# IC-INT-VMEc

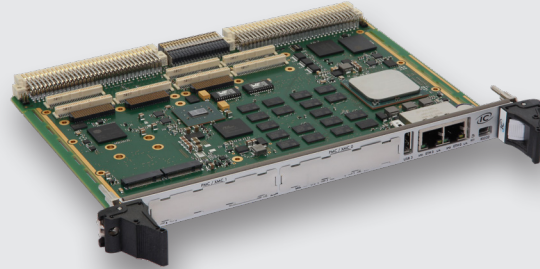## 6U VME Intel® Xeon® processor D-15xx SBC

- *6U VME*
- *Intel® Xeon® processor D-15xx*
- *up to 32 GB DDR4 with ECC*
- *one VGA or DVI*
- *two PMC/XMC slots*

## Overview

The **IC-INT-VMEc** is a general-purpose Single Board Computer, aimed at lengthening the lifetime of legacy VMEbus systems.

## Description

The **IC-INT-VMEc** is a 6U VME Single Board Computer (SBC) based on an Intel® Xeon® processor D-15xx (Broadwell DE) and designed to provide high-performance, ruggedized and highly secure solutions.

Xeon® D combines the performance and advanced intelligence of Intel® Xeon® processors in to a dense and low-power system-on-a-chip (SoC). Its 64-bit Broadwell microarchitecture, Hyper Threading technology, and enhanced floating point processing provide high processing throughput and performance to run time-critical demanding applications.

The **IC-INT-VMEc** features a multicore (up to 8) Xeon® D-15xx processor implementing the Intel AVX2 technology and a scalable memory bank (up to 32 GB DDR4/Bank with ECC).

The VME64x backplane interface is supported by an FPGA chip running field-proven VME IP developed and supported by Interface Concept, ensuring long-term availability.

The **IC-INT-VMEc** supports a wide range of customization and interface options to fulfill various application needs:

- two PMC (PCI-X) / XMC (PCIe) slots

- a scalable and secured SATA NAND SSD

- two M.2 connectors for extra SSD

- GPIOs, USBs, serial & SATA interfaces

- a VGA or DVI interface

The **IC-INT-VMEc in** compliance with the ANSI/VITA 31.1 standards, offers two Gigabit Ethernet ports on the board's front panel, and two others on the board's backplane connector.

The **IC-INT-VMEc** is delivered with a UEFI Boot Loader customized by Interface Concept, which enables the optimization of power-up sequences.

# IC-INT-VMEc
## 6U VME Intel® Xeon® processor D-15xx SBC

# Block Diagram
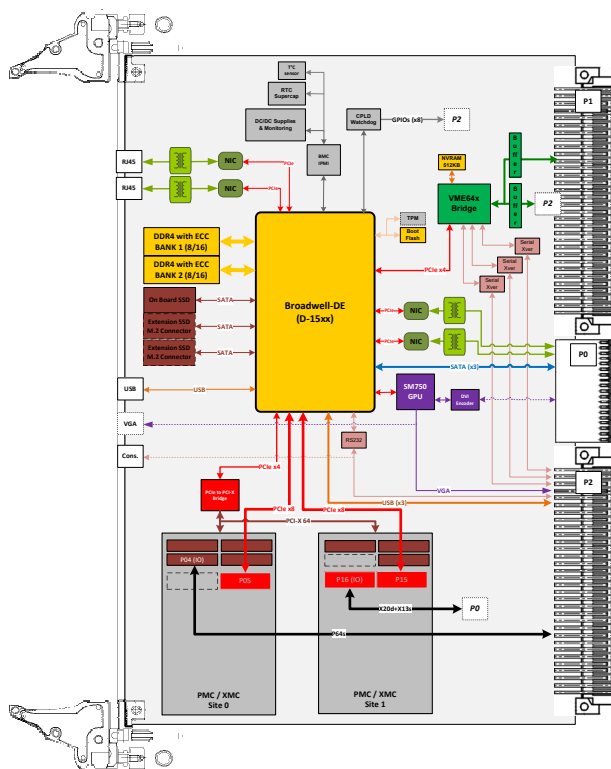


# Main features

## Processor Unit

- 1* Intel® Xeon® D-1519 or D-1539
    - D-1519
        - Cache = 6MB
        - Core speed = 1.5 GHz
        - Thermal design power = 25W
    - D-1539
        - Cache = 12MB
        - Core speed = 1.6 GHz
        - Thermal design power = 35W
- up to 2*8 GB DDR4 with ECC (optionally up to 2*16 GB)
- Calendar clock with supercap backup
- Thermal monitor sensor

## Storage subsystem

- up to 32 GB SLC On-board SATA SSD
- 2 M.2 SATA Key M SSD connectors
- 3 * SATA ports on P0

## Communication subsystem

- 4 * Gigabit Ethernet ports (2 front/2 rear)
- 4 * USB ports (1 front & 3 rear)
- 1 * console port (front or rear)
- 3 * multimode serial ports (RS422, RS485, RS232)
- 1* rear or front VGA (P2) or DVI (P0)

## I/O subsystem

- VME64x
- Two PMC/XMC slots
    - slot 0: compatible with VITA35 P4V2-64ac
    - slot 1: 20 differential pairs (X20d) and 13 single-ended (X13s) connected to VME P0 from Pn6 (X16d + X10s with DVI manufacturing option)

## Accessories

- 6U Rear Transition Module

The **IC-INT-VMEc** is available in air-cooled and conduction-cooled (without any front I/O) versions compliant with VITA 47 classes.

# Software Features

### BMC

- VITA46.11 IPMC
  - TIER-2 IPMI
  - Redundant IPMB

- Power-on Built-In Test
  - On-board hardware components
  - Add-on cards (XMC, FMC)
  - Accessible from the OS

- Human Machine Interface
  - Devices management
  - Health management
  - Password
  - Log

- Over-temperature board protection

### Firmware

- UEFI-compliant Boot Firmware
  - Based on InsydeH2O® UEFI BIOS
  - Integrated and tested by IC R&D team

- Boot options
  - U-Boot shell
  - Storage devices (HDD, USB, CD, DVD)
  - Network

- Power-on Built-In Tests (PBIT)
  - On-board hardware components
  - Add-on connectivities (VPX PCIe, XMC PCIe, SATA disks, USB devices...)
  - Results accessible from the OS

### OS Support

- Supported Linux distributions
  - Yocto

- BSP Features
  - VME driver
  - Standard or Preemp-RT kernel (Yocto only)
  - BMC drivers
  - IC Control Node driver
  - Board information (P/N, S/N, PBIT results...)
  - IBIT/CBIT (Integrated/Continuous)
  - Other utilities

Please consult us for other Linux distributions (Debian, Fedora, etc) and VxWorks®.

# 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