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

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 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 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.

**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, Linux and Android software platform support
- Industrial operating temperature available

**BLOCK DIAGRAM**

**VIDEO/AUDIO**
- Camera
- HDMI
- MIPI-DSI
- LVDS0
- Parallel LCD (24 Bit)
- 802.11a/b/g/n + Bluetooth 4.0
- 602.11a/b/g/n + Bluetooth 4.0
- PMIC
- Connectivity
- USB 2.0 OTG + 2 x USB 2.0 Host

**STORAGE**
- HDD/SSD
- SATA
- MicroSD

**DEBUG**
- JTAG
- SWD
- Kinesis
- Console UART

**POWER**
- SVDC Power-In
- w/Over Voltage Protection
- 4.2V Li-Ion Connector
- Coin Cell Connector
- Power Reset
- Boot Configuration

**COMMUNITY/CONNECTIVITY**
- Wi-Fi / Bluetooth 4.0 (on ConnectCore 6)
- Cellular w/MicroSIM (on ConnectCore 6)
- Xbee
- Gigabit Ethernet
- USB
- USB 2.0 OTG + 2 x USB 2.0 Host
- Display

**EXPANSION HEADERS**
- 2 x Flexcan
- UART
- I²C
- SPI
- Audio Line In/Line Out/ Mic In
- USB USB 2.0 Host via USB HUB
- GPIO
- User LEDs
- Camera CS/Camera

**CONNECTED SINGLE BOARD COMPUTER FAMILY**
<table>
<thead>
<tr>
<th><strong>APPLICATION PROCESSOR</strong></th>
<th>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</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEMORY</strong></td>
<td>4 GB eMMC, 512 MB/1GB DDR (64-bit)</td>
</tr>
<tr>
<td><strong>GRAPHICS</strong></td>
<td>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 Mflop/s/OpenCL support Separate 2D and/or Vertex acceleration engines for UI support Stereoscopic image sensor support for 3D imaging</td>
</tr>
<tr>
<td><strong>SECURITY</strong></td>
<td>RNG, TrustZone, Ciphers, SecurityCntrl, SecureRTC, SecureJTAG, eFuses (OTP)</td>
</tr>
<tr>
<td><strong>DISPLAYS</strong></td>
<td>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 CSI)</td>
</tr>
<tr>
<td><strong>CAMERA</strong></td>
<td>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)</td>
</tr>
<tr>
<td><strong>USB 2.0</strong></td>
<td>2 x USB Host (Dual Type A) 1 x USB OTG (Micro AB); 1 x USB Host (Molex 53047-0610)</td>
</tr>
<tr>
<td><strong>AUDIO</strong></td>
<td>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</td>
</tr>
<tr>
<td><strong>CONSOLE (RS232)</strong></td>
<td>Molex 53047-0310</td>
</tr>
<tr>
<td><strong>SATA 3.0</strong></td>
<td>3M S607-5102-SH</td>
</tr>
<tr>
<td><strong>MICRO-SIM</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>PCI EXPRESS MINI CARD</strong></td>
<td>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</td>
</tr>
<tr>
<td><strong>BOOT CONFIGURATION</strong></td>
<td>eMMC / SD / SATA</td>
</tr>
<tr>
<td><strong>DIGI XBEE SOCKET</strong></td>
<td>Samtec MMS-110-01-L-SV</td>
</tr>
<tr>
<td><strong>WI-FI</strong></td>
<td>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, CCXv4 ASD Ready</td>
</tr>
<tr>
<td><strong>BLUETOOTH</strong></td>
<td>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</td>
</tr>
<tr>
<td><strong>ANTENNA CONNECTORS</strong></td>
<td>1 x U.FL / 2 x U.FL</td>
</tr>
<tr>
<td><strong>GIGABIT ETHERNET</strong></td>
<td>RJ-45, with 2 LEDs for link/speed/activity</td>
</tr>
<tr>
<td><strong>CAN BUS</strong></td>
<td>2 x FlexiCAN (Molex 53047-0610)</td>
</tr>
<tr>
<td><strong>GPIO/IC/SCI/UART</strong></td>
<td>1 x GPIO (8 x i.MX GPIOs + 4 Kinetics 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)</td>
</tr>
<tr>
<td><strong>DEBUG</strong></td>
<td>1 x JTAG for i.MX6 (FCI 20021111-00010T4LF) 1 x SWD for Kinetics MCA (FCI 20021111-00010T4LF) Headers populated on development units only Production units without header for plug of nails (Tag.Connect TC2050-IDC-NL)</td>
</tr>
<tr>
<td><strong>POWER BUTTON</strong></td>
<td>Power on, power off, sleep, wake-up</td>
</tr>
<tr>
<td><strong>RESET BUTTON</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>USER LEDS</strong></td>
<td>1 x Red, 1 x Yellow, 1 x Green</td>
</tr>
<tr>
<td><strong>COIN CELL CONNECTOR</strong></td>
<td>Molex 53047-0210</td>
</tr>
<tr>
<td><strong>SUPPLY VOLTAGE</strong></td>
<td>5 VDC @ 500 mA (typical, depending on use-case)</td>
</tr>
<tr>
<td><strong>POWER SUPPLY CONNECTOR</strong></td>
<td>Main power supply via 2mm locking barrel connector</td>
</tr>
<tr>
<td><strong>OPERATING TEMPERATURE</strong></td>
<td>-20° C to +70° C / -40° C to +85° C</td>
</tr>
<tr>
<td><strong>STORAGE TEMPERATURE</strong></td>
<td>-50° C to +125° C</td>
</tr>
<tr>
<td><strong>RELATIVE HUMIDITY</strong></td>
<td>Relative Humidity 5% to 90% (non-condensing)</td>
</tr>
<tr>
<td><strong>ALTIMETER</strong></td>
<td>Altitude 12,000 feet (3,658 meters)</td>
</tr>
<tr>
<td><strong>EMISSIONS / IMMUNITY / SAFETY</strong></td>
<td>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(a), EN 300 328, EN 301 489-17, EN 55024, EN 301 489-3, Safety UL/UR (or equivalent)</td>
</tr>
<tr>
<td><strong>PRODUCT WARRANTY</strong></td>
<td>1 year</td>
</tr>
</tbody>
</table>

**ConnectCore® 6 SBC**
# ConnectCore® SBC Selection Guide

## ConnectCore 6UL

### 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™
- Assist™
- Assist™
- Assist™
- Assist™

### Flash Memory
- 256 MB NAND (SLC)
- 256 MB NAND SLC
- 4 GB eMMC1
- 4 GB eMMC1
- 4 GB eMMC1

### RAM
- 256 MB DDR3
- 256 MB DDR3
- 1 GB DDR3
- 1 GB DDR3
- 512 MB DDR3

### Ethernet
- 1 x 10/100 Mbit
- 1 x 10/100 Mbit
- 1 x Gigabit
- 1 x Gigabit
- 1 x Gigabit

### Wi-Fi
- 802.11a/b/g/n/ac
- 802.11a/b/g/n/ac
- 802.11a/b/g/n
- 802.11a/b/g/n
- 802.11a/b/g/n

### Bluetooth
- 4.2
- 4.2
- 4.0
- 4.0
- 4.0

### Security
- Digi TrustFence™
- Digi TrustFence™
- Digi TrustFence™
- Digi TrustFence™
- Digi TrustFence™

### USB 2.0 Host
- 1
- 3
- 3
- 3
- 3

### 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)
- (USB Host 2.0/x1 PCIe)
- (USB Host 2.0/x1 PCIe)

### Console
- 1
- 1
- 1
- 1
- 1

### SPI
- 1
- 1
- 1
- 1
- 1

### GPIO
- 1
- 1
- 1
- 1
- 1

### Expansion Connector
- 1
- 1
- 1
- 1
- 1

### Resolution
- Up to 1366 x 768
- Up to 1920 x 1080

### HDMI
- -
- -
- -
- -
- -

### Display
- LVDS
- MIPI DSI
- MIPI CSI

### Camera
- MIPI CSI
- -
- -
- -
- -

### Audio
- Headphone Jack
- Line-In / Line-Out / Microphone Header
- -
- -
- -

### Storage
- microSD
- SATA 3.0
- 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)
- -
- -
- -
- -
- -

### Environment
- -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

### Dimensions
- 87 x 63 mm
- 100 x 72 mm

### Form Factor
- SBC
- Pico-ITX

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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
# Mechanical Drawings

<table>
<thead>
<tr>
<th>PART NUMBERS</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC-SB-WMX-J97C-1</td>
<td>ConnectCore 6 SBC, i.MX6Quad, Ext Commercial, 1.2 GHz, -20° C to 70° C, 4 GB flash, 1 GB DDR3, Microcontroller Assist (MKL14Z32VFT4), 802.11a/b/g/n, Bluetooth 4.0, Gigabit Ethernet</td>
</tr>
<tr>
<td>CC-SB-WMX-L87C-1</td>
<td>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</td>
</tr>
<tr>
<td>CC-SB-WMX-L76C-1</td>
<td>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</td>
</tr>
<tr>
<td>KIT</td>
<td>ConnectCore 6 Jumpstart Development Kit (SBC with ConnectCore 6 module, i.MX6Quad, 1.2 GHz, -20 to 70C, 4GB flash, 1GB DDR3, 802.11a/b/g/n, Bluetooth 4.0, Kinetis Microcontroller Assist, software support for Yocto Linux and Android, accessories)</td>
</tr>
</tbody>
</table>

**For More Information Please Visit** [www.digi.com](http://www.digi.com)