Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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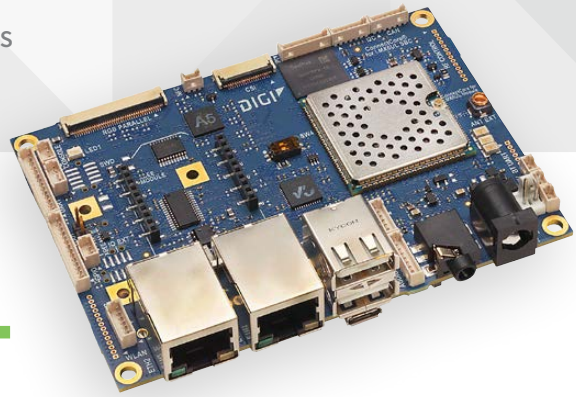
COMPLETE CAPABILITIES
AND FLEXIBILITY



CONNECTCORE® 6UL SBC PRO

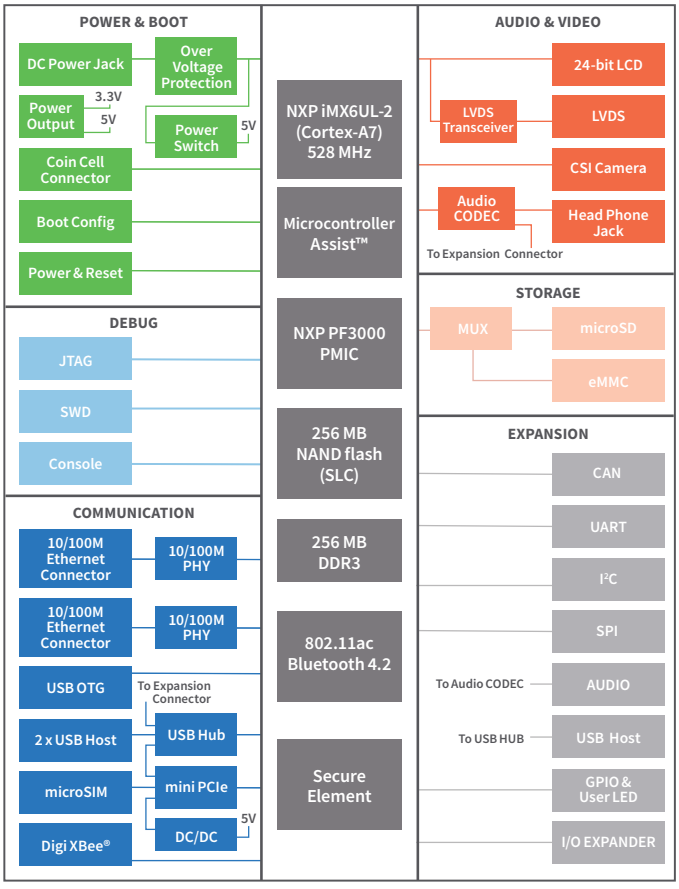
Powerful, secure, pre-certified connected Single Board Computer in standard form factor with complete design flexibility.

The ConnectCore 6UL SBC Pro delivers the ultimate connected off-the-shelf NXP i.MX6UL single board computer with complete capabilities and unparalleled design flexibility.

Its unique pre-certified wireless connectivity options offer 802.11a/b/g/n/ac Wi-Fi and Bluetooth 4.2, including Bluetooth Low Energy. Out-of-box cellular integration options using the pre-certified Digi XBee® Cellular module or third party PCI Express Mini Card modem allows you to integrate cellular connectivity without the usual cost and complexity.

Digi's complete Linux support includes the built-in Digi TrustFence™ device security framework with support for secure boot, encrypted file systems, protected ports, and more.

BLOCK DIAGRAM



FEATURES AND BENEFITS

- Powerful and flexible off-the-shelf solution in Pico-ITX form factor
- Production-ready with minimal hardware design effort
- Rugged design with industrial operating temperature range
- Pre-certified dual-band 802.11ac Wi-Fi connectivity
- Bluetooth 4.2, with Bluetooth Low Energy support
- Out-of-box support for cellular connectivity
- On-board NFC Forum Type 2 compliant tag
- Dual 10/100 Mbit Ethernet networking
- Integrated display and camera capabilities
- Rich interface and peripheral support
- Complete Yocto Project Linux BSP with source code
- Digi TrustFence™ device security framework

RELATED PRODUCTS

ConnectCore® 6UL SBC Express

ConnectCore® 6 SBC

ConnectCore® 6UL Development Kit

Digi XBee® Modules

Wireless Design Services

SPECIFICATIONS	ConnectCore® 6UL SBC PRO
PERFORMANCE*	
APPLICATION PROCESSOR	NXP i.MX6UL-2, ARM® Cortex®-A7 @ 528 MHz, 128 KB L2 cache, with NEON™ MPE (Media Processor Engine) co-processor
MEMORY	256 MB high-reliability NAND flash (SLC), 256 MB DDR3
WIRED NETWORK CONNECTIVITY	
ETHERNET	2 x 10/100 Mbit Ethernet
WIRELESS NETWORK CONNECTIVITY	
WI-FI	Dual-band 802.11a/b/g/n/ac 1x1 (MCS 0-9)
BLUETOOTH	Bluetooth 4.2, with Bluetooth Low Energy support
ANTENNAS	On-module U.FL or on-board MMCX antenna connector for Wi-Fi and Bluetooth, external NFC antenna option
NFC	Energy-harvesting NXP NTAG, field detection trigger, ISO 14443A and NFC Forum Type 2 Tag compliant
DIGI XBEE® RF	Standard Digi XBee socket
PERIHPERALS/INTERFACES	
ETHERNET	2 x RJ-45 (10/100 Mbit)
USB	2 x USB Host (Dual Type-A), 1 x USB Host (6-pin header), 1 x USB OTG (Micro-USB)
DISPLAY	24-bit Parallel RGB (40-pin header), and 18-bit LVDS (20-pin header)
CAMERA	8-bit Parallel CSI (20-pin header)
GPIO	14-pin header (8 x GPIO, 1 x Touch)
UART / CONSOLE	14-pin header (1 x two-wire, 2 x four-wire, one shared with XBee socket), 3-pin header (Console)
OTHER CONNECTIVITY	2 x I2C (6-pin header), 1 x SPI (8-pin header), 2 x CAN (6-pin header)
PCI EXPRESS MINI CARD	Half-size and full-size card support, with on-board Micro SIM slot support
RF CONTROL	14-pin header (Wi-Fi Enable/Disable, Bluetooth Enable/Disable, Wakeup, PCM, LTE Control, GPS Co-Existence)
EXTERNAL STORAGE	microSD , optional on-board eMMC population option
AUDIO	3.5 mm headphone jack, 6-pin header (speaker), 8-pin header (line-in, microphone, line-out)
BUTTONS / SWITCHES	Power, Reset, User, Boot Select (NAND/microSD), RF (Wi-Fi Enable, Bluetooth Enable), Antenna Select (U.FL on-module/MMCX on-board)
DEBUG	Tag-Connect for JTAG and SWD
POWER	3.3V Out (2-pin header), 5V Out (2-pin header), Battery (2-pin header)
LEDS	Power, 3 x User
CERTIFICATIONS**	
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 (UL/UL equivalent)
POWER REQUIREMENTS	
SUPPLY VOLTAGE	5VDC @ 300 mA (typical); See ConnectCore 6UL module product brief for module-only power consumption guidance.
POWER CONNECTORS	Locking barrel connector (2 mm), or dedicated power connector (3-pin header)
ENVIRONMENTAL	
OPERATING TEMPERATURE	-40° C to 85° C
STORAGE TEMPERATURE	-50° C to +125° C
RELATIVE HUMIDITY	Relative humidity 5% to 90% (non-condensing)
ALTITUDE	Altitude 12,000 feet (3,658 meters)
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	100 x 72 mm

* Populates ConnectCore 6UL module P/N CC-WMX-JN58-NE (LGA mounting). **Final certifications pending .

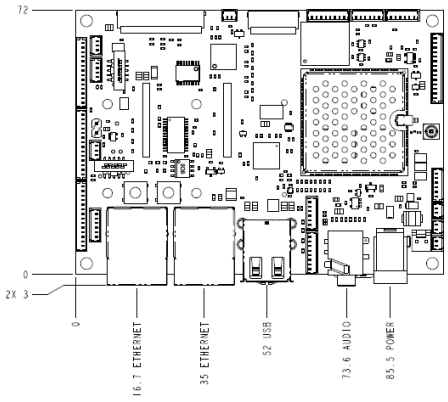
CONNECTCORE® SBC SELECTION GUIDE

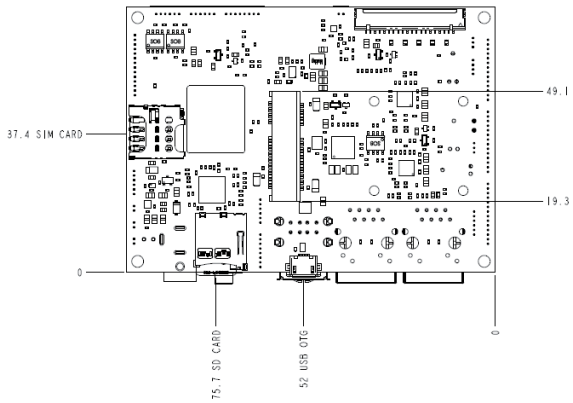
		ConnectCore 6UL SBC Express	ConnectCore 6UL SBC Pro	ConnectCore 6 SBC for i.MX6Quad	ConnectCore 6 SBC for i.MX6Dual	ConnectCore 6 SBC for i.MX6DualLite
PERFORMANCE	Processor	NXP i.MX6UL-2 (Cortex-A7)	NXP i.MX6UL-2 (Cortex-A7)	NXP i.MX6Quad (Cortex-A9)	NXP i.MX6Dual (Cortex-A9)	NXP i.MX6DualLite (Cortex-A9)
	Clock Speed	528 MHz	528 MHz	1.2 GHz	800 MHz	800 MHz
	Microcontroller Assist™	✓	✓	✓	-	-
MEMORY	Flash	256 MB NAND (SLC)	256 MB NAND SLC 4 GB eMMC[1,7]	4 GB eMMC[1]	4 GB eMMC[1]	4 GB eMMC[1]
	RAM	256 MB DDR3	256 MB DDR3	1 GB DDR3	1GB DDR3	512 MB DDR3
NETWORKING	Ethernet	1 x 10/100 Mbit	2 x 10/100 Mbit	1 x Gigabit	1 x Gigabit	1 x Gigabit
	Wi-Fi	802.11a/b/g/n/ac 1x1	802.11a/b/g/n/ac 1x1	802.11a/b/g/n 1x1	802.11a/b/g/n 1x1	802.11a/b/g/n 1x1
	Bluetooth	4.2	4.2	4.0	4.0	4.0
	Wi-Fi / Bluetooth Antenna	On-board/U.FL	U.FL/MMCX[6]	U.FL	U.FL	U.FL
	NFC Forum Type 2 Tag	-	✓	-	-	-
	NFC Antenna	-	External	-	-	-
	XBee® Socket	-	✓	✓	✓	✓
SECURITY	Digi TrustFence™	✓	✓	✓	✓	✓
CELLULAR[2]	Micro SIM Card Slot	-	✓	✓	✓	-
COMMUNICATION	USB 2.0 Host	1	3	3	3	2
	USB 2.0 OTG	1	1	1	1	1
	PCI Express Mini Card 2.1	-	✓ (USB 2.0 Host)	✓ (USB Host 2.0/x1 PCIe)	✓ (USB Host 2.0/x1 PCIe)	-
	RS232/TTL	-/2[4]	2/1	2/1	2/1	2/1
	Console	✓[5]	✓	✓	✓	✓
	I²C	✓[4]	✓	✓	✓	-
	SPI	✓[4]	✓	✓	✓	-
	GPIO	✓[4]	✓	✓	✓	✓
	Dual CAN	-	✓	✓	✓	-
	Grove	3	-	-	-	-
	Expansion Connector[4]	✓[4]	-	-	-	-
GRAPHICS	2D/3D Hardware Acceleration (GPU)	-	-	✓	✓	✓
	Hardware Video Encoding/Decoding	-	-	✓	✓	✓
	Resolution	Up to 1366 x 768		Up to 1920 x 1080		
DISPLAY	HDMI	-	-	✓	✓	✓
	LVDS[3]	-	1	2	1	-
	MIPI DSI[3]	-	-	✓	✓	-
	RGB Parallel	8-bit[4]	18-/24-bit	24-bit	24-bit	24-bit
CAMERA	MIPI CSI	-	-	✓	✓	-
	8-Bit Parallel	-	✓	2	1	-
AUDIO	Headphone Jack	-	✓	✓	✓	-
	Line-In / Line-Out / Microphone Header	-	✓	✓	✓	-
STORAGE	microSD	✓	✓	✓	✓	✓
	SATA 3.0	-	-	✓	-	-
OTHER	Power / Reset Buttons	✓	✓	✓	✓	✓
	Power / Reset Header	✓	✓	✓	✓	✓
	Coin Cell Battery Header	✓	✓	✓	✓	✓
	Power / User LEDs	✓	✓	✓	✓	✓
	Boot Configuration Switch	Population Options	Population Options	✓	✓	✓
	JTAG (via Tag-Connect)	✓	✓	✓	✓	✓
	SWD (via Tag-Connect)	✓	✓	✓	✓	✓
ENVIRONMENTAL	Operating Temperature	-40° C to 85° C	-40° C to 85° C	-20° C to 70°C	-40° C to 85° C	-40° C to 85° C
MECHANICAL	Dimensions	87 x 63 mm	100 x 72 mm			
	Form Factor	SBC	Pico-ITX			
DIGI SKUS		CC-SBE-WMX-JN58	CC-SBP-WMX-JN58	CC-SB-WMX-J97C-1	CC-SB-WMX-L87C-1	CC-SB-WMX-L76C-1

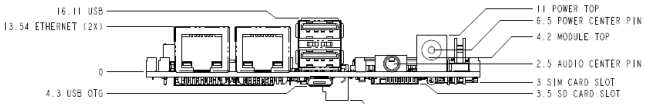
1. pSLC mode option for industrial reliability
2. Via PCI Express Mini Card Connector, or Digi XBee® Cellular
3. With Touch (I2C) + Backlight Control
4. Raspberry Pi HAT compatible header (and mounting holes)
5. USB Device via USB Type AB connector
6. On-board antenna switch configuration
7. Software-selectable: on-board eMMC or microSD

PART NUMBERS	DESCRIPTION
CC-SBP-WMX-JN58	ConnectCore 6UL SBC Pro, Pico-ITX form factor, i.MX6UL-2, 528 MHz, Secure Element, Microcontroller Assist™, 256 MB NAND flash (SLC), 256 MB DDR3, Dual 10/100 Mbit Ethernet, 802.11a/b/g/n/ac, Bluetooth 4.2, industrial operating temperature
CC-SBP-WMX-JNUP	ConnectCore 6UL SBC Pro, Pico-ITX form factor, i.MX6UL-2, 528 MHz, Secure Element, Microcontroller Assist™, 256 MB NAND flash (SLC), 256 MB DDR3, Dual 10/100 Mbit Ethernet, 802.11a/b/g/n/ac, Bluetooth 4.2, industrial operating temperature, *XBee Cellular LTE CAT-1 (FCC pre-certified and Verizon end-device certified), North America only*

MECHANICAL DRAWINGS







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