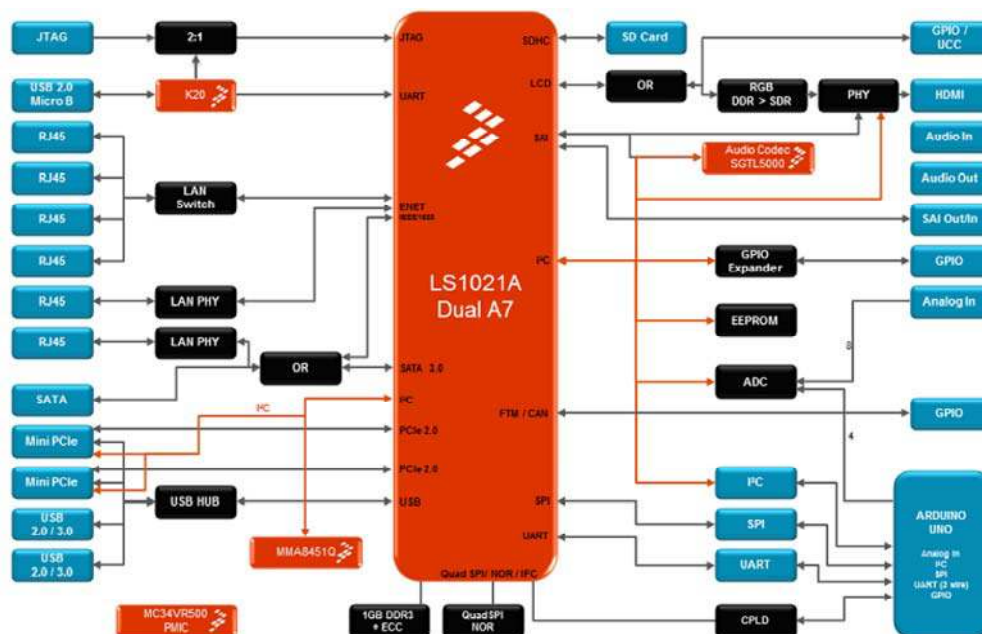# LS1021A-IoT Gateway Reference Design

Key Features

The LS1021A-IoT gateway reference design based on the Freescale Layerscape LS1021A processor is a purpose-built, small footprint hardware platform equipped with a wide array of high-speed connectivity and low-speed serial interfaces engineered to support the secure delivery of IoT services to end users in a home, business or other commercial location. The affordable reference design combines standards-based, open source software together with a feature-rich IoT gateway design, to establish a common, open framework for secure IoT service delivery and management.

This reference design provides a wide assortment of high speed and serial based connectivity in a compact, highly secure design, delivering an impressive level of versatility. High efficiency is achieved through the use of the ARM-based Layerscape LS1021A embedded processor, which delivers over 5,000 Coremarks of performance at a typical power of under 3 Watts. In addition to its outstanding performance efficiency and high level of integration, the LS1021A-IoT gateway design offers HDMI, SATA3 and USB3 connectors as well as a complete Linux software developers package.

LS1021A-IOT Gateway Block Diagram

Specifications

Processor	Freescale LS1021A
Technology	ARM Cortex-A7 Dual core
Power Management IC	Freescale VR500 PMIC
Memory	1GB **ECC** protected DDR3
Storage	1 Gb QSPI NOR Flash
Removable Storage	SHDC upto 32GB (4GB SD card included)
Operation System	Linux 3.x, Yocto

Connectors

Debug Interface	JTAG Interface by thruhole

I/O Interface Signalling

Storage	1x SATA III
	1x SDIO / MMC
Expansion	2x PCIe 2.0
Display	24 bit LVDS
USB	USB OTG 3.0
	USB Host 2.0
CAN Bus	2x Flex CAN version 2.0B Compliant
Serial Port	2x UART
Other	SPI, I²C, GPIO

Network

Gigabit Network RGMII	Atheros AR8033 Gigabit LAN PHY
Gigabit Network SGMII	Atheros AR8033 Gigabit LAN PHY
Gigabit Network Switch	4 port gigabit switch

Video

Display chipset	Silicon Image SII9022
Dispaly interface	HDMI connector

Audio

Audio Codec	Freescale SGTL5000
Audio connectors	Audio In / Out

Power

Input Power Requirements	12VDC +/- 5%

Environmental and Mechanical

Temperature	0° to 40° C
Humidity	10 - 90%
Dimensions	200 x 170 x 58 mm
	7⅞ x 6⅝ x 2¼ inch
Weight	1200 grams
Certification	Compliant with CE, FCC, RoHS, REACh directives

Ordering Information

LS1021A-IOT
LS1021A-IOT Gateway Reference design. Including power adaptor, HDMI and USB debug cable and 8GB SDHC card