

IC-ARM-VPX3a

3U VPX LX2160A ARM based SBC

- 3U VPX
- NXP LX2160A ARM based Single Board Computer
- VITA 65.0 Slot Profile SLT3-PAY-1F1F2U1TU1T1U1T-14.2.16
- 10, 25, 40 and 100 GbE interfaces
- Developed in alignment with the SOSA™ Technical Standard



This is not an actual product picture

Overview

Designed for applications requiring high processing and communication performance, together with low power, the **IC-ARM-VPX3a** is a complete and versatile SBC dedicated to 3U VPX compact systems.

The **IC-ARM-VPX3a** complies with the VITA 65.0 OpenVPX Slot profile SLT3-PAY-1F1F2U1TU1T1U1T-14.2.16, and is developed in alignment with the SOSA™ Technical Standard.

This 3U VPX board provides the defense and industrial embedded electronic markets with the latest technological innovations through the NXP Arm® Cortex-A72® based LX2160A multicore communication processor.

It features a processor with 16-cores up to 2.2Ghz, two large banks of DDR4 with ECC support, local storage and 10/40G, and 25/100G Ethernet interfaces for high bandwidth connections. Last but not least, the board offers a significant number of new security features.

Description

The NXP QorIQ LX2160A is a low power processor featuring 16 cores 32/64-bit Arm® Cortex®-A72 core running up to 2.2GHz.

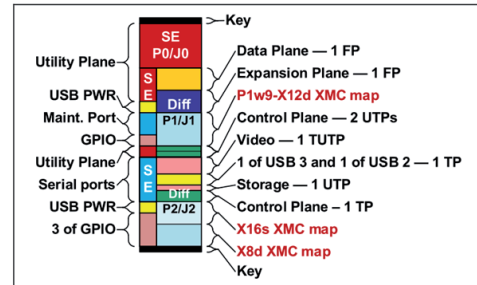
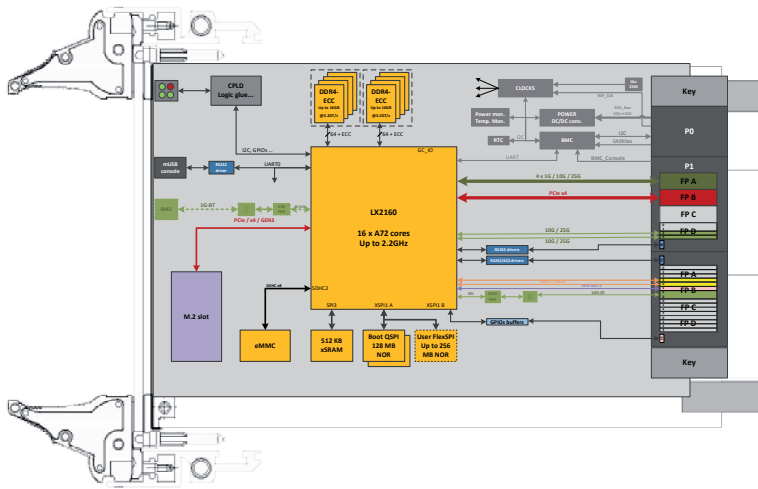
With its hardware accelerator and its large caches, it provides outstanding computing performance with powerful packet processing offload and Ethernet controllers.

The **IC-ARM-VPX3a** provides up to 32GB of DDR4-ECC and a variety of storage solutions (M.2 slot, eMMC, xSRAM, SATA3 interfaces etc.) which should provide flexibility for system designers to meet the topology demands of large centralized systems and handle scenarios with heavy traffic on specific backplane segments.

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Block Diagram



XMC and video I/Os are not supported on this board.

Main features

NXP QorIQ LX2160A up to 2.2 GHz

- 32 GB DDR4-ECC
- 128MB Quad SPI NOR Flash
- 512 KB xSRAM
- eMMC

VPX connector interfaces

• Data plane [VPX P1A]

- 4*10GBase-KR or
- 2*25GBase-KR or
- 1*40Gbase-KR4 or
- 1*100GBase-KR4

• Expansion plane [VPX P1B]

- 1*PCIe Gen2/3 x4 port

• Control Plane [VPX P1D & VPX P2B]

- 2 * 10GBase-KR or 2 * 25GBase-KR
- 1 * 10GBase-T port

• Storage [VPX P2B]

- 1 * SATA3

• Serial ports [VPX P1 & VPX P2]

- 1 * RS232 UART [VPX P1]
- 1 * RS232 / RS422 UART [VPX P2]

• USB [VPX P2]

- 1 * USB2.0 / USB 3.1
- 1 * USB2.0

Board Management Controller

- PCI μ -controller for System Management (per VITA 46.11)
- RTC with supercap backup
- Elapse Time Counter
- DC and Thermal monitoring

M.2 slot socket

Accessories

- Engineering kit for debug: JTAG/COP, console,...
- 3U Rear Transition Module

Additional Ethernet ports can be supported on some of the signals that belong to the XMC map, please contact IC for further details.

The **IC-ARM-VPX3a** is a 3U VPX board compliant with the VITA 46.0 standard 3U module definitions.

It is available in air-cooled and conduction-cooled versions.

On-board firmware

Interface Concept provides firmware that initializes the NXP QorIQ LX2160A processor.

The firmware is based on UBOOT and is stored in a secured flash. It is automatically loaded when the board is powered up. It initializes the QorIQ and its environment, performs a comprehensive Power-on self-tests (PBIT), before jumping into different applications according to the values stored in memory.

The firmware allows loading files from Ethernet via Bootp, running files in RAM or flashing them. In addition, it supports monitor functions such as the ability to display or modify the RAM data. Finally, it allows the user to perform maintenance tests.

SOSA™

The Sensor Open Systems Architecture (SOSA) Consortium is a voluntary, consensus-based member consortium of The Open Group, a vendor-neutral technology standards organization. The SOSA™ Consortium is a government, industry and academic alliance developing an open technical standard for sensors. The consortium, which is currently restricted to US-based companies and organizations, provides a vendor-neutral forum for members to work together to harmonize, align, and create open standards to facilitate the development of agile, interoperable, and affordable sensors.

Interface Concept Inc. is a dedicated SOSA member. Please contact us if you have any question about SOSA.



Grades

Criterion	Coating	Operation Temperature	Rec. Airflow	Oper. HR% no cond.	Storage Temperature	Sinusoidal Vibration	Random Vibration	Shock 1/2 Sin. 11ms
Standard	Optional	0 to 55°C	1 .. 2 m/s	5 to 90%	-45 to 85°C	2G [20..2000]Hz	0.002g2 /Hz [10..2000]Hz	20G
Extended	Yes	-20 to 65°C	2 .. 3 m/s	5 to 95%	-45 to 85°C	2G [20..2000]Hz	0.002g2 /Hz [10..2000]Hz	20G
Rugged	Yes	-40 to 75°C or 85°C (*)	2 .. 5 m/s	5 to 95%	-45 to 100°C	5G [20..2000]Hz	0.05g2 /Hz [10..2000]Hz	40G
Conduction-Cooled 71°C	Yes	-40 to 71°C at the thermal interface (*)	-	5 to 95%	-45 to 100°C	5G [20..2000]Hz	0.05g2 /Hz [10..2000]Hz	40G
Conduction-Cooled 85°C	Yes	-40 to 85°C at the thermal interface (*)	-	5 to 95%	-45 to 100°C	5G [20..2000]Hz	0.1g2 /Hz [10..2000]Hz	40G

(*) : Temperature grades are subject to availability according to IC products. Please consult us.

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BSP

Interface Concept can supply a BSP for VxWorks® or for Linux®.

The Linux® BSP is supplied together with an SDK developed by Interface Concept which integrates a build environment and cross development toolchain.

Interface Concept's BSP is based on a standard distribution. It is responsible for hardware initialization, interrupt handling and generation, hardware clock and timer services, memory management, PCI management, mapping of memory spaces, serial ports, Ethernet & USB drivers, SAT drivers with Raid functions, NAND and NOR Flash file systems.

Other Real Time Operating Systems such as PikeOS, LynxOS, Integrity can be supported. Please contact us to discuss specific requests.

For more information, please contact:



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