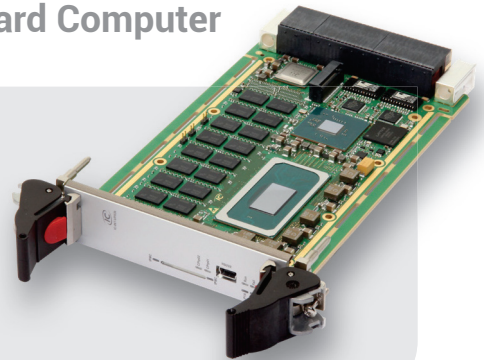# IC-INT-VPX3k

3U VPX Intel® Xeon® W Single Board Computer

- *3U VPX*
- *Intel® Xeon® W (Tiger Lake-H)*
- *DDR4 with ECC up to 64GB*
- *1 * PCIe x4 (Data Plane)*
- *1 * PCIe x16 (Expansion Plane)*

2022 Military+Aerospace Electronics. Innovators Awards
• SILVER HONOREE •

Overview

The **IC-INT-VPX3k** is a 3U VPX Single Board Computer built around the Intel® Xeon® W (code name Tiger Lake-H) processor. This powerful 6 or 8-core processing module is dedicated to mil-aero edge-computing applications, where performance, efficiency and power management are required.

Integrators of the industrial and mil-aero markets, can rely on the **IC-INT-VPX3k** and Interface Concept's COTS FPGA processing boards, Ethernet switches and GPU boards, to build a complete 3U VPX HPEC system, reducing their time-to-market and accelerating their system deployment.

Description

The tremendous performance of the Intel® Xeon® W eight cores together with the advanced Intel® Xe graphics engine, a huge number of PCIe lanes and a large DDR4 memory with ECC, enable the **IC-INT-VPX3k** to manage and process a significant number of I/O throughput for graphics, networking and storage.

The **IC-INT-VPX3k** is ideally suited for edge applications such as Mission Computer, Radar and Sonar HPEC and, among others, high-end consoles.

The **IC-INT-VPX3k** features the advanced protect and security features of the Intel® Slim Bootloader.

As a compute-intensive 3U VPX board, the **IC-INT-VPX3k** can act as a System or non-System Controller module in a VPX platform.

The **IC-INT-VPX3k** provides:

- 1 * PCIe x4 or 4 * SATA ports (P1)
- 1 * PCIe x4 (P1)
- 16 * PCIe lanes (P2)
- 2 * 1000BASE-T Ethernet ports (P1)
- 1 * Video Display Port (P1)
- 2 * USB2.0 Ports (P1)
- 1 * M2 socket

The **IC-INT-VPX3k** takes advantage of the media capabilities of the Intel SoC to provide 2 x 4K display interfaces, a set of serial interfaces (USB and SATA ports) and GPIOs. The board features one M.2 slot to host Solid State Disk.

It is available in air-cooled and conduction cooled versions (-40°C / up to +85°C, according to TDP configuration).
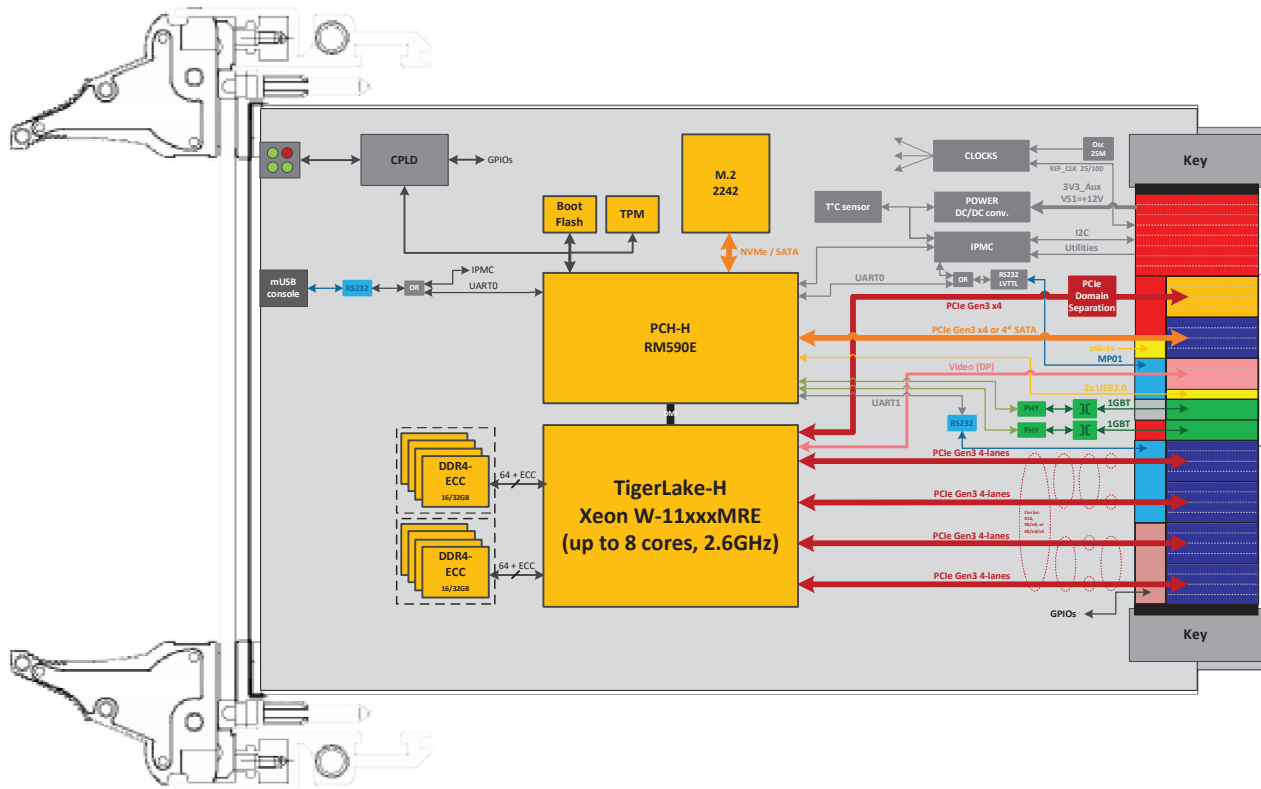
powerBridge Computer

Ehlbeek 15a
30938 Burgwedel
fon 05139-9980-0
fax 05139-9980-49
www.powerbridge.de
info@powerbridge.de

Block Diagram

Main features

Processing Unit
- 1 * Intel® Xeon® (Tiger Lake-H)
  - W-11555MRE (6 Cores, 2.60 GHz) or
  - W-11865MRE (8 Cores, 2.60 GHz)
  - 2 * banks of DDR4 with ECC (up to 16/32 GB/bank)
  - Boot flash memory
  - External independent RTC with supercap backup
  - Thermal/voltage monitoring sensors
  - 1 * M. 2242 slot for SSD

Communication subsystem
- 16 * PCIe lanes (configurable as x16, x8/x8 or x8/x4/x4) (P2)
- 2 * 1000BASE-T Ethernet ports
- 1 * RS232 console port (front or rear)
- 2 * rear USB 2.0 ports
- 4 * rear SATA interfaces or 1 PCIe Gen3 x4 (P1)
- 4 * GPIOs
- 1 * RS232 serial port (rear)

Front connectors (air-cooled versions)
- mini USB console port
- USB-C connector (option)
- mini Display port

P1 connector
- 1 * PCIe x4 port
- 4 * SATA ports
- 1 * Digital video
- 2 * USB2.0 ports
- 2 * 1000BASE-T Ethernet ports
- 1 * Console port

P2 connector
- 16 * PCIe lanes
- 1 * RS232 serial port
- 4 * GPIOs

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

Accessories
- 3U Rear Transition Module

The **IC-INT-VPX3k** is a 3U VPX board compliant with VITA 46.0 standard.

IC-INT-VPX3k
3U VPX Intel® Xeon® W Single Board Computer

Boot Loader

Interface Concept gateways based on Intel CPUs use the new UEFI firmware technology.

This Boot Loader, integrated and tested by IC R&D team, implements all the initializations 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...) or network.

When the final application is running, Runtime services remain in memory allowing thus the user to access UEFI variables for monitoring (e.g. PBIT results) or setup operations.

On request, IC can even customize this firmware to keep only what is strictly necessary for customer's applications.

OS Support

Interface Concept provides its own IC SDK Linux® distributions. For other distributions, VxWorks® and Windows, please consult us.

Multiware

In order to empower customers to concentrate their efforts on their most critical tasks, Interface Concept has developed a Fabric Management Software implementing optimized services between PCIe domains over non transparent bridges NTB) such as: DMA transfers, Ethernet emulation over PCIe, management of shared memory, messages and semaphores, etc. (Please consult us for details)

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.

All information contained herein is subject to change without notice.

For more information, please contact:

IC INTERFACE CONCEPT
ADVANCED ELECTRONIC SOLUTIONS

3, rue Félix Le Dantec
29000 QUIMPER
Tel. +33 (0)2 98 57 30 30
Fax. +33 (0)2 98 57 30 00
info@interfaceconcept.com