## Rugged 3U CompactPCI® board based on 11th Gen Intel® Core™ Processor

Key Features

TP B9x/2sd-RC is plug compatible with the popular TP B1x/3sd-RC family allowing transitions for higher performance and longer life deployments.

- Quad and dual-core processor variants available to match application performance and power requirements

- Up to 32GB DRAM with built in in-band ECC for reliable operation

- Built in I/O interfaces including SATA, USB, Ethernet, graphics, GPIO and serial

- Optional M.2 module for local storage
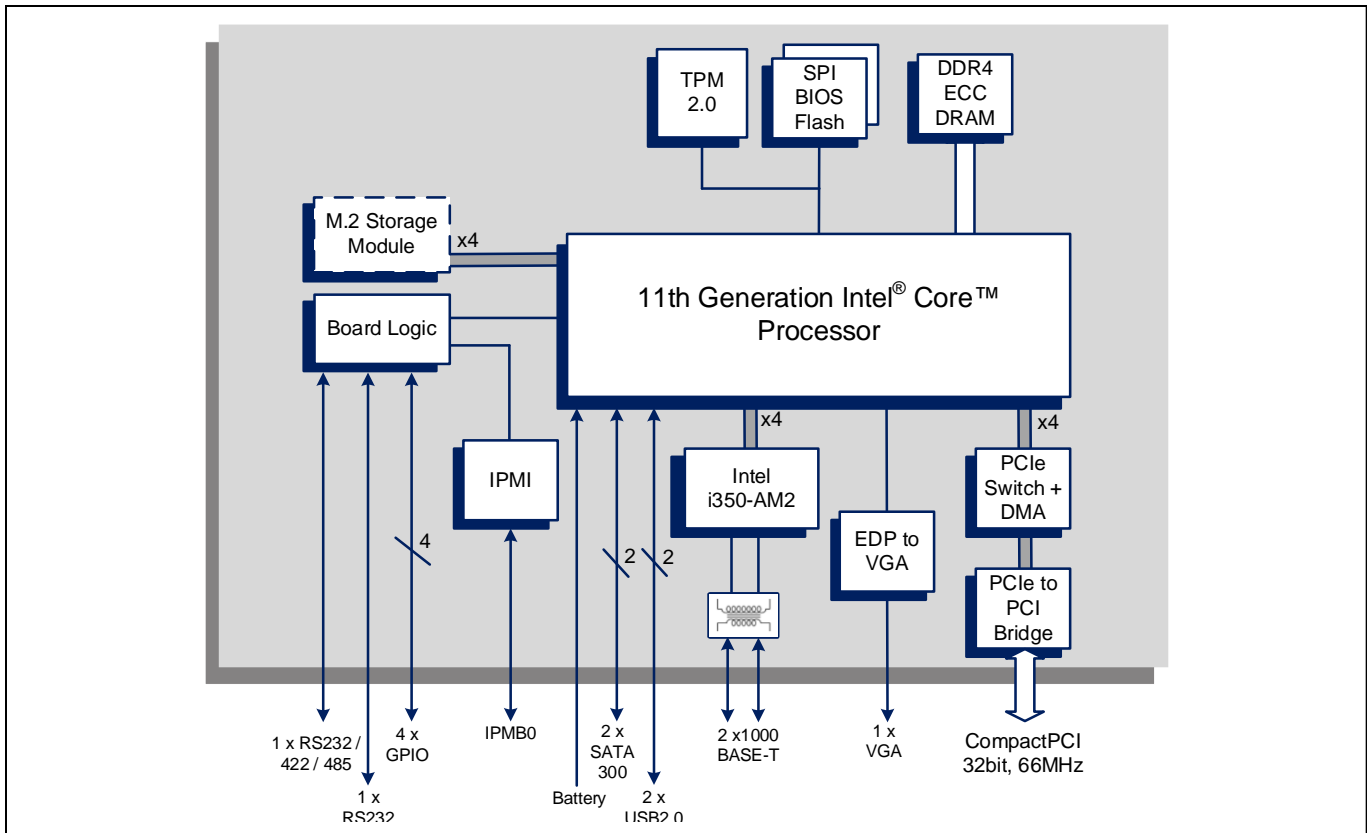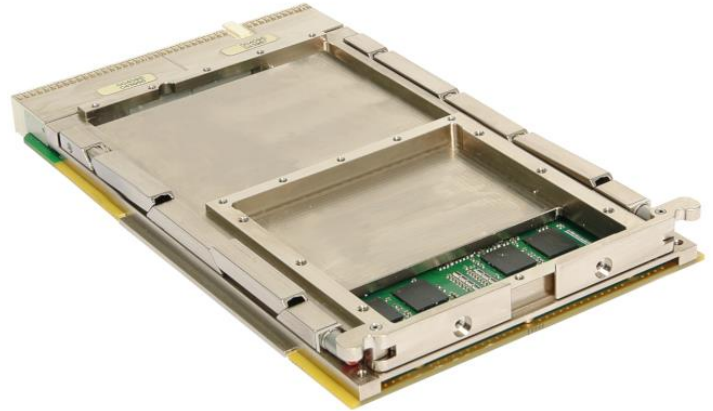
Central Processor

- 11th Gen Intel® Core™ CPU:
  - → 4-core Intel® Core™ i7-1185GRE CPU
  - → 2-core Intel® Core™ i3-1115GRE CPU
  - → Intel® Advanced Vector Extensions AVX-512
  - → Intel® Vector Neuro Network Instructions (VNNI)
  - → Intel® Iris® Xe (Gen 12) Graphics Engine with up to 96 EUs (i7-1185GRE variant only)

DRAM

- up to 32 Gbytes soldered DDR4-2666 IBECC DRAM:
  - → dual channel architecture
- optional Total Memory Encryption mutually exclusive with IBECC

Mass Storage Interfaces

- 2 x SATA300 interfaces accessible via J2
- 1 x optional M.2 Module:
  - → 2242 format module (with option for self-encryption)
  - → x4 PCI Express® (PCIe®) interface (M-key)
  - → NVM Express® (NVMe™) logical device interface
  - → NVMe 1.3 compatible
  - → Write Protect and Opal 2.0 AES-256 available (requires AD270/001 module)

Ethernet Interfaces

- 2 x Ethernet interfaces via J2 supporting:
  - → 1000BASE-T or 100BASE-TX
- implemented by an Intel® i350-AM2 Ethernet controller via a 1 x4 PCI Express® port

Graphics Interface

- VGA graphics interface via J2:
  - → resolutions up to 1920 x 1200
- support for Microsoft® DirectX 12 on Windows® and OpenGL 4.5 on Linux®

Serial Interfaces

- 2 x serial interfaces accessible via J2:
  - → 1 x RS232 interface supporting Tx and Rx
  - → 1 x RS232 interface supporting Tx, Rx, RI, CTS, RTS, DSR, DTR and DCD or 1 x RS422/RS485 supporting Tx and Rx
- 16550 compatible UARTs

Other Peripheral Interfaces

- PC-compatible Real Time Clock
- watchdog timer; 32-bit Long Duration Timer with processor interrupt ability
- 2 x USB 2.0 interfaces via J2
- 4 x GPIO signals via J2
- external battery supply for the RTC
- CPU temperature monitor; board temperature monitor; voltages monitor:
  - → all accessible via IPMI

IPMI

- PICMG 2.9 R1.0 (System Management Spec.):
  - → implements the IPMB0 interface
- on-board Baseboard Management Controller
- supports 8 Kbytes of non-volatile memory

CompactPCI Interface

- universal signalling support, compliant with PICMG® 2.1 R2.0; 3.3V or 5V signalling levels
- 33/66 MHz; 32-bit interface via J1
- PCI Express link from processor via PCIe-PCI bridge for off-board accesses:
  - → DMA hardware support included
- operates as a System Slot controller (supporting up to 7 peripheral slots) or operates in a Peripheral Slot
- user option to disable CompactPCI® interface (Satellite Mode):
  - → receives power from CompactPCI bus

Software Support

- support for Linux® and Windows®. Contact CCT for further options

Firmware Support

- dual 32 Mbyte BIOS SPI Flash EPROMs
- UEFI boot firmware (BIOS):
  - → UEFI 2.7 support
  - → implements Secure Boot
- implements Intel® Boot Guard
- optional Fast Boot solution using the
- Intel® Firmware Support Package (FSP)
- LAN boot firmware included

Optional Built-In Test (BIT) Support

- Power-on BIT (PBIT), Initiated BIT (IBIT), Continuous BIT (CBIT)

Board Security Features

- Trusted Platform Module (TPM 2.0) fitted
- option for Sanitization Utility Software Package
- option for proprietary board-level security features
- supports ROP Attack Prevention and Advanced Crypto Key Protection

Safety

- PCB (PWB) manufactured with flammability rating of UL94V-0

Electrical Specification

- typical current consumption (4-core processor with 16 Gbytes DRAM):
  - → +5V @ 2.2A
  - → +3.3V @ 3.1A
- voltages +5%/-3%
- +12V and -12V not required

Environmental Specification

- operating temperatures (at card edge):
  - → VITA 47 Class CC4, -40°C to +85°C
- non-operating temperature:
  - → VITA 47 Class C4, -55°C to +105°C
- operating altitude:
  - → -1,000 to 50,000 feet (-305 to 15,240 meters)
- 5% to 95% Relative Humidity, non-condensing (operating/non-operating)
- for air-cooled versions, see separate datasheet:
  - → air-cooled: TP B9x/msd

Mechanical Specification

- 3U form-factor:
  3.9-inches x 6.3-inches (100mm x 160mm)
- single sot (0.8")
- connectors: IEC-1076-4-101 for J1-J2
- shock: VITA 47 Class OS2, 40g
- random vibration: VITA 47 Class V3, $0.1g^2$/Hz

Legacy Computing Board Compatibility

- rear I/O compatible with the popular TP B1x/3sd-RC

Please contact your local Concurrent Technologies sales office for further details on board build options and accessories.

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