Multi-display and camera capabilities with hardware acceleration
- Pre-certified dual-band 802.11a/b/g/n/ac 2x2 and Bluetooth 4.2 connectivity
- Seamless cellular modem and Digi XBee3™ integration
- Cloud and edge-compute services integration
- Digi TrustFence® device security built in
- Yocto Project Linux and Android 8 support

BLOCK DIAGRAM



RELATED PRODUCTS



SPECIFICATIONS	ConnectCore® 8X
APPLICATION PROCESSOR	NXP i.MX8QuadXPlus/DualXPlus <ul style="list-style-type: none"> • 2-4 x Cortex-A35 cores @ 1.2 GHz • 1 x Cortex-M4F @266MHz core for real-time processing • 1 x Tensilica® HiFi 4 DSP
MEMORY	Up to 64 GB eMMC, up to 4GB of LPDDR4
PMIC	NXP PF8100
GRAPHICS	Multi-stream-capable HD video engine with H.265 (4Kp30), H.264 (1080p60), VP6/VP8 (1080p60), MPEG-2 (1080p60), MPEG4 (1080p), RealVideo (1080p) decode and H.264 (1080p30) encode; 3D video playback in HD in high-performance families; Superior 3D graphics performance with up to 4 shaders
SECURITY	Digi TrustFence®, TRNG, TrustZone, Ciphers, Security Cntrl, Secure RTC, Secure JTAG, eFuses (OTP)
PERIPHERALS/ INTERFACES	1x SD 3.0 card interface handles SD/SDIO/MMC protocols (1x additional one reserved on the SOM for supporting eMMC), 5x UARTs (4x UARTs from Cortex-A35 core, 1x UART from Cortex-M4), S/PDIF Tx/Rx, 8x I ² C (4x I ² C high-speed DMA support 4x I ² C low-speed no DMA support), 4x SPI, ESAI, 4x I ² S/SSI, 3x FlexCAN, MLB150 + DTCP, USB 3.0 OTG with PHY, USB 2.0 OTG with PHY, 4x PWM, GPIO, Keypad, PCIe 3.0 (x1 lane), 2x MIPI DSI/LVDS, MIPI CSI, 8/10-bit CSI, 24-bit RGB, RTC, Watchdog, Timers, JTAG
ETHERNET	2x 10/100/1000M Ethernet + AVB
WI-FI	802.11a/b/g/n/ac: 2.412 - 2.484 GHz, 4.900 - 5.850 GHz 802.11b: 1, 2, 5.5, 11 Mbps (17 dBm typical ±2 dBm) 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps (15 dBm typical ±2 dBm) 802.11n: 15, 30, 45, 60, 90, 120, 135, 150 Mbps (12 dBm typical ±2 dBm) HT40, MCS 0-7 802.11ac: 15, 30, 45, 60, 90, 120, 135, 150, 180, 200 Mbps (10 dBm typical ±2 dBm) HT40, MCS 0-9 Note: all data rates provided above are for 1 spatial stream. For 2x spatial streams, double the data rate. Security: WEP, WPA-PSK/WPA2-Personal, WPA/WPA2 Enterprise, 802.11i, Access Point Mode (up to 10 clients), Wi-Fi Direct Industry certifications: Wi-Fi Alliance Logo Certification Ready, CCXv4 ASD Ready
BLUETOOTH	Bluetooth 4.2
ON-MODULE MICROCONTROLLER ASSIST	Digi Microcontroller Assist™ <ul style="list-style-type: none"> • Independent Cortex-M0+ microcontroller subsystem • Supporting ultra-low power modes @ <3μA
OPERATING TEMPERATURE	Industrial: -40° C to +85° C (depending on use case and enclosure/system design) Commercial: 0° C to +70° C
STORAGE TEMPERATURE	-50° C to +125° C (-58° F to +257° F)
RELATIVE HUMIDITY	5% to 90% (non-condensing)
ALTITUDE	12,000 feet (3,658 meters)
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
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, fully shielded for radio emissions and thermal management (heat-spreading) 40 mm x 45 mm x 3.5 mm

SPECIFICATIONS	DESCRIPTION
CONNECTCORE 8X DEVELOPMENT KITS	
CC-WMX8-EXPRESS	ConnectCore® 8X Express Development Kit: SBC Express baseboard with ConnectCore 8X module, UART console cable, power supply and antennas, software support for Yocto Linux and Android, Kinetis Microcontroller Assist, 802.11a/b/g/n/ac 2x2, Bluetooth 4.2
CC-WMX8-KIT	ConnectCore® 8X SBC PRO Development Kit: SBC PRO baseboard with ConnectCore 8X module, Pico-ITX (100 x 72 mm), Industrial Temp, 16 GB eMMC, 2GB LPDDR4, Dual 1Gbit Ethernet, 802.11a/b/g/n/ac 2x2, Bluetooth 4.2, XBee socket, cellular connectivity support via PCI Express Mini Card, SIM, microSD, USB Host, USB OTG, UART, DualCAN, SPI, I2 C, LVDS, camera, antenna connector, battery connector, UART console cable, power supply and antennas, software support for Yocto Linux and Android, Kinetis Microcontroller Assist
CONNECTCORE 8X SBSCS	
CC-SBP-WMX-JM8E	ConnectCore® 8X SBC PRO: i.MX8QuadXPlus, 1.2Ghz, -40 C to 85 C, 16 GB flash, 2 GB LPDDR4, 802.11a/b/g/n/ac 2x2, Bluetooth 4.2, Dual Gigabit Ethernet
CONNECTCORE 8X SOMS	
CC-WMX-JM7D-NN	ConnectCore® 8X SOM QuadXPlus 1.2GHz, 8GB eMMC, 1GB LPDDR4, -40° C/+85° C, 802.11a/b/g/n/ac 2x2, Bluetooth 4.2
CC-WMX-JM8E-NN	ConnectCore® 8X SOM QuadXPlus 1.2GHz, 16GB eMMC, 2GB LPDDR4, -40° C/+85° C, 802.11a/b/g/n/ac 2x2, Bluetooth 4.2
CC-MX-JM8D-ZN	ConnectCore® 8X SOM QuadXPlus 1.2GHz, 8GB eMMC, 2GB LPDDR4, -40° C/+85° C

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