Celerity – i.MX8X – System on Module
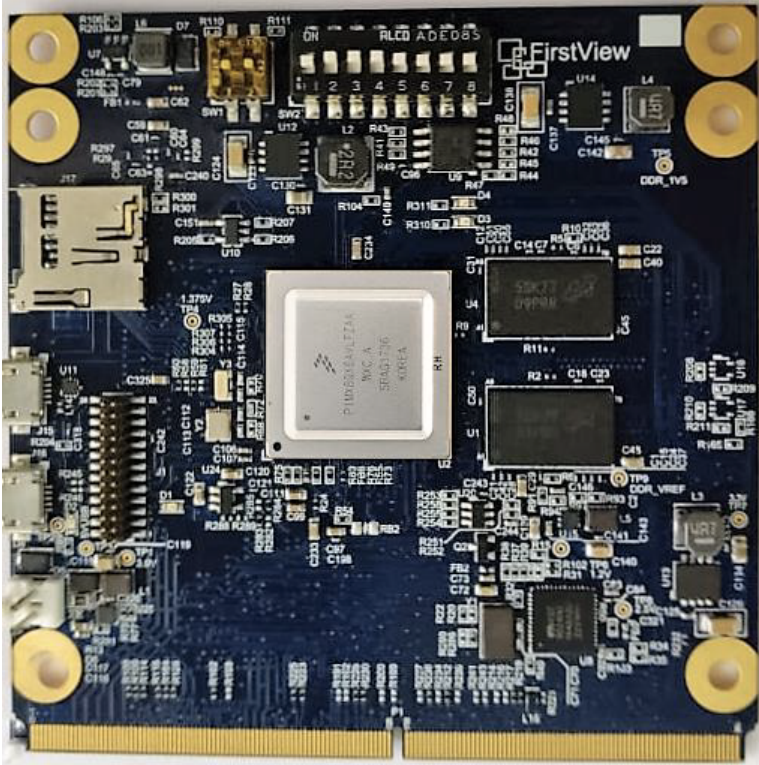
FirstView follows up on the success of i.MX6 Series SOM offering with a rugged, reliable, and low cost i.MX8X Version. The FVC-MX8X-SOM is an embedded single board module optimized for performance and power with a life cycle that removes concerns for obsolescence. The board is designed to be paired with a custom carrier board to fit specific applications in a wide range of environments.

High Level Specifications:

- 4 X Cortex-A35, 1 X Cortex-M4F @266MHz
- LPDDR4 1200MHz 8GB / 8GB DDR3L Memory, 933MHz1GB DDR3 (expandable to 4GB)
- SPI NOR flash with 16 Mbit.
- eMMC 4GB with 5.0 standard (expandable to 8GB).
- 4K H.265 dec, 1080p H.264 enc/dec.
- USBOTG 3.0 with PHY (Can be used as USB 2.0) and USB2.0 Host and device.
- Wi-Fi/BT Module: Dual band IEEE802.11a/b/g/n/ac WLAN plus Bluetooth 4.2 BR/EDR/BLE "smart Ready" SDIO module.
- 1xGigabit Ethernet with RGMII
- Operating System: Linux, Windows
- Temperature: -40° to +125° C
- UART, CAN, PCIe, ADC, SAI, CSI, MIPI-DSI, LVDS, QSPI, ESAI, I2C, PWM
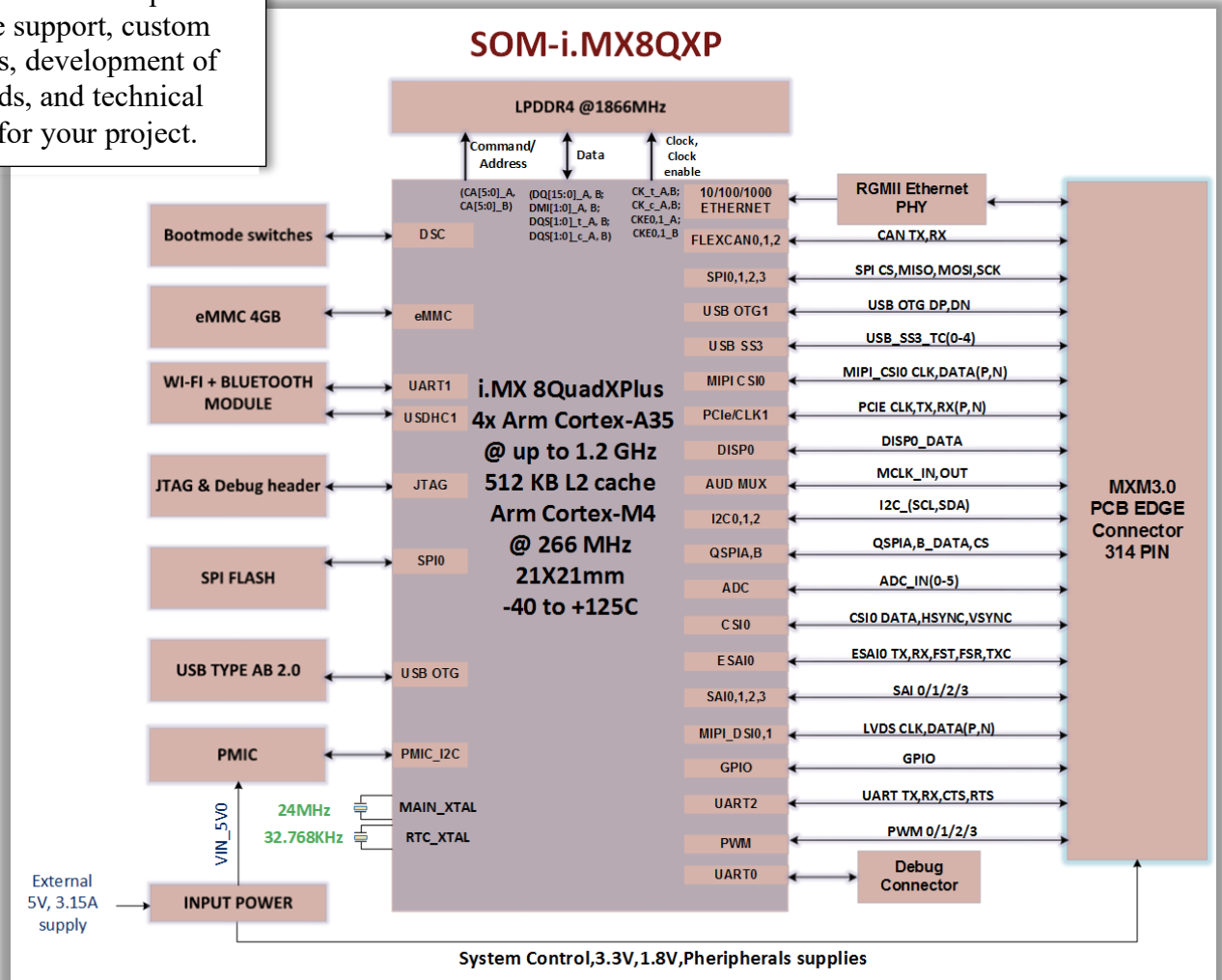
Applications

• Automotive • Avionic/Industrial • Advanced Human Machine Interface – HDMI • Building Control • Healthcare • Networking • General Purpose

FirstView
From Concept to Product

Services
FirstView Consultants can provide full software support, custom modifications, development of carrier boards, and technical consulting for your project.

Block Diagram:

SOM-i.MX8QXP

LPDDR4 @1866MHz

Command/Address   Data   Clock, Clock enable

(CA[5:0]_A, CA[5:0]_B)   (DQ[15:0]_A, B; DMI[1:0]_A, B; DQS[1:0]_t_A, B; DQS[1:0]_c_A, B)   CK_t_A,B; CK_c_A,B; CKE0,1_A; CKE0,1_B

Bootmode switches — DSC

eMMC 4GB — eMMC

WI-FI + BLUETOOTH MODULE — UART1, USDHC1

JTAG & Debug header — JTAG

SPI FLASH — SPI0

USB TYPE AB 2.0 — USB OTG

PMIC — PMIC_I2C

i.MX 8QuadXPlus
4x Arm Cortex-A35
@ up to 1.2 GHz
512 KB L2 cache
Arm Cortex-M4
@ 266 MHz
21X21mm
-40 to +125C

10/100/1000 ETHERNET — RGMII Ethernet PHY
FLEXCAN0,1,2 — CAN TX,RX
SPI0,1,2,3 — SPI CS,MISO,MOSI,SCK
USB OTG1 — USB OTG DP,DN
USB SS3 — USB_SS3_TC(0-4)
MIPI CSI0 — MIPI_CSI0 CLK,DATA(P,N)
PCIe/CLK1 — PCIE CLK,TX,RX(P,N)
DISP0 — DISP0_DATA
AUD MUX — MCLK_IN,OUT
I2C0,1,2 — I2C_(SCL,SDA)
QSPIA,B — QSPIA,B_DATA,CS
ADC — ADC_IN(0-5)
CSI0 — CSI0 DATA,HSYNC,VSYNC
ESAI0 — ESAI0 TX,RX,FST,FSR,TXC
SAI0,1,2,3 — SAI 0/1/2/3
MIPI_DSI0,1 — LVDS CLK,DATA(P,N)
GPIO — GPIO
UART2 — UART TX,RX,CTS,RTS
PWM — PWM 0/1/2/3
UART0 — Debug Connector

MXM3.0 PCB EDGE Connector 314 PIN

VIN_5V0

24MHz MAIN_XTAL
32.768KHz RTC_XTAL

External 5V, 3.15A supply — INPUT POWER

System Control, 3.3V, 1.8V, Pheripherals supplies

Additional Features

- The i.MX 8X processor with optional Error Correcting Code (ECC) is the first i.MX product to support Industrial Safety Integrity Level 3 (SIL 3) certification for applications PLC, I/O, robotic control and drones
- LP-DDR4 memory interface for high performance and low standby power, or DDR3L interfaces for lowest system cost. For fast boot from SPI NOR flash, eMMC 5.0 and NAND
- A powerful and efficient upgrade path for next-generation solutions. The Cortex-A35 is Arm's most efficient Armv7 core.

- Double the clock rate! SoC designs get the same data bandwidth with 16 data bits clocked at 1600MHz instead of the DDR3 designs get with 800MHz.
- LPDDR4 is the mobile equivalent of DDR4 memory. Compared to DDR4, it offers reduced power consumption but does so at the cost of bandwidth. LPDDR4 has dual 16-bit channels resulting in a 32-bit total bus. The DDR4 has an 8word prefetch or a 64bit channel. Therefore, LPDDR4 RAM halves the bus but makes up for this with a measly operating voltage of 1.1-1.2V