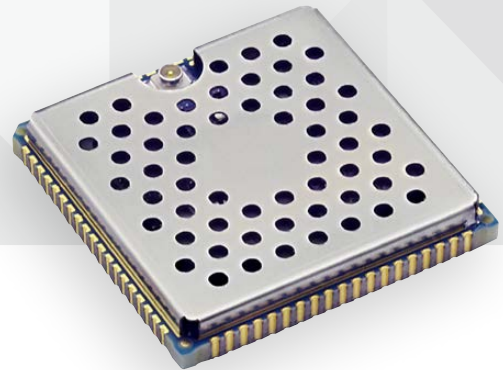




SECURE, CONNECTED  
SYSTEM-ON-MODULE



# DIGI CONNECTCORE 6UL

Intelligent and connected embedded system-on-module based on the NXP i.MX6 UL, with turnkey Linux software support in a stamp-sized form factor

The Digi ConnectCore® 6UL module delivers a secure and extremely cost-effective connected System-on-Module platform that is slightly bigger than a postage stamp.

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.

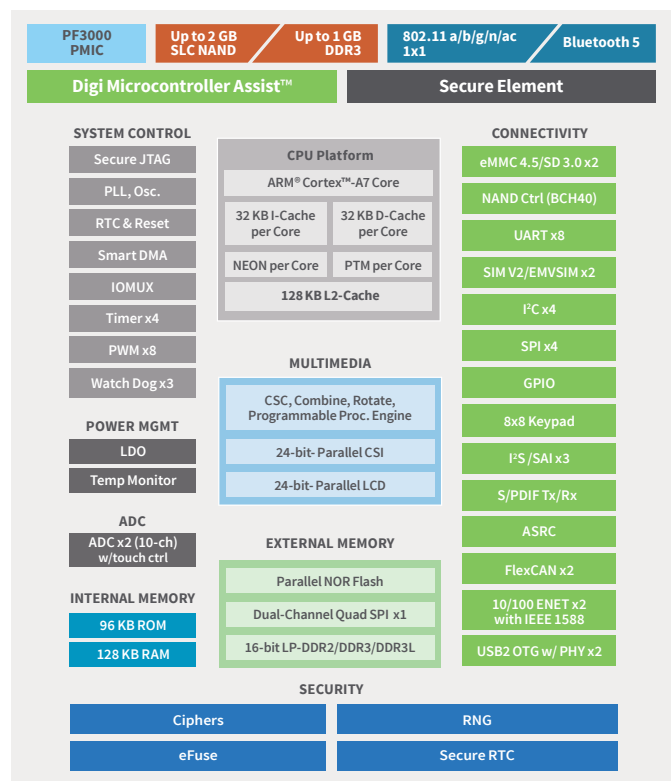
Built on the NXP i.MX6UL application processor, the module is the intelligent communication engine for today's secure connected devices. It seamlessly integrates dual-Ethernet and pre-certified dual-band Wi-Fi (802.11a/b/g/n/ac) with Bluetooth® 5 connectivity.

Embedded device security is a critical design aspect for the growing number of connected applications ("IoT") and the ConnectCore 6UL removes the implementation barriers by providing you with Digi TrustFence®, a fully integrated secure module platform with complete Linux software support.

## BENEFITS

- Stamp-sized, secure, connected System-on-Module platform
  - NXP i.MX6UL-2, Cortex-A7 @ 528 MHz
  - 256 MB / 1 GB NAND flash, 256 MB / 1 GB DDR3
- Patent-pending low-profile Digi SMTplus form factor
- Integrated Digi Microcontroller Assist™ for 2.5 µA ultra-low power modes
- Pre-certified 802.11a/b/g/n/ac + Bluetooth 5 option
- Integrated dual 10/100 Ethernet connectivity
- Digi TrustFence embedded device security framework
- Royalty-free embedded Linux software platform
- Turnkey development available from Digi WDS

## BLOCK DIAGRAM



## RELATED PRODUCTS



ConnectCard®  
for i.MX28



ConnectCore® 6



Digi Connect®



Rabbit®



Digi XBee®  
Modules

SPECIFICATIONS		Digi ConnectCore® 6UL	
<b>FEATURES</b>			
<b>APPLICATION PROCESSOR</b>	NXP i.MX6UL-2, ARM® Cortex®-A7 @ 528 MHz, 128 KB L2 cache, with NEON™ MPE (Media Processor Engine) co-processor and programmable smart DMA (SDMA) controller		
<b>MEMORY</b>	256 MB / 1 GB NAND flash, 256 MB / 1 GB DDR3		
<b>PMIC</b>	NXP PF3000		
<b>VIDEO/GRAPHICS</b>	2D Pixel Processing Pipeline (PXP) for color-space conversion, scaling, alpha-blending, and rotation, 8-/16-/18-/24-bit parallel LCD Display up to WXGA (1366x768), 8- /10- /16- /24-bit Parallel CSI with BT.656 support		
<b>SECURITY</b>	Dedicated cryptographic co-processor (Secure Element) with hardware assisted Elliptic Curve support: FIPS 186-4 Elliptic Curve Digital Signature (ECDSA), NIST SP800-56A Elliptic Curve Diffie-Hellman (ECDH), NIST Standard P256 Elliptic Curve, 256-bit SHA/HMAC, X.509 certificate support, Multilevel RNG (NIST SP 800-90A DRBG), Tamper Monitor, 72-bit unique device ID, i.MX6UL Cryptographic Acceleration and Assurance Module (CAAM): AES 128/256, DES/3DES, ARC4, RSA (4096), MD5, SHA-1/224/256, HMAC, AES-CMAC, AES-XCBC-MAC, AES-CCM, TRNG with hardware entropy source (NIST SP-800-90A), Digi TrustFence® Embedded Security Framework		
<b>PERIPHERALS/INTERFACES</b>	1 x dedicated MMC 4.5/SD 3.0/SDIO Port (1-/2-/4-bit), 2 x USB 2.0 OTG with PHY, 3x I2S/SAI, 1 x S/PDIF Tx/Rx, 2 x FlexCAN (2.0b), 4 x I2C, 4 x SPI, 7 x UART, 4 x Timer, 8 x PWM, 3 x Watchdog, 2 x 12-bit ADC (10 channels) with 4-wire/5-wire touch controller, up to 103 GPIOs		
<b>EXTERNAL BUS</b>	16-bit address / up to 16-bit data (multiplexed and non-multiplexed modes)		
<b>ETHERNET</b>	Dual 10/100 Mbit Ethernet MAC + IEEE 1588		
<b>WIRELESS</b>	802.11a/b/g/n/ac 1x1 (MCS 0-9), Bluetooth® 5 with strong WPA2-Enterprise authentication/encryption for Wi-Fi connections		
<b>MCA™ MICROCONTROLLER ASSIST</b>	Ultra-low power ARM® Cortex®-M0+, up to 48 MHz (NXP Kinetis KL03: KL03P24M48SF0)		
<b>OPERATING TEMPERATURE</b>	Industrial: -40° C to 85° C (-40° F to 185° F); depending on use case and enclosure/system design		
<b>STORAGE TEMPERATURE</b>	-50° C to 125° C (-58° F to 257° F)		
<b>RELATIVE HUMIDITY</b>	Relative humidity 5% to 90% (non-condensing)		
<b>RADIO APPROVALS***</b>	US, Canada, EU, Japan, Australia/New Zealand		
<b>EMISSIONS / IMMUNITY / SAFETY</b>	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 UL/UR (or equivalent)		
<b>DESIGN VERIFICATION</b>	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		
<b>MOUNTING / PIN COUNT</b>	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		
<b>MECHANICAL DIMENSIONS</b>	29 mm x 29 mm x 3.5 mm (1.14 in x 1.14 in x 0.14 in)		
<b>POWER CONSUMPTION</b>	Idle Mode (Linux up, no networking): 100 mA @ 5 V Idle Mode (Linux up, with 25% Wi-Fi transmit): 118 mA @ 5 V Standby Mode (w/memory refresh): 6 mA @ 5 V		
<b>ULTRA LOW-POWER MODES</b>	Event Trigger Mode: 2.5 µA @ 3 V (i.MX6UL off, MCA LLS w/HS Comparator active)** Scheduled Wake-Up Mode: 25 µA @ 3 V (i.MX6UL off, MCA LLS w/HS Comparator active)**		
<b>PRODUCT WARRANTY</b>	3-year		

PART NUMBERS		DESCRIPTION	
<b>KITS</b>			
<b>CC-WMX6UL-START</b>	ConnectCore 6UL SBC Express, 87 x 63 mm, Industrial temp, 256 MB SLC NAND, 256 MB DDR3, single 10/100 Ethernet, 802.11a/b/g/n/ac, Bluetooth 5, PCB antenna, USB, UART, microSD, Pi HAT and Grove connectors, power (USB + header), and accessories		
<b>CC-WMX6UL-KIT</b>	ConnectCore 6UL SBC Pro, Pico-ITX (100 x 72 mm), Industrial temp, 256 MB SLC NAND, 256 MB DDR3, Dual 10/100 Ethernet, 802.11a/b/g/n/ac, Bluetooth 5, XBee socket, cellular connectivity support via PCI Express Mini Card, SIM, NFC, microSD, USB Host, USB OTG, UART, DualCAN, SPI, I²C, LVDS, camera, antenna connector, battery connector, power supply, and accessories		
<b>CONNECTCORE 6UL – SECURE WIRELESS MODULE</b>			
<b>CC-WMX-JN7A-NE</b>	ConnectCore 6UL-2, 528 MHz, Industrial temp, 1 GB SLC NAND, 1 GB DDR3, Dual 10/100 Ethernet, 802.11a/b/g/n/ac, Bluetooth 5		
<b>CC-WMX-JN58-NE</b>	ConnectCore 6UL-2, 528 MHz, Industrial temp, 256 MB SLC NAND, 256 MB DDR3, Dual 10/100 Ethernet, 802.11a/b/g/n/ac, Bluetooth 5		
<b>CONNECTCORE 6UL – SECURE ETHERNET MODULE</b>			
<b>CC-MX-JN7A-Z1</b>	ConnectCore 6UL-2, 528 MHz, Industrial temp, 1 GB SLC NAND, 1 GB DDR3, Dual 10/100 Ethernet		
<b>CC-MX-JN58-Z1</b>	ConnectCore 6UL-2, 528 MHz, Industrial temp, 256 MB SLC NAND, 256 MB DDR3, Dual 10/100 Ethernet		

\* Patent-Pending \*\* Estimated, based on use-case \*\*\* Final certifications pending



**DIGI SERVICE AND SUPPORT** / You can purchase with confidence knowing that Digi is always available to serve you with expert technical support and our industry leading warranty. For detailed information visit [www.digi.com/support](http://www.digi.com/support).

© 1996-2020 Digi International Inc. All rights reserved.  
All trademarks are the property of their respective owners.

91003241  
B9/520

**DIGI INTERNATIONAL WORLDWIDE HQ**  
877-912-3444 / 952-912-3444 / [www.digi.com](http://www.digi.com)

**DIGI INTERNATIONAL GERMANY**  
+49-89-540-428-0

**DIGI INTERNATIONAL JAPAN**  
+81-3-5428-0261 / [www.digi-intl.co.jp](http://www.digi-intl.co.jp)

**DIGI INTERNATIONAL SINGAPORE**  
+65-6213-5380

**DIGI INTERNATIONAL CHINA**  
+86-21-50492199 / [www.digi.com.cn](http://www.digi.com.cn)



Singel 3 | B-2550 Kontich | Belgium | Tel. +32 (0)3 458 30 33 | [info@alcom.be](mailto:info@alcom.be) | [www.alcom.be](http://www.alcom.be)  
Rivium 1e straat 52 | 2909 LE Capelle aan den IJssel | The Netherlands | Tel. +31 (0)10 288 25 00 | [info@alcom.nl](mailto:info@alcom.nl) | [www.alcom.nl](http://www.alcom.nl)

