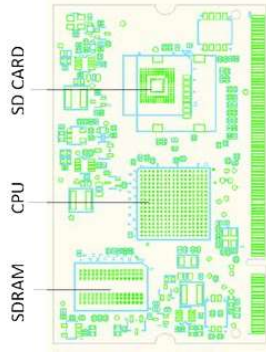


Linux-ready Cortex-A7 System on Module M-X6ULL

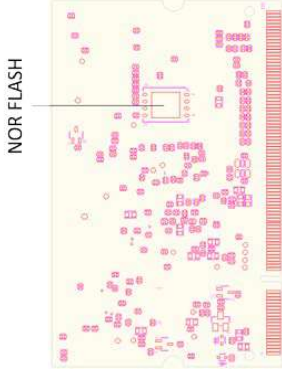
Features

- NXP i.MX6ULL Cortex-A7 CPU, up to 800MHz
- Linux kernel 4.14.x with boot loader & file system
- Toolchain: gcc 6.2.x + glibc 2.24
- 512MB DDR3/LVDDR3 SDRAM and 16MB DataFlash
- Micro-SD or 4G eMMC
- Dual 10/100Mbps Ethernet interface
- 1x CAN, 2x OTG/HOST USB, 4x UART & I2C / I2S/GPIO
- 24bits RGB display interface
- SODIMM 200 form factor, compact size, 68 x 43mm
- Single 5VDC operation

■ Front View



■ Rear View



M-X6ULL Starter Kit

H/W Specifications

M-X6ULL SoM (CPU/Memory)

- CPU: NXP i.MX6ULL Cortex-A7 MPCore, up to 800MHz
- SDRAM: 512MB, DDR3/LVDDR3
- NOR Flash: 16MB
- eMMC: 4GB (optional to Micro-SD /IF)
- Network Interface
- 2x 10/100Mbps Ethernet (RJ45)
- Protection: 1.5kV magnetic isolation
- TTY (Serial) Ports
- 2 x RS-485 (1500Vrms isolation), Signal: Data+, Data-
- 1 x RS-232 (TY/RX)
- Connector: RS-485/J-terminal block; RS-232/D-Sub 9

CAN Bus Ports

- 2 x CAN bus 2.0 A/B compliant ports
- Speed: up to 1Mbps

Console / Debug Ports

- 1 x microUSB console port
- Serial console port (inside the box)

USB 2.0 Host Interface

- 1 x USB OTG Port (microUSB connector)
- 1 x USB Host Port (USB Type-A connector)

Audio Out

- 1 x Line-out R/L port, optional Earphone R/L
- Connector: Earphone-jack

Digital Input

- 2 x Digital Input channels
- Isolation Protection: 2500Vrms (Photo-Coupler)
- Logical High: 5-24VDC
- Power Requirement
- Expansion
- 1 x miniPCIe Full-size socket
- 1 x micro-SIM card socket/reserve
- SD 2.0 compliant, supports SDHC
- Logical Low: 0-1.5VDC

Relay Output

- 1 x Relay out channel
- Contact Rating: 30VDC @1A or 125VAC @0.5A

SD Slot

- 1 x microSD socket
- SD 2.0 compliant, supports SD-HC

Display Interface

- One 24bits digital parallel display interface
- Support max 85 MHz display clock and up to WXGA (1366 x 768) at 60 Hz

Touch Sensor Interface

- With touch controller to support 5-wire and 5-wire resistive touch panel

General

- Power Input: +5VDC
- SODIMM 200P Form Factor
- Watch-Dog Timer: YES
- Real-Time Clock (RTC): YES
- Dimensions (W x L): 68 x 43 mm
- Mounting Hole x1 reserved, 2.0mm (M2) in diameter
- Consumption: 0.75Watts (Typical)

■ S/W Specifications

Operation System

- Linux kernel 4.14.x
- Support bootup from eMMC or SD card
- Boot Loader: U-Boot
- File System: EXT4/EXT3/EXT2, VFAT/FAT, NFS
- GUI Engine: X11

Desktop Environment

- Matchbox (X11) Desktop Environment
- Built-in Firefox / Chromium browser + virtual keyboard

Software Development

- Toolchain: gcc 6.2.x + glibc 2.24
- Supports in-place C/C++ code compilation

Package Management

- Package repository: Arria self-maintained repository
- Command: Using standard apt-get command

Popular Packages

- Web server: Apache/Nginx/Lighttpd
- Database: MySQL/SQLite3/PostgreSQL
- Script: Language: PHP/Python/Perl/NodeJS
- Text editor: vim/nano/used
- Administration: Webmin

■ H/W Specifications

CPU / Memory

- CPU: NXP i.MX6ULL Cortex-A7 MPCore, up to 800MHz
- SDRAM: 512MB, DDR3/LVDDR3
- DataFlash: 16MB
- eMMC: 4GB (optional to Micro-SD /IF)

Micro-SD 2.0 Interface

- Signals: Cmd, clock, data0-3, card_detect
- SDHC Compatible

Network Interface

- Type: 2 x 10/100Mbps Ethernet
- RVII interface

CAN Interface

- 2 x Flexible Controller Area Network (FlexCAN)
- CAN1-2: TW/RX, compliant to CAN 2.0 partA/B

UART Interface

- UART1: TX, RX
- UART2: TX, RX, RTS, CTS
- UART5-6: TX, RX, CTS
- Signal Level: 3.3V

Common UART Parameters

- Baud Rate: up to 921,6kbps
- Parity: None, Even, Odd, Mark, Space
- Data Bits: 5, 6, 7, 8
- Stop Bits: 1, 1.5, 2
- Flow Control: RTS / CTS, XON / XOFF, None

USB 2.0 Interface

- Supports 480Mbps Hi-speed mode
- Two high-speed OTG 2.0 modules with integrated HS USB PHYs

I2S Interface

- Transmit Signals: data, clock, sync
- Receive Signals: data, clock, sync

I2C Interface

- Signals: data, clock

GPIO (General-purpose I/Os)

- No. of Pins: 8

Console / Debug Ports

- Serial console port (UART interface)

Power Requirement

- 1 x microSD socket
- Power Input: +9~+48VDC, 9~48Vdc (terminal block)

Display Interface

- 24bits LVDS interface & TTL display interface
- Support max 85 MHz display clock and up to WXGA (1366 x 768) at 60 Hz
- Support Pulse Width Modulation(PWM) to control brightness of LCD

Touch Sensor Interface

- Reserved touch sensor interface to support 5-wire resistive touch panel

Expansion

- 1 x miniPCIe Full-size socket
- 1 x micro-SIM card socket/reserve

■ GNSS/IMU/Cellular Specifications

GNSS (Global Navigation Satellite System)

- 72-channel U-box M8 e GNSS engine
- Support Dual Satellite: GPS & GLONASS
- -146dBm Tracking and Navigation Sensitivity
- Support AssistNow Online/Offline/Autonomous
- OMA SUPL & 3GPP Compliant
- Max nav. update rate: Single channel up to 18MHz
- 2 Concurrent GNSS (up to 10MHz)
- Accuracy (Position): 2.5m CE
- 1 x Active Antenn

■ IMU (Inertial Measurement Unit)

GNSS (Global Navigation Satellite System)

- 1 x 3-Axis digital output Gyroscope
- Gyroscope has programmable full-scale range of ±250, ±500, ±1000, and ±2000 degrees/sec and very low rate noise at 0.00ps/rHz. Gyroscope operating current: 3.2mA
- 1 x 3-Axis Accelerometer (G-Sensor)
- ±2/±4/±8/±16 g user-programmable accelerometer full-scale range
- 16-bit data output
- 1 x 3-Axis Magnetometer (E-Compass)
- Built-in A to D converter for magnetometer data out 16 bit data
- each 3-Axis magnetic component (Sensitivity 0.15uT/LSB-typ.)

■ Ordering Information

M-X6ULL

- Linux-ready Cortex-A7 800MHz System on Module with 512MB SDRAM

M-X6ULL Starter Kit

- Includes one M-X6ULL SoM and one CB-X6ULL carrier board with power crunity, Ethernet, Serial port/USB/CAN and SD miniPCIe socket



Linux-ready Cortex-A7 System on Module M-X6ULL