

# DIGI CONNECTCORE 6 SBC

Reliable and compact NXP i.MX6 SBC family with integrated Ethernet, Wi-Fi, Bluetooth 4.0, Digi XBee and cellular connectivity options

Digi ConnectCore® 6 SBC is an ultra-compact and versatile off-the-shelf single board computer (SBC) family. It offers significantly reduced time to market by virtually eliminating the traditional risk, effort and complexity of custom board designs without sacrificing flexibility or capabilities.

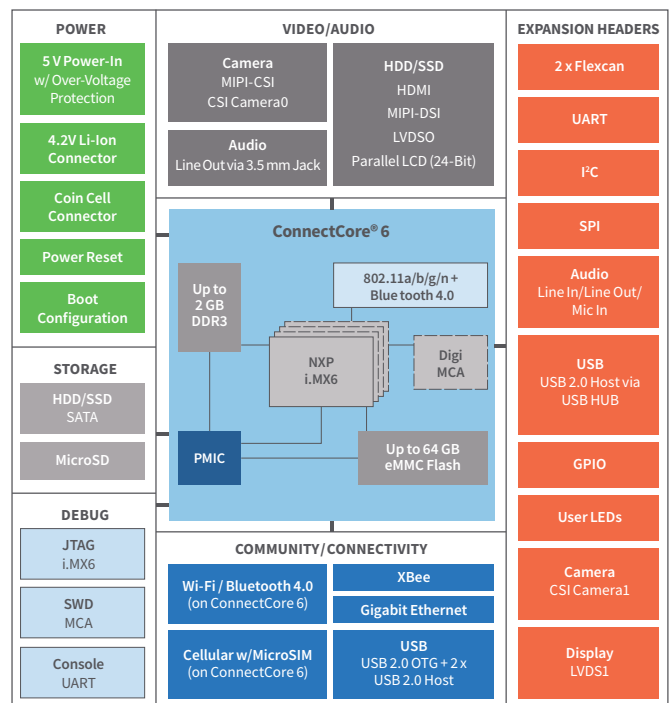
Built on the ConnectCore 6 module, it provides a common platform with scalable NXP i.MX6 performance, precertified Bluetooth® 4.0 and Wi-Fi integration, Digi XBee® RF module and cellular connectivity options, Gigabit Ethernet support, multi display/camera and audio support, external storage, expansion connectors, and reliability in harsh environments.

Leading and innovative features such as Digi Microcontroller Assist™ (MCA) enable the development of connected products with highly optimized power footprints. Optional Digi Remote Manager® integration provides secure remote management and device health capabilities for the Internet of Things.

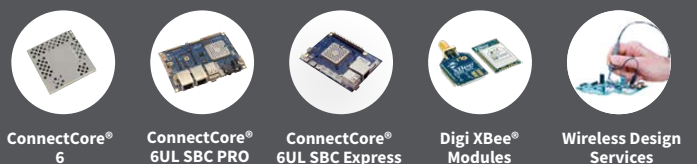
## BENEFITS

- Compact off-the-shelf SBC family
- Scalable capabilities and i.MX6Quad/Dual/DualLite performance
- Gigabit Ethernet and pre-certified dual-band Wi-Fi + Bluetooth 4.0
- Ready for cellular connectivity and Digi XBee RF
- Complete set of available peripherals and interfaces with customization options
- Designed for flexibility and reliability
- Windows® Embedded Compact, Yocto Project® Linux® and Android™ software platform support
- Industrial operating temperature available

## BLOCK DIAGRAM



## RELATED PRODUCTS



## SPECIFICATIONS

## Digi ConnectCore® 6 SBC

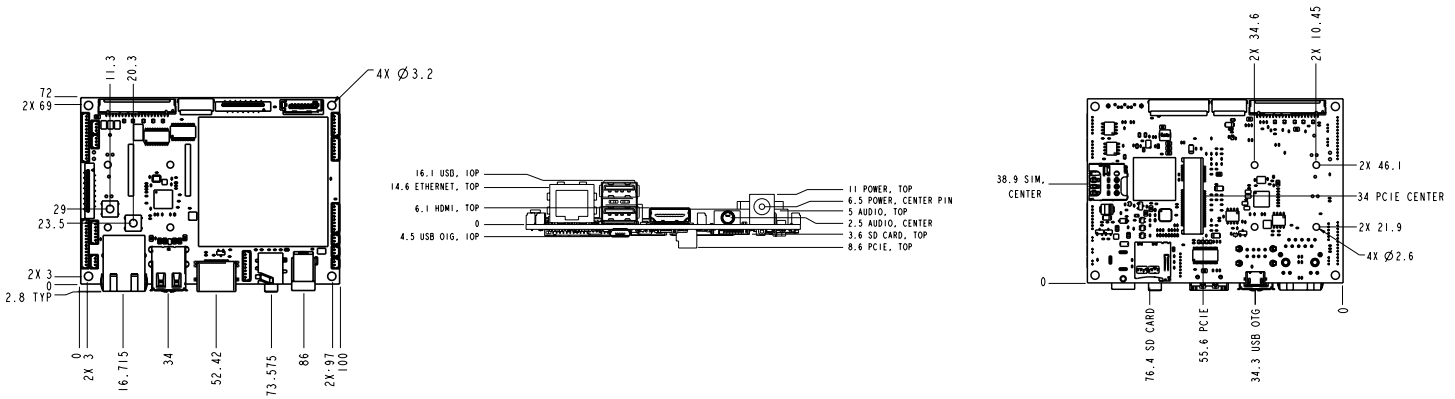
APPLICATION PROCESSOR	On-board ConnectCore 6 multi-chip module with NXP i.MX6Quad/i.MX6Dual/i.MX6DualLite, Industrial (800 MHz) and extended commercial (1.2 GHz) options
MEMORY	4 GB eMMC, 512 MB/1GB DDR (64-bit)
GRAPHICS	Multi-stream-capable HD video engine with 1080p60 decode, 1080p30 encode and 3D video playback in HD in high-performance families Superior 3D graphics performance with up to 4 shaders at 200 Mt/s w/ OpenCL support Separate 2D and/or Vertex acceleration engines for UI support Stereoscopic image sensor support for 3D imaging
SECURITY	RNG, TrustZone, Ciphers, Security Cntrl, Secure RTC, Secure JTAG, eFuses (OTP)
DISPLAYS	1 x HDMI (Type A) 2 x LVDS with backlight control and I2C touch interface (HIROSE DF14A-20P-1.25H) 1 x Parallel LCD (24-bit) with backlight control and I2C touch interface (Omron XF2M-4015-1A) 1 x MIPI-DSI with backlight control and I2C touch interface (FCI SFW15S-2STE1LF, compatible with Raspberry Pi DSI)
CAMERA	1 x 8-Bit Parallel Camera Interface 1 (Omron XF2M-2015-1A) 1 x 8-Bit Parallel Camera Interface 0 (Molex 53047-1410) 1 x MIPI CSI-2 (FCI SFW15S-2STE1LF, compatible with Raspberry Pi CSI)
USB 2.0	2 x USB Host (Dual Type A) 1 x USB OTG (Micro AB); 1 x USB Host (Molex 53047-0610)
AUDIO	1 x Line-In (3.5 mm stereo jack, CUI SJ1-3515-SMT) 1 x Line-In, 1 x Line-Out, 1 x Mic-In (Molex 53047-0810) On-board NXP SGTL5000 audio codec
CONSOLE (RS232)	Molex 53047-0310
SATA 3.0	3M 5607-5102-SH
MICRO-SIM	Yes
PCI EXPRESS MINI CARD	Foxconn AS0B226-S68Q-7H Provides PCI Express x1, USB 2.0 Host, I2C, SIM, Reset, Wake-Up signals Supports mounting of half-size and full-size PCI Express Mini Cards
BOOT CONFIGURATION	eMMC / SD / SATA
DIGI XBEE SOCKET	Samtec MMS-110-01-L-SV
WI-FI	802.11a/b/g/n: 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 Security: WEP, WPA-PSK/WPA2-Personal, WPA/WPA2 Enterprise, 802.11i, Access Point Mode, Wi-Fi Direct Industry Certifications: Wi-Fi Alliance Logo Certification Ready, CCv4 ASD Ready
BLUETOOTH	Class 1.5, Bluetooth 2.1 + EDR, Bluetooth 3.0 + HS 802.11 AMP, Bluetooth Low Energy Profiles: GAP, SPP, HSP, HFP, FTP, PAN, OPP, HID, A2DP, AVRCP, HDP
ANTENNA CONNECTORS	1 x U.FL / 2 x U.FL
GIGABIT ETHERNET	RJ-45, with 2 LEDs for link/speed/activity
CAN BUS	2 x FlexCAN (Molex 53047-0610)
GPIO/I <sup>2</sup> C/SPI/UART	1 x GPIO (8 x i.MX GPIOs + 4 Kinetis GPIOs, Molex 53047-1410) 1 x I <sup>2</sup> C (Molex 53047-0310), 1 x SPI (Molex 53047-0610) 3 x UART (4-wire TX/RX/RTS/CTS, 1 shared with Digi XBee socket, Molex 53047-1410)
DEBUG	1 x JTAG for i.MX6 (FCI 20021111-00010T4LF) 1 x SWD for Digi MCA (FCI 20021111-00010T4LF) Headers populated on development units only Production units without header for plug of nails (Tag-Connect TC2050-IDC-NL)
POWER BUTTON	Power on, power off, sleep, wake-up
RESET BUTTON	Yes
USER LEDS	1 x Red, 1 x Yellow, 1 x Green
COIN CELL CONNECTOR	Molex 53047-0210
SUPPLY VOLTAGE	5 V @ 3.2 A (typical, depending on use-case)
POWER SUPPLY CONNECTOR	Main power supply via 2mm locking barrel connector
OPERATING TEMPERATURE	-20° C to 70° C (-4° F to 158° F) / -40° C to 85° C (-40° F to 185° F)
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
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)
PRODUCT WARRANTY	1-year

# 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 <sup>1,7</sup>	4 GB eMMC <sup>1</sup>	4 GB eMMC <sup>1</sup>	4 GB eMMC <sup>1</sup>
	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 <sup>6</sup>	U.FL	U.FL	U.FL
	NFC Forum Type 2 Tag	-	✓	-	-	-
	NFC Antenna	-	External	-	-	-
	Digi XBee® Socket	-	✓	✓	✓	✓
SECURITY	Digi TrustFence™	✓	✓	✓	✓	✓
CELLULAR <sup>2</sup>	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 <sup>4</sup>	2/1	2/1	2/1	2/1
	Console	✓ <sup>5</sup>	✓	✓	✓	✓
	I <sup>2</sup> C	✓ <sup>4</sup>	✓	✓	✓	-
	SPI	✓ <sup>4</sup>	✓	✓	✓	-
	GPIO	✓ <sup>4</sup>	✓	✓	✓	✓
	Dual CAN	-	✓	✓	✓	-
	Grove	3	-	-	-	-
Expansion Connector <sup>4</sup>	✓ <sup>4</sup>	-	-	-	-	
GRAPHICS	2D/3D Hardware Acceleration (GPU)	-	-	✓	✓	✓
	Hardware Video Encoding/Decoding	-	-	✓	✓	✓
	Resolution	Up to 1366 x 768			Up to 1920 x 1080	
DISPLAY	HDMI	-	-	✓	✓	✓
	LVDS <sup>3</sup>	-	1	2	1	-
	MIPI DSI <sup>3</sup>	-	-	✓	✓	-
	RGB Parallel	8-bit <sup>4</sup>	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 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

# MECHANICAL DRAWINGS



PART NUMBERS	DESCRIPTION
CC-SB-WMX-J97C-1	ConnectCore 6 SBC, i.MX6Quad, Ext Commercial, 1.2 GHz, -20° C to 70° C, 4 GB flash, 1 GB DDR3, Digi Microcontroller Assist (MKL14Z-32VFT4), 802.11a/b/g/n, Bluetooth 4.0, Gigabit Ethernet
CC-SB-WMX-L87C-1	ConnectCore 6 SBC, i.MX6Dual, Industrial, 800 MHz, -40° C to 85° C, 4 GB flash, 1 GB DDR3, 802.11a/b/g/n, Bluetooth 4.0, Ethernet
CC-SB-WMX-L76C-1	ConnectCore 6 SBC, i.MX6DualLite, Industrial, 800 MHz, -40° C to 85° C, 4 GB flash, 512 MB DDR3, 802.11a/b/g/n, Bluetooth 4.0, Gigabit Ethernet
<b>KIT</b>	
CC-WMX6-KIT	ConnectCore 6 Jumpstart Development Kit (SBC with ConnectCore 6 module. i.MX6Quad, 1.2 GHz, -20° C to 70° C, 4 GB flash, 1 GB DDR3, 802.11a/b/g/n, Bluetooth 4.0, Digi Microcontroller Assist, software support for Yocto Project Linux and Android, accessories)

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