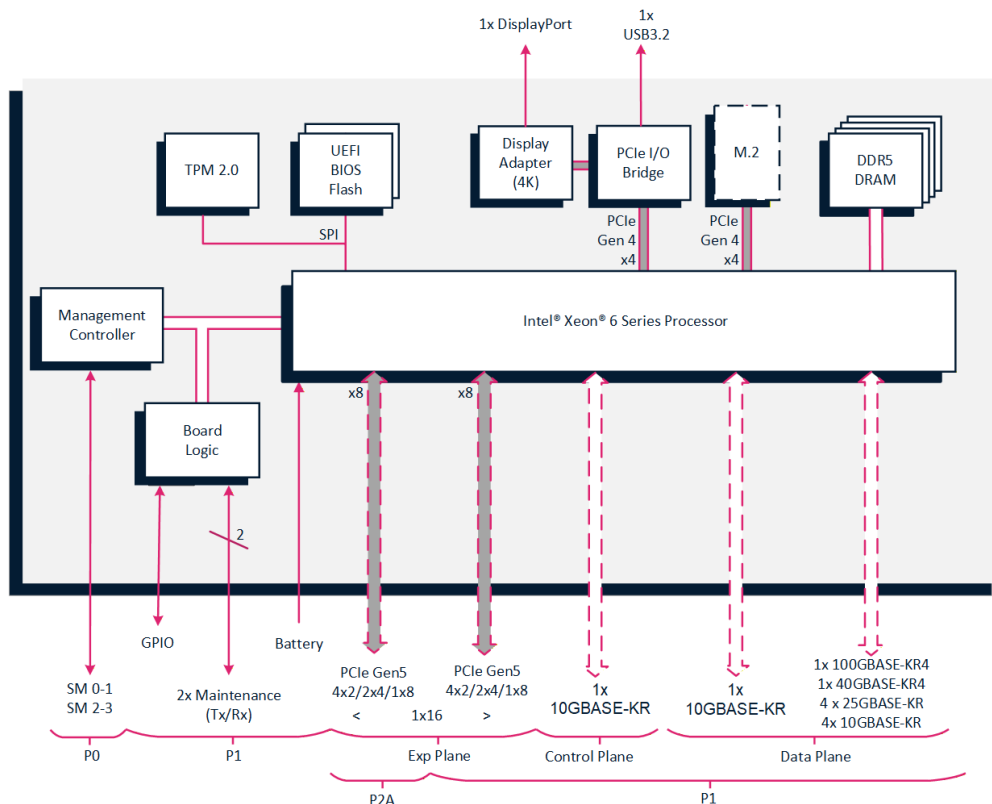


SOSA[®] Aligned Compute Intensive Intel[®] Xeon[®] 6 Processor based PIC

Key Features

Kratos is a compute intensive rugged Plug in Card. It has been developed in alignment with the SOSA[®] Technical Standard. It features a processor with 32/20 cores, large memory capacity, local storage and support for virtualization.

- 32-Core/20-core with VRAN accelerator processor
- 256 Gbytes Registered DDR5 memory for server grade applications
- 40/100GBASE-KR4 Ethernet Data plane
- Up to x16 PCI Express[®] Gen 5 Expansion plane for high-speed communication with adjacent PIC(s)
- Optional M.2 module for storage with Write/Protect and Opal 2.0 compliance
- Optional Front DisplayPort and USB port for ease of setup



VPX Processor PIC

- Rugged air flow through 3U VPX™ computing PIC utilizing Intel® Xeon® 6 Processor
- Compliant with two OpenVPX™ slot and module profiles:
 - SLT3-PAY-1FIU1S1S1U1U2F1H-14-6.11-0
 - MOD3p-PAY-1FIU1S1S1U1U2F1H-16-6.11-4
 - SLT3-PAY-1FIU1S1S1U1U4F1J-14.6.13-n
 - MOD3p-PAY-1FIU1S1S1U1U4F1J-16.6.13-1

Central Processor

- 32-core (160W) Intel® Xeon® 6543P-B Processor:
 - Up to TBD GHz
- 20-core (145W) Intel® Xeon® 6516P-B Processor:
 - Up to TBD GHz
- Intel VRAN Accelerator (On 20-core variant)
- Intel Advanced Vector Extensions AVX-512
- Intel Vector Neuro Network Instructions (VNNI)
- Intel Vector Byte Manipulation Instructions (VBMI)

DRAM

- Up to 256 Gbytes soldered Registered DDR5 ECC DRAM:
 - Single bit error correction and dual bit error detection

Maintenance Serial Ports

- 2x maintenance ports via P1:
 - Supports LVCMOS levels
 - Supports RS232 Tx/Rx signals
 - 16550 compatible UARTs

Mass Storage Interfaces

- Optional M.2 Carrier Module supporting:
 - 1x M.2 Flash site
 - Up to 2242 format modules (with option for self-encryption)
 - PCI Express® (PCIe® Gen4 x4) interface (M-key)X
 - FIPS 140-3 Compliant option
 - Opal 2.0 security encryption
 - Hardware write protect
 - NVM Express® (NVMe®) logical device interface
 - NVMe 1.3 compatible

Development Interfaces

- For board commissioning, on-board interfaces are available via a forward facing connectors for:
 - DisplayPort (up to 3840 x 2160 @ 60 Hz)
 - USB 3.2

Other Peripheral Interfaces

- PC RTC, long duration timer, watchdog timer
- Build option: up to 7x GPIO signals via P1

VPX Data Plane, 40/100 Gigabit Ethernet (optional)

- Configurable Ethernet VPX Data Plane fabric interface (VITA 46.7)
- VPX Data Plane interface supports:
 - 1x 10GBASE-KR and/or 1x 40/100GBASE-KR4
 - 1x 10GBASE-KR and/or 4x 25GBASE-KR
 - 1x 10GBASE-KR and/or 4x 10GBASE-KR
- Factory build option available to disconnect Data Plane

VPX Control Plane, 10 Gigabit Ethernet (optional)

- Configurable Control Plane (VITA 46.6)
- VPX Control Plane interface supports:
 - 1x 10GBASE-KR
- Factory build option available to disconnect Control Plane

Optional Built-In Test (BIT) Support

- Power-on BIT, Initiated BIT, Continuous BIT

Software Support

- Supports Linux®

VPX Expansion Plane, PCIe (optional)

- Configurable PCI Express (PCIe) Gen 5 VPX Expansion Plane fabric interface (VITA 46.4):
 - 1 x16 on P1 and P2A PCIe ports
 - 1 x8 on P1 and/or 1 x8 on P2A PCIe ports
 - 2 x4 on P1 and/or 2 x4 on P2A PCIe ports
 - 4 x2 on P1 and/or 4 x2 on P2A PCIe ports
- Compute Express Link (CXL) 2.0

System Management

- On board controller:
 - SM0-1 and SM2-3
- VITA 46.11-2022 type 3 IPMC
- Option for VITA 46.11-2022 compatible Tier 1 Chassis Manager

Board Security Features

- Trusted Platform Module (TPM 2.0)
- Supports Total Memory Encryption
- Option for Sanitization Utility Software Package
- Option for proprietary board-level security features
- Implements Intel Boot Guard and Intel SGX

Firmware Support

- Dual BIOS SPI Flash EPROMs
- UEFI boot firmware (BIOS):
 - UEFI 2.7 support
 - Implements Secure Boot
- Optional Fast Boot solution using the Intel Slim Bootloader
- LAN boot firmware included

Safety

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

Electrical Specification

- Typical current consumption for 32-core processor (TBD GHz):
 - +12 V VSI @ TBD
 - +3.3 V AUX @ TBD
- Typical current consumption for 20-core processor (TBD GHz):
 - +12 V VSI @ TBD
 - +3.3 V AUX @ TBD

Environmental Specification

- Air flow thru cooled (VITA 48.8)
- Operating temperature at air inlet:
 - VITA 47.1 Class FC3, -40°C to +70°C
- Non-operating temperature:
 - VITA 47.1 Class C4, -55°C to +105°C
- 5% to 95% Relative Humidity, non-condensing boot firmware included

Mechanical Specification

- 3U VPX form-factor (VITA 46.0, VITA 48.0)
- Slot width (VITA 48.8):
 - 1.5-inch Type 1 Two Level Maintenance
- Connectors to VITA 46.0 for P0, P1 and P2A
- Operating mechanical:
 - Shock - VITA 47.1 Class OS1, 20 g
 - Random vibration - VITA 47.1 Class V2, 0.04 g²/Hz