FAST AND SIMPLIFIED INTEGRATION

CONNECTCORE® 6UL SBC EXPRESS

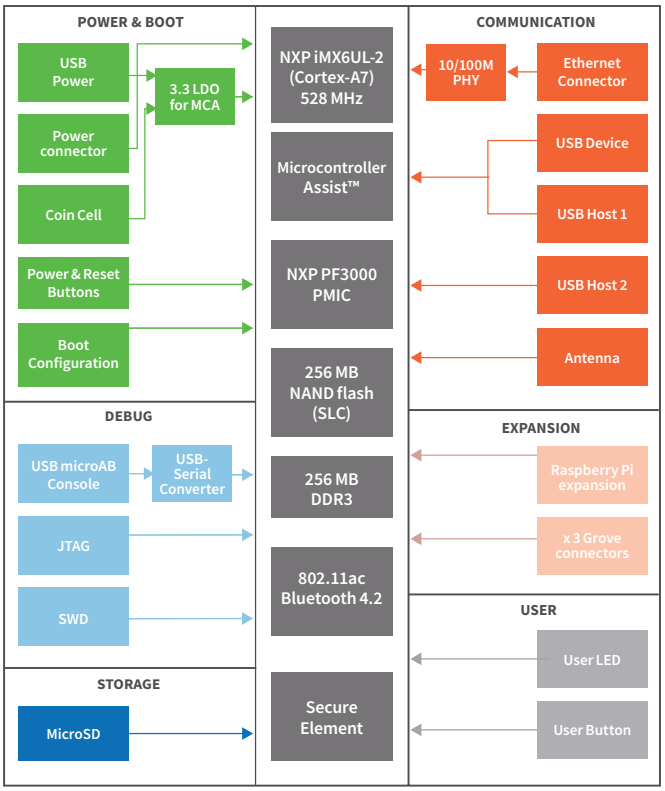
Secure and pre-certified connected Single Board Computer for fast and simple design integration in industrial applications.

The ConnectCore 6UL SBC Express delivers a powerful, secure and extremely cost-effective off-the-shelf single board computer with complete Linux support, including the Digi TrustFence™ device security framework with out-of-box support for secure boot, encrypted filesystems, protected ports, and more.

Built on the NXP i.MX6UL processor, it combines 10/100 Ethernet networking and pre-certified wireless 802.11a/b/g/n/ac Wi-Fi and Bluetooth 4.2 connectivity, including Bluetooth Low Energy.

The extremely compact form factor integrates an on-board dual-band antenna option, USB connectivity, Grove sensor connectors, and an expansion connector for unique integration flexibility into a wide range of industrial applications.

BLOCK DIAGRAM



FEATURES AND BENEFITS

- Cost-effective off-the-shelf solution
- Limited hardware design effort
- Highly accelerated time-to-market
- Rugged design with mounting options
- Industrial operating temperature range
- Pre-certified dual-band 802.11ac Wi-Fi connectivity
- Bluetooth 4.2, with Bluetooth Low Energy support
- Integrated on-board high-efficiency antenna
- On-board 10/100 Mbit Ethernet networking
- Grove and expansion connectors for flexibility
- Complete Yocto Project Linux BSP with source code
- Digi TrustFence™ device security framework

RELATED PRODUCTS


ConnectCore® 6UL SBC PRO


ConnectCore® 6 SBC


ConnectCore® 6UL Starter Kit


ConnectCore® 6UL Development Kit


Wireless Design Services

SPECIFICATIONS — ConnectCore® 6UL SBC Express

FEATURES	
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	Single 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
ANTENNA	On-board dual-band Isolated Magnetic Dipole™ (IMD) stamped metal antenna / U.FL connector
COMMUNICATION/PERIPHERALS	
USB HOST	Dual Type-A
USB OTG	Micro-AB
CONSOLE	Micro-AB
EXTERNAL STORAGE	microSD
GROVE	3 standard Grove connectors (I/D/A)
DISPLAY	Optional, through Raspberry Pi HAT compatible display accessories
EXPANSION CONNECTOR*	
INTERFACES	GPIO, I²C, SPI, UART, PWM, ADC, JTAG
PINOUT	Raspberry Pi HAT compatible
CONNECTOR TYPE	2-row, 40-pin, 2.54 mm pitch
OTHER	
BUTTONS	Power / Suspend, Reset, User
LEDS	User, Console TX/RX
COIN CELL	2-pin, 1.25 mm pitch connector
BOOT SELECT	USB/NAND
DEBUG	JTAG and SWD via Tag-Connect
POWER SUPPLY	
5V DC IN	2-pin, 2.54 mm pitch, latched connector
USB 5V DC IN**	Console USB Micro-AB
CURRENT DRAW	TBD
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/UR (or equivalent)
ENVIRONMENTAL	
OPERATING TEMPERATURE	-40° C to 85° C
STORAGE TEMPERATURE	-50° C to +125° C
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	87 x 63 mm

* Additional interfaces available through muxing options

** Standard USB current may not be sufficient for specific use-case

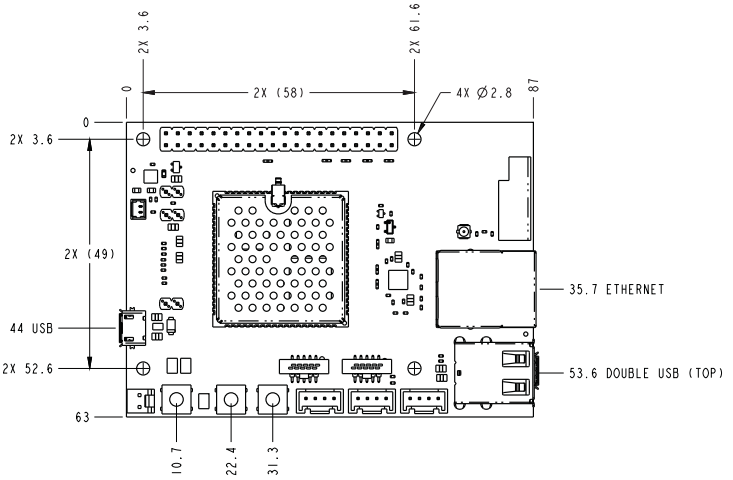
CONNECTCORE® SBC SELECTION GUIDE

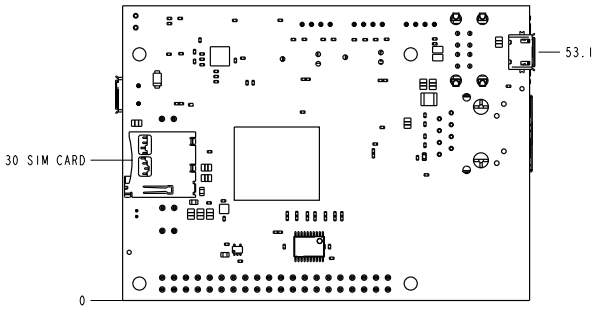
		ConnectCore 6UL SBC Express	ConnectCore 6UL SBC Pro	ConnectCore 6 SBC for i.MX6Quad	ConnectCore 6 SBC for i.MX6Dual	ConnectCore 6 SBC for i.MX6DualLite
PERFORMANCE	Processor	NXP i.MX6UL-2 (Cortex-A7)	NXP i.MX6UL-2 (Cortex-A7)	NXP i.MX6Quad (Cortex-A9)	NXP i.MX6Dual (Cortex-A9)	NXP i.MX6DualLite (Cortex-A9)
	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

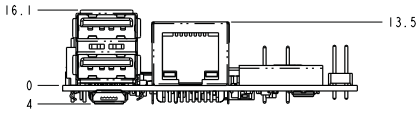
1. pSLC mode option for industrial reliability
2. Via PCI Express Mini Card Connector, or Digi XBee® Cellular
3. With Touch (I2C) + Backlight Control
4. Raspberry Pi HAT compatible header (and mounting holes)
5. USB Device via USB Type AB connector
6. On-board antenna switch configuration
7. Software-selectable: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

PART NUMBERS	DESCRIPTION
CC-SBE-WMX-JN58	ConnectCore 6UL SBC Express, i.MX6UL-2, 528 MHz, Secure Element, Microcontroller Assist™, 256 MB NAND flash (SLC), 256 MB DDR3, Single 10/100 Mbit Ethernet, 802.11a/b/g/n/ac, Bluetooth 4.2, on-board antenna, Micro SD, USB Host, USB OTG, Grove connectors, Expansion connector, Industrial operating temperature

MECHANICAL DRAWINGS







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