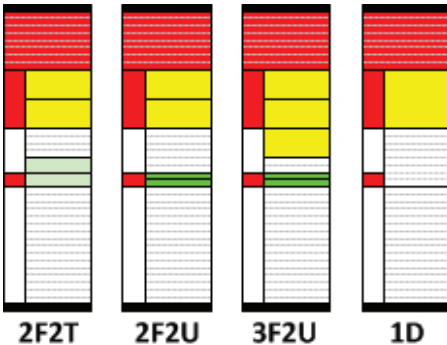


OpenVPX



The TIC-INT-VPX3a is compliant with these OpenVPX module profiles.

Description

The TIC-INT-VPX3a is based on the Intel® Core™ i7 Gen2 processor (Sandy Bridge) and its companion chipset QM67 (Cougar Point). This generation of 64-bit multi-core mobile processors offers unmatched technology for intelligent performance. Its optimized multi-core architecture provides improved multi-tasking and multi-threaded performance, floating point processing (Intel® AVX) and integrated video features.

The TIC-INT-VPX3a is also compliant with the Ivy Bridge (Intel® Core™ i7 Gen3). Featuring a Xilinx Kintex 7 FPGA and Personality Module, the TIC-INT-VPX3a is the perfect toolbox to build advanced integrated embedded systems.

The TIC-INT-VPX3a is delivered with a boot loader allowing the user to develop optimized UEFI firmware for implementation of specific functions or services to further improve the power-up sequence.

The 3U VPX TIC-INT-VPX3a can function as a system or non-system controller module in a VPX VITA 46 configuration. Processor options for this 2nd generation Core i7 single board computer include the dual core 2.2GHz 2655LE Core i7 or for more power constrained systems, the dual core 1.5GHz 2610UE Core i7 is also available as is the quad core 2.1GHz 2715QE version. The TIC-INT-VPX3a provides a flexible PCIe Gen2 backplane interface; the lanes from the processor can be used as two x4 ports (P1 A & B) or merged to provide a single x8 port. The lanes from the QM67 (P1 C) can be used as a single fat pipe or as four x1 ports for applications requiring multiple expansion boards. The TIC-INT-VPX3a does not use the PCIe switch to optimize latency in real-time applications. The TIC-INT-VPX3a offers one front GigE and two GigE ports on P1 available as 1000BT or 1000BX interfaces.

The TIC-INT-VPX3a provides two HDMI interfaces and an HD audio port. A set of serial interfaces (USB and SATA ports) completes this complete set of I/O interfaces. For storage, the board also features a SATA SSD module and the option to add an additional SATA drive.

The Kintex-7 FPGA connects to the Core i7 via PCIe x4 link and supports a variety of high bandwidth I/O communication protocols, GPIOs, video capture as well as other digital and analog I/O. A variety of IP cores can be provided by Elma to support specific I/O needs.

The Kintex-7 delivers exceptional signal processing performance, low power consumption and the serial bandwidth necessary to meet the most demanding embedded applications. The FPGA is connected directly to the P2 connector (SERDES/ GPIOs) and also via a Personality Module to maximize the level of integration for hardware specific features.

TIC-INT-VPX3a

Core™ i7 Single Board Computer / Kintex 7 FPGA



Ethernet



VITA



PICMG

Main Features

The TIC-INT-VPX3a is available in air and conduction cooled versions.

Processor Unit

- One Intel® Core™ i7 2655LE (or 2610UE / 2715QE)
- Core speed = 2.2GHz (or 1.5GHz / 2.1GHz)
 - Cache = 4MB (4MB / 6MB)
 - Thermal design power = 25W (17W / 45W)
 - DDR3-1333 with ECC (up to 2 * 4 GBytes)
- Boot flash memory
- Calendar clock with supercap and/or battery backup
- One thermal monitoring sensor
- One SATA SSD module
- One FPGA (XC7 KX70T / KX160T on demand) and a Personality Module.

Communication subsystem

- Three GigE ports (1000BT or 1000BX)
- One front RS232 UART
- Three USB 2.0 ports (1 front / 2 rear)
- Twelve PCI-Express Gen2 lanes
- Up to four rear SATA interfaces
- Two HDMI interfaces (1 front / 1 rear)
- One Intel HD Audio interface
- GPIOs (from FPGA and Personality Module)
- SERDES (from FPGA and Personality Module)

Miscellaneous

- Status LEDs
- PIC μ -controller for System Management (per VITA 46.11)

Accessories

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

Operating System Support

Consult Elma regarding support for Linux, VxWorks and Windows operating system support.

Interface Features

Front I/O (air cooled versions)

- One GigE port
- One console port
- One HDMI port
- One USB2 port

P1 connector


- Eight lanes from the CPU (two PCIe x4 or one PCIe x8)
- Four lanes available as one PCIe x4 or four PCIe x1 link (hardware setting) - Port C
- Two GigE ports available either as two 1000BT interfaces or two 1000KX (or SGMII) interfaces on P1 (factory setting)

P2 connector

- Two USB2 ports
- One SATA port
- One HDMI port
- GPIOs & SERDES from FPGA & Personality Module

Applications and Related Products

Elma's single board computing products are designed to meet the data processing and compute density requirements of almost any high performance embedded application. The TIC-INT-VPX3a and its on board Kintex 7 FPGA enables a high bandwidth and configurable I/O scheme to support defense, industrial, transportation or medical system requirements. Defense applications include systems designed for air, ground and sea deployment in rugged or commercial air cooled or conduction cooled equipment.



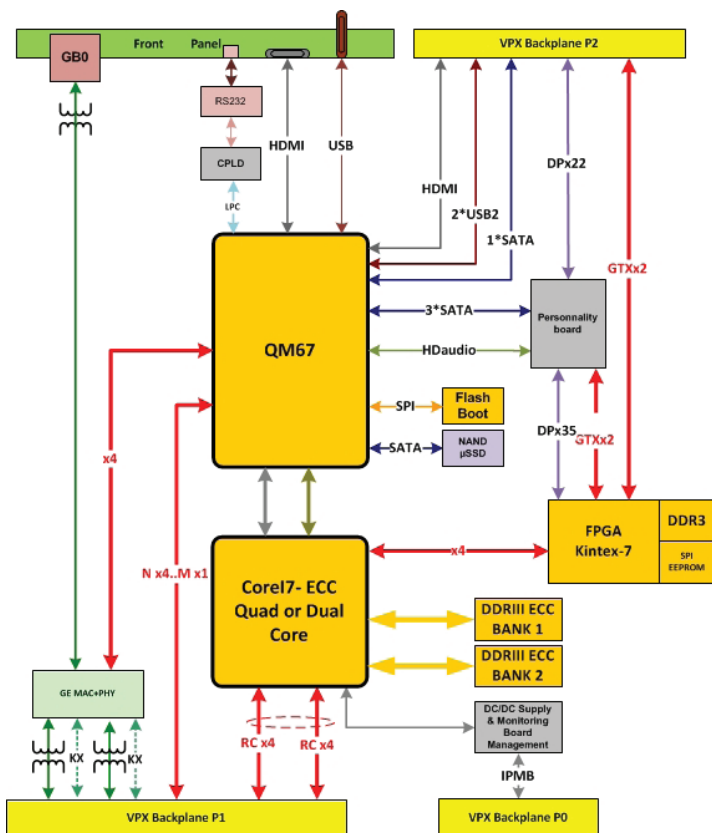
- Fully integrated system chassis
- Custom backplanes
- Embedded computing products – Single Board Computers (SBCs), networking switches, storage
- FPGA based configurable I/O
- Rear transition modules (RTMs), extender and load boards

VPX

TIC-INT-VPX3a

Core™ i7 Single Board Computer / Kintex 7 FPGA

Block Diagram



Boot Loader

Elma Single Board Computers based on Intel CPUs use the new UEFI firmware technology.

The boot loader, implements all the initialization and optimized PBITs while ensuring the shortest boot time before launching the UEFI shell or loading the operating system from storage devices (CD, DVD, HDD, USB etc) or the network.

When the final application is running, runtime services remain in memory allowing the user to access UEFI variables for monitoring (e.g. PBIT results) or setup operations. Inquire about boot loader customization.

Environmental Specifications

Please consult the TIC-INT-VPX3a page at www.elma.com.

Standards Compliance

The TIC-INT-VPX3a is a VPX 3U / 4HP (0.8") board compliant with 3U module definitions of the VITA 46.0 standard.

Emissions

EN55022 Class B

Immunity

CEI 6000-4-2 (ESD), 6000-4-3 (Electric field), 6000-4-4 (Burst), 6000-4-5 (Surge), 6000-4-6.

Security

EN60950

Ordering Information:

Model number TIC-INT-VPX3a

Please contact our sales department at 215-956-1200 or via email at sales@elma.com for specific model configurations.