CONNECTED SINGLE BOARD COMPUTER FAMILY

CONNECTCORE® 6+ SBC

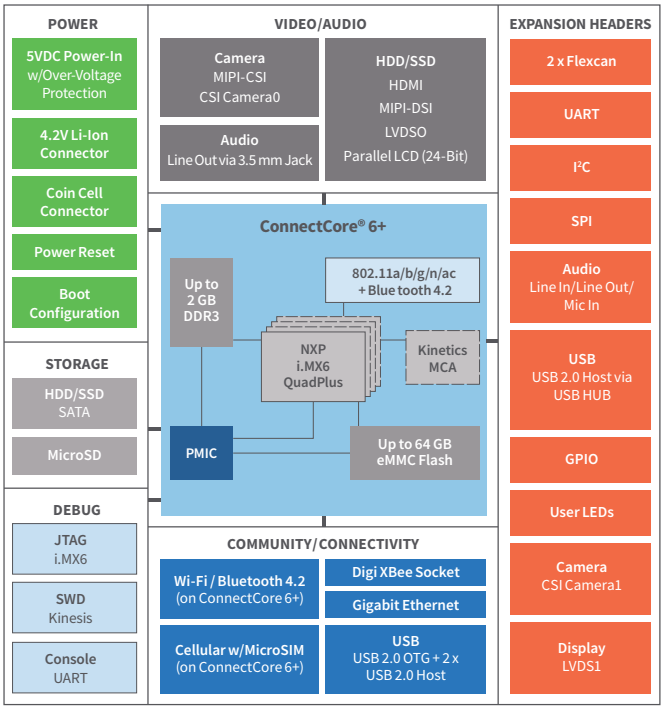
NXP i.MX6 QuadPlus based surface-mount module solution with scalable, quad-core performance and integrated wireless

The 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 QuadPlus performance, pre-certified Bluetooth 4.2 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 the Kinetis Micro Controller 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.

BLOCK DIAGRAM



BENEFITS

- Compact off-the-shelf SBC family
- Scalable capabilities and i.MX6 QuadPlus performance
- Gigabit Ethernet and pre-certified dual-band 802.11ac + Bluetooth 4.2
- Ready for cellular connectivity and Digi XBee® RF
- Complete set of available peripherals and interfaces with customization options
- Designed for flexibility and reliability
- Yocto Linux and Android software platform support
- Industrial operating temperature available

RELATED PRODUCTS


ConnectCore® 6+


ConnectCore® 6UL SBC PRO


ConnectCore® 6UL SBC Express


Digi XBee® Modules


Wireless Design Services

SPECIFICATIONS	ConnectCore® 6+ SBC
APPLICATION PROCESSOR	NXP i.MX6QuadPlus encompasses a quad-core Arm® Cortex®-A9 platform running up to 1.2 GHz with 1 MB of L2 cache, and optimized 64-bit DDR3 or 2-ch., 32-bit LPDDR2 support. Integrated FlexCAN, MLB busses, PCI Express® and SATA-2 provide excellent connectivity
MEMORY	8 GB eMMC, 2 GB DDR (64-bit)
PMIC	Dialog DA9063
GRAPHICS	LVDS, MIPI display port, MIPI camera port and HDMI v1.4
SECURITY	RNG, TrustZone, Ciphers, Security Cntrl, Secure RTC, Secure JTAG, eFuses (OTP)
PERIPHERALS/INTERFACES	MMC 4.4/SD 3.0 x3MMC 4.4/SDXC, UART x5 (5 Mbps), MIPI HSI, S/PDIF Tx/Rx, I2C x3, SPI x5, ESAI, I2S/SSI x3, FlexCAN x2, MLB150 + DTCP, S-ATA and PHY (3 Gbps), USB2 OTG and PHY, USB 2.0 Host and PHY, USB 2.0 HSIC Host x2, PWM, 3.3V GPIO, Keypad, PCIe 2.0 (x1 lane), HDMI and PHY, MIPI DSI, MIPI CSI2, 20-bit CSI, 24-bit RGB, LVDS (x2), RTC, External address/data bus, Watchdog, Timers, JTAG
EXTERNAL BUS	26-bit address / up to 32-bit data (multiplexed and non-multiplexed modes)
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 Ux 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/ac
BLUETOOTH	Bluetooth 4.2
ON-MODULE MICROCONTROLLER	Microcontroller Assist (MKL14Z32VFT4)
ANTENNA CONNECTORS	1 x U.FL / 2 x U.FL
ETHERNET	Gigabit Ethernet
CAN BUS	2 x FlexCAN (Molex 53047-0610)
GPIO/I²C/SPI/UART	1 x GPIO (8 x i.MX GPIOs + 4 Kinetis GPIOs, Molex 53047-1410) 1 x I²C (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 Kinetis 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 VDC @ 500 mA (typical, depending on use-case)
POWER SUPPLY CONNECTOR	Main power supply via 2mm locking barrel connector
OPERATING TEMPERATURE	-40° C to +85° C
STORAGE TEMPERATURE	-50° C to +125° C (-58° F to 257° F)
RELATIVE HUMIDITY	5% to 90% (non-condensing)
ALTITUDE	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, Safety UL/UR (or equivalent)
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	LGA-400, 2 mm pitch, fully shielded (heat-spreading)

CONNECTCORE® SBC SELECTION GUIDE

		ConnectCore 6UL SBC Express	ConnectCore 6UL SBC Pro	ConnectCore 6+ SBC	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.MX6Quad (Cortex-A9)	NXP i.MX6Dual (Cortex-A9)	NXP i.MX6DualLite (Cortex-A9)
	Clock Speed	528 MHz	528 MHz	1.2 GHz	1.2 GHz	800 MHz	800 MHz
	Microcontroller Assist™	✓	✓	✓	✓	-	-
MEMORY	Flash	256 MB NAND (SLC)	256K/1GB NAND flash 4 GB eMMC[1,7]	8 GB eMMC[1]	4 GB eMMC[1]	4 GB eMMC[1]	4 GB eMMC[1]
	RAM	256 MB DDR3	256K/1GB DDR3	2 GB 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	1 x Gigabit
	Wi-Fi	802.11a/b/g/n/ac 1x1	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	4.2	4.0	4.0	4.0
	Wi-Fi / Bluetooth Antenna	On-board/U.FL	U.FL/MMCX[6]	U.FL	U.FL	U.FL	U.FL
	NFC Forum Type 2 Tag	-	✓	-	-	-	-
	NFC Antenna	-	External	-	-	-	-
	Digi XBee® Socket	-	✓	✓	✓	✓	✓
SECURITY	Digi TrustFence™	✓	✓	✓	✓	✓	✓
CELLULAR[2]	Micro SIM Card Slot	-	✓	✓	✓	✓	-
COMMUNICATION	USB 2.0 Host	1	3	3	3	3	2
	USB 2.0 OTG	1	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)	✓ (USB Host 2.0/x1 PCIe)	-
	RS232/TTL	-/2[4]	2/1	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 2048 x 1536	Up to 1920 x 1080		
DISPLAY	HDMI	-	-	✓	✓	✓	✓
	LVDS[3]	-	1	2	2	1	-
	MIPI DSI[3]	-	-	✓	✓	✓	-
	RGB Parallel	8-bit[4]	18-/24-bit	24-bit	24-bit	24-bit	24-bit
CAMERA	MIPI CSI	-	-	✓	✓	✓	-
	8-Bit Parallel	-	✓	2	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	-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-KK8D	CC-SB-WMX-J97C	CC-SB-WMX-L87C	CC-SB-WMX-L76C

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