Trident infosol

...Transformational Technologies

HARDWARE

SOLUTION SHOWCASE

www.tridentinfosol.com

COMPANY OVERVIEW

Trident Infosol is a AS9100D Certified Company, providing leading edge solutions on Embedded COTS Hardware, Signal Processing Systems, and Engineering Software catering to the Real-Time applications. We offer solutions for a wide range of application serving the Aerospace, Defence, Research & Development, Automotive, Telecommunications, Medical and Industrial segments. Trident represents reputed global OEMs in its endeavour to provide best-inclass products to its ever growing list of clients.

Trident has been consistently at the forefront of introducing the latest cutting edge technologies across a wide spectrum of products. Our strong technical background in Development, Integration and Deployment of solutions for challenging real-world applications coupled with our ability to provide complete end-to-end solutions for complete product development life-cycle with extensive application support, which being the key benefit and differentiator. Our approach towards optimized and fully integrated solutions has helped us develop a unique competence to fulfill our customer's requirement specifications, which helps our customers to deploy their systems faster.

VISION

"To emerge as the most preferred technological partner and be a potential business associate in the field of Strategic Electronics and Avionics for Defense and private sector companies by providing cost effective, competitive and customized solutions for Electro Mechanical application on an integrated approach and turnkey philosophy."

MISSION

To be a major supplier of Strategic Electro Mechanical and Avionic system for Global Military and Aerospace Industry.

To develop cutting edge and end to end solution by innovative design and development.

To be active partner in system level solutions for Defense, Aerospace and Industrial applications there by adding value to all stake holders".

WHY WE MATTER

The Trident group offers a Single Source for all your development needs related to Software, Hardware, Design Services and Fully Integrated Systems for a range of Applications. We are an End-to-End Solution provider catering to your complete product development life- cycle right from concept design to final acceptance test and beyond - meeting customer requirement specifications and standards, assuring continued product support. While bringing affordability for you with our cost-effective solutions, reuse of existing design for customization, flexibility to work on limited volume production, we also support your short development cycles with reduced risk ensuring faster time-to-market. The combination of our superior Technology and Engineering expertise along with our wide array of product and service offerings make us a unique technology partner.

WHAT WE DO

Recognizing the technological and economic challenges faced by the customers in today's competitive market place, we offer range of products, solutions and system integration services for various applications meeting demanding environmental conditions.

INFRASTRUCTURE & FACILITIES

We have an integrated state-of-the-art Design, Development, Manufacturing and Testing facilities with extensive work-floor spanning over 35,000 sq. ft. Our sophisticated infrastructure is coupled with an array of advanced workstations, robust design & development tools (3D CAD, Structural & Thermal Analysis, Cabling, PCB and System Design), cutting-edge computing and network systems. This provides an ideal and excellent environment for our skilled professionals to support large and mission critical applications of various customers.

The sprawling Integration Labs help us combine our efforts in delivering fully integrated systems to our customers for their specific application requirements. Our advanced testing facilities include Set-up for PCB Inspection and Backplane Testing (SerDes), Power Supply Testing, Drip Test, Vibration & Shock Test, Thermal and Humidity Chamber.

With Design, Engineering, Manufacturing, Integration, Testing, Configuration Management, Project Management, Quality Assurance, Technical Support Services and Sales Teams under one roof, we provide expert services to all our customers enabling them to focus on their product/system development through its entire life-cycle. Trident Infosol has evolved and continuously improved on project management processes and quality management system culminating into an AS9100D certified company.

OFFERINGS AT A GLANCE

Conceptual Design

- Requirement Capture
- Requirement Traceability Tools

- Modeling
- CFD Analysis
- Mathematical Computation
- Analog/Mixed Signal Simulation tool chains

- Reliability Analysis
- Static & Dynamic Analysis

Product Design & Simulation

- Embedded Code Development & Debug
- Safety Critical RTOS

- Graphical Environment
- OpenGL Libraries - SC & ES

- RADAR Video Processing,Scan Conversion& Display Presentation
- Tracking Solutions
- ECDIS Solutions

Prototyping & Validation

COTS (Open System Architecture)

- SBC, I/Os, Video & Graphics
- Avionics & Communications Interfaces
- Signal Processing
- Multicore Multiprocessor Boards
- FPGA, GPGPU, IF & RF Processing
- Stand-alone (Small Form Factor)

COTS (Open System Architecture)

- Rugged - Servers, NAS
- Ethernet Switch
- Data Recorders & Playback
- Rugged Enclosures
- Backplanes
- Power Supply Units
- Mass Storage
- Rugged Displays & Display Computers

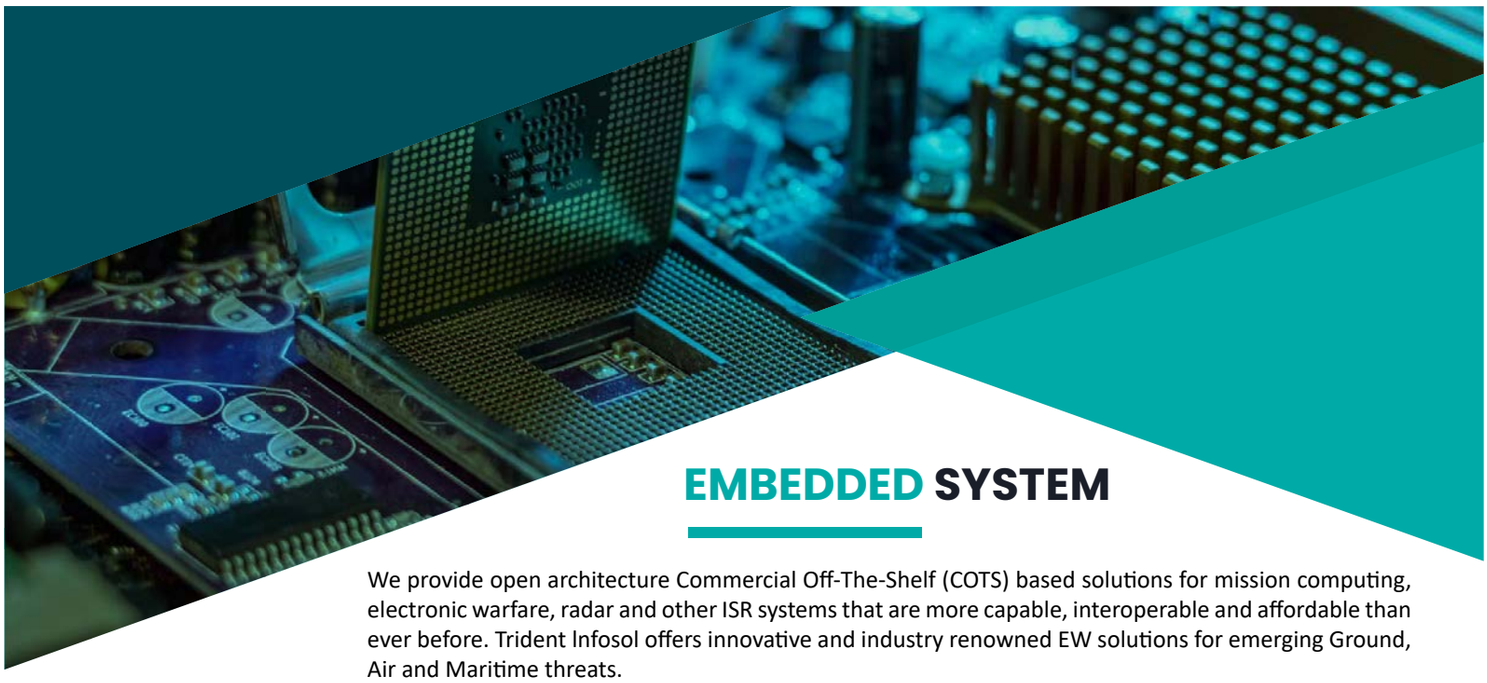
Integrated Telemetry

- Ground Systems
- Onboard Systems
- HILS

Integrated System Deployment

Systems & Sub-systems

- Rugged Racks
- Display Consoles
- SFF Computers & OSA Systems



EMBEDDED SYSTEM

We provide open architecture Commercial Off-The-Shelf (COTS) based solutions for mission computing, electronic warfare, radar and other ISR systems that are more capable, interoperable and affordable than ever before. Trident Infosol offers innovative and industry renowned EW solutions for emerging Ground, Air and Maritime threats.

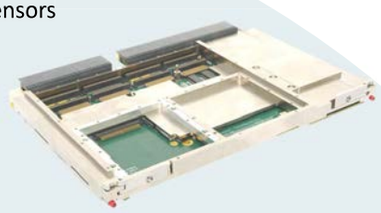
SINGLE BOARD COMPUTER

INTEL: SINGLE OR DUAL PROCESSORS SBC'S

- Atom, Core i7, Xeon E3 & Xeon-D latest Multi-Core Processors
- 40G/100G, Serial, on-board Flash, GPIOs, PMC/XMC Expansion Sites
- On-board mass storage interfaces like SATA & M.2 SSD (with RAID)
- Windows, Linux, VxWorks, Integrity, LynxOS & QNX support
- Single or Dual PMC/XMC Expansion Sites
- Fast Boot (<3 sec) for speedy startup application
- Platforms: cPCI, VME, OpenVPX & VITA 74
- Switch Configuration Tool for GbE & PCIe fabric products.
- Comprehensive BIT (Built-In Test) Software, Embedded Clustering Software
- Commercial, Rugged Air Cooled & Conduction Cooled Build Grades

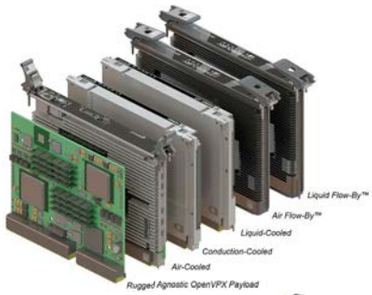
POWER PC'S: SINGLE OR DUAL PROCESSORS SBC'S

- Freescale QorIQ P-Series & T-Series, Multi-Core Processors (AMP, SMP)
- On-Board 4-Port GbE Switch, Multi-Protocol Serial Ports, up to 16GB on-board Flash, GPIOs
- 2 x PMC/XMC Expansion Sites, Watchdog, Timer Counters, Temperature Sensors
- Embedded Linux, VxWorks, Integrity, LynxOS Support
- BIT (Built-In Test) Software & Fabric Configuration Management Tools
- Commercial, Rugged Air Cooled, & Conduction Cooled Build Grades
- On-Board User Programmable FPGA-Option
- Flexible user I/O Routing-Flex I/O -Option
- Platforms: VME, OpenVPX



HIGH PERFORMANCE EMBEDDED COMPUTERS (HPEC)

HIGH PERFORMANCE COMPUTING HARDWARE



INTEL: CORE I7, XEON-E3, XEON-D, XEON-ES/E7

- Freescale (now NXP): T208x
- GPGPUs (NVIDIA & AMD)

High speed data interface and protocol (PCIe Gen3, 10/40GbE, Infiniband)

I/O CONNECTIVITY FOR HPEC:

- RDMA Over Ethernet (iWARP): Low latency, High throughput, Zero copy capability, OS/Stack bypass
- Multiware: Seamless PCIe data management in multiprocessor system.
- QPI, allows multiple server-class Xeon processors to be linked into a single SMP processing architecture

Micro Via Radial Interconnect (MVRI) technology has improved OpenVPX switch fabric interconnect data rates by three-fold, enabling switch fabrics and point-to-point connections to run faster and more reliably.
3U/6U VPX Module Agnostic Cooling:

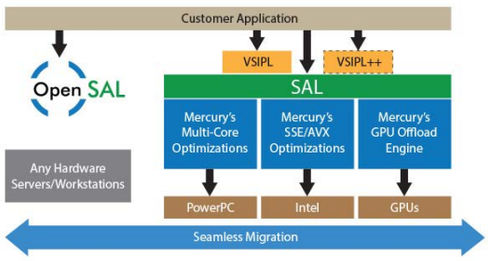
10GbE InfiniBand RapidIO PCI EXPRESS

3U/6U VPX MODULE AGNOSTIC COOLING:

- Air Cooling can handle up to a around 200W per module
- Conduction Cooling can handle up to a around 150W per module
- Air Flow-by Cooling can handle up to a around 200W per module
- Common to ALL these solutions is just one PWA

HIGH PERFORMANCE EMBEDDED COMPUTING SOFTWARE

- **Processing Libraries:** Hardware agnostic High Performance Libraries MKL, IPP, SAL, OpenCL, OpenMPI, CUDA
- **Diagnostic Support Tools:** Diagnostic Tools, System wide fault detection, Tools to build Built-in Test, Field Maintenance.
- **Distributed Computing Software:** Interprocess Communication Suite (ICS), Multiware (with services such as Virtual Ethernet over PCIe, shared memory, message synchronization with DMA powered transfers).
- **System Management:** Subsystem level System Health Monitors with GUIs, Ethernet, USB and/or RS 232 interfaces, data logging, field upgradable firmware, and data password protection.
- **Productivity Tools:** Open Development Suite, Trace Analysis Tool and Library (TATL), FPGA Development Kit.
- **Operating Systems Support:** Windows, Linux, VxWorks



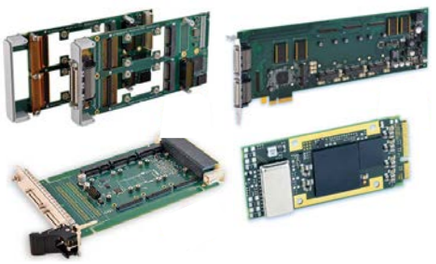
GRAPHICS & VIDEO PROCESSING

EXTENSIVE RANGE OF EMBEDDED VIDEO PROCESSING MODULES, INCLUDING VIDEO CAPTURE, COMPRESSION, AND GRAPHICS OUTPUT

- GPGPU Capable High-Performance Graphics XMC & VPX Solutions.
- Latest AMD & nVIDIA (with CUDA support) many core GPU
- High-Speed PCIe Gen3 Interface.
- Frame Grabber with H.264 Compression.
- Independent Video Capture with up to 4 Video Inputs(DP/DVI/3G-SDI/A818/PAL/ NTSC/STANAG 3350).
- Up to 6-Independent Video Outputs (A818/DVI/HDMI/3G-SDI).
- Underlay & Overlay Supported.
- Video Streaming, Recording over TCP/IP (GbE o/p) & Recording to local disk.
- Supports KLV & CoT Metadata.
- Embedded OpenGL Vulkan Graphics Drivers.
- OpenCL Supported on Select Products.
- Commercial, Rugged Air Cooled, & Conduction Cooled Build Grades.
- Windows, Linux OS Support for IA32/64 Architectures.
- VxWorks, Integrity, & LynxOS RTOS Support including Intel & PowerPC Architectures.

GENERAL PURPOSE I/O'S

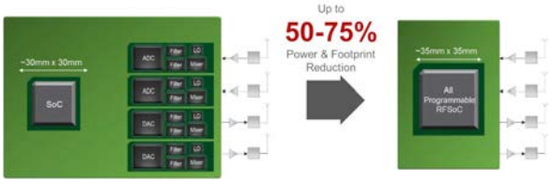
- ADC, DAC cards up to 10MHz, 16-Bit Resolution, Isolated & Non-Isolated Options
- Digital I/O cards, supports TTL, LVDS, Solid State Relays, HV Inputs & Outputs, Isolated & Non-Isolated Options
- Multi-protocol Serial Communication cards: RS232, RS422, RS485
- Dual, Quad Port 1G,10G & 40G Ethernet cards
- Field Bus Communication: CAN, ARCNET, & INTERBUS
- Motion Control: Servo controllers, Absolute Encoders (SSI) interfaces,Incremental Encoders, Quadrature Decoders, & Synchro/Resolver-to-digital solutions
- Counters & Timer cards
- Commercial, Rugged Air Cooled, & Conduction Cooled Build Grades
- Embedded Windows, QNX, Linux, VxWorks, Integrity, LynxOS Support
- Platforms: PMC/XMC, AcroPack & IndustryPack Modules & Carriers for cPCI, VME & VPX



ACQUIRE & DIGITIZE

Programmable RFSoC

- Combines RF front-end with the MPSoC architecture on 16nm silicon.
- Eight 12bit ADCs @ 4 GSPS, Eight 14bit DACs @ 6.4GSPS
- Eliminates Discrete ADCs, DACs, FPGAs-to-Analog Interface
- Reduce foot print & power
- RF-design in the digital domain for greater flexibility
- Dual MPO optical connectors as per ANSI/VITA 66.4



FPGAs

- Kintex-7, Virtex-7, Zynq Soc, UltraScale/ UltraScale+ Family.
- Wide range of analog front ends - Up to 6 GHz A/Ds & D/As.
- Wide range of optical front ends - Up to 12/24, 10Gbs transceivers

FPGA IP

- A/D acquisition, D/A waveform generation, a controller for all data clocking and synchronization functions, a test signal generator & a PCIe Gen3 interface
- DDCs and DUCs for interfacing to IF ports of RF up/down-converters

MISSION COMPUTING & AVIONICS

- A/D acquisition, D/A waveform generation, a controller for all data clocking and synchronization functions, a test signal generator & a PCIe Gen3 interface
- DDCs and DUCs for interfacing to IF ports of RF up/down-converters

TRUSTED MISSION SOLUTIONS

- Secure Servers that includes both reliability and a trusted supply chain for both hardware and software.
- Cloud Computing Rackmount Servers with latest Intel Xeon Scalable processors.
- Supercomputing and Virtualization Servers with the latest NVIDIA® GPU accelerators (up to four GPGPU's)
- Modular High-Density Servers delivering high-compute density and low-latency.
- Hyperconverged Infrastructure Platforms integrates multiple RES form-factors, ethernet switches, and software-defined storage(SDS)/ hyper - converged infrastructure (HCI) software to deliver all-flash performance for virtualized applications.
- Datacenter in a briefcase, a tactical cloud that can host sensitive missions in theater and operate on almost any power source.
- Provide superior resilience to shock, vibration, and temperature extremes.

AVIONIC INTERFACES & BUS ANALYSIS TOOLS

- **TTE/AFDX (ARINC664}:** End Systems & Network Switches up to 24-Port, Development tools, Verification tools, Middleware.
- **TSN:** End Systems & Network Switches up to 24-Port, Development tools, Verification tools, Middleware.
- **MIL-STD-1553:** 1-4 Independent, Dual Redundant Channels of Dual Function BC/Mon & Full Function BC/Monitor and mRT (1-32)/ Monitor option available
- **ARINC-A429/575/717:** 4-30 Channels
- **Multi-Protocol Solutions:** MIL-STD-1553, ARINC 429, 708, CAN, RS232/422/485, & LVTTL interfaces on the single card
- **ENET**, the Ethernet Avionics converter, is a real-time UDP server engine (no IP software stack). Provides automatic 1553 BM or ARINC receive bridging without any host interaction. Fully rugged as per MIL-STD-704F/810G/461F and DO160 Sec 22.
- **Data Bus Components:** Bus Couplers, Bus Repeaters, Stub Extenders, Terminators, Connectors and cables
- Bus Analyzer for MIL-STD-1553/ARINC-429/AFDX and Protocol Validation Software
- Windows, Linux, VxWorks, Integrity, LynxOS support
- Commercial, Air Cooled Rugged, Conduction Cooled Build Grades
- Boards available in form factors like SFF (VITA74), mPCIe, PMC, XMC, 3U VPX & Standalone

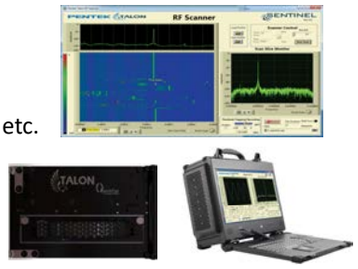
TTEthernet

NETWORK SWITCHES

- Fully managed 1G/10G/40G/100G Ethernet Switch
- Comprehensive network, configuration, management and monitoring using Switchware graphical user interface software
- Security features: 802.1x Port authentication, Multicast/Broadcast limiting, STP/RSTP protocol, Virtual cable tester On-Line, User authenticatio (certificate HTTPS / Key SSH), Mirror traffic and log recording
- Option of Link-state tracking redundancy, that binds the link-state of a downstream interface (or a group of interfaces) to the linkstate of a upstream interface.
- Up to 32 Configurable 1G/10G/40G Ports, fully managed **layer 2+/3** routing.
- Configurable front and rear I/O port combinations with copper and/or fiber.
- Switch Management by on-board Freescale Processor & Embedded OS.
- TCP offload engine (TOE processor), Traffic filtering
- Configurations with support for IPv4 / IPv6 with advanced networking.
- Commercial, air cooled rugged & conduction cooled versions.
- Open standards-based form factors such as VPX, VME, cPCI & standalone.

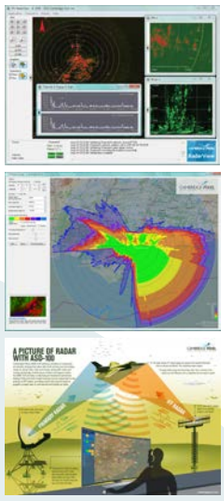
RECORDING & PLAYBACK SYSTEMS

- Ability to capture RF, IF signals, SFPDP, 10 & 40G, LVDS
- Radar & EW System Verification with Data Recorder and Playback System in Lab
- Multi-channel phase-coherent signal acquisition for Direction finding, phase array radars, etc.
- GPS and IRIG options for Precision time and position stamping of recorded signals
- API, GUI and Signal Viewer analysis tools
- Rack Mount, Portable, Rugged, Conduction Cooled options



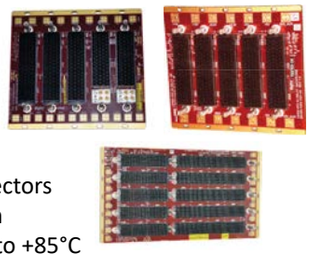
RADAR PROCESSING & DISPLAY, SIMULATION

- SPx Server for Target Tracking, provides the functions of radar recording, network distribution of radar video, plot extraction and target tracking.
- SPx Fusion Server, for the fusion of primary and/or secondary (AIS, IFF, ADS-B) sources.
- SPx Radar Simulator, for the simulation of primary radar video, along with secondary sources and navigation data.
- Radar View Radar Visualisation, for the visualisation of primary radar video, along with graphics and secondary data.
- SPx Development is a package that supports the development of custom server and client radar applications.
- ASD-100 Air Situation Display, An integrated display application for the acquisition, display and tracking of primary and IFF targets.
- RDR Data Recorder, record and replay application for primary radar video, tracks, AIS, ADS-B, video, navigation data, screen capture and other network data formats.
- VSD Security Display, for the processing and display of radar and camera video, including camera control, slew-to-cue and integrated radar and video tracking.



BACKPLANE – SYSTEM BUILDING BLOCKS

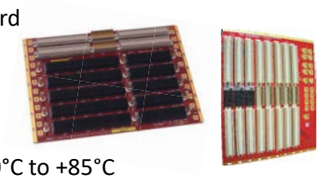
BLAZE – OPENVPX / VPX BACKPLANE



- Designed to meet ANSI/VITA 46.x 2007 & ANSI/VITA 65.0 2010
- 0.8" / 0.85" / 1.0" Card Pitch
- 3U or 6U Form Factor
- **VITA 67 backplanes available**
- Choice of High Speed Fabrics;
- PCI Express (Upto Gen 4)
- Gbit Ethernet (1G/10G/40G)
- High Speed Multi-Gig RT Connectors
- Keying & Alignment Mechanism
- Operating Temperature: -40°C to +85°C
- Power connections at rear for VSl, VS2, VS3, AUX & Ground
- Custom Designs

BLAZE – HYBRID BACKPLANE (VME+VXS & VME+VPX)

VXS + VME64x Hybrid Backplane
VME + VPX Hybrid Backplanes



- Designed as per VITA standard
- Superior Power Distribution
- PCB FR4/Rogers
- Zero Cross-talk
- Custom Designs
- Operating Temperature: -40°C to +85°C

BLAZE – CPCI & VME64X BACKPLANES

- Conforms to PICMG Standards & As per ANSI/VITA 1.1-1997; IEEE 1101.10 Mechanical Standards
- 02 to 21 slots
- Standard Rear I/0 & 3U or 6U Form Factor
- 32/64 Bit PCIbus, 8 layer or 12 layer(cPCI)
- FR4 PCB, 4.2mm thick or equivalent
- Excellent Signal integrity
- Superior Power Distribution; Active/Passive bus termination
- Excellent Power Distribution & +5, +3V3 & ±12V Interface Studs
- Operating Temperature: -40° C to 85° C
- Auto Daisy Chain & Custom Designs

SYSTEM HEALTH MONITORS

- Current & Voltage Monitoring
- Fan Speed & Fan Fail Monitoring
- Temperature Monitoring
- Analog & Digital Sensors
- HVHC & TTL Outputs
- RS232/USB/Ethernet Interfaces
- On-board Data Logging
- User Configurable GUI
- Operating Temperature: -40°C to +85°C
- Stand-alone, VME & VPX Form Factors

NETSPYDER – ETHERNET SWITCHES

- Designed for Industrial, Defence & Aerospace Environments
- 8/12/16/24 Gigabit Ports; Layer2/Layer 3 switching capability
- Flexible VLAN assignment- 802.lQ, port & protocol
- Quality of Service engine

Security features

- Multicast/Broadcast limiting & Virtual cable tester On-Line

Flexible management tools

- Enhanced Port mirroring & STP/RSTP algorithm for more reliable network

Operation Simplicity

- Auto-negotiation & Auto Cable Detection (MDI/MDI-X)
- On-line virtual cable tester with advance cable diagnose capability
- Conduction or Convection Cooled
- Custom Designs

NETSPYDER – CR

CISCO Powered Ethernet Switch

- Layer 3 and Layer 2 Support
- Operating System: CISCO Advanced I0S XE operating system
- Supports up to 24-ports Ethernet 1G ports
- Combination of Copper and Fiber
- Supports native PoE and PoE+
- Conduction cooled
- Power
  - AC Input: 230V AC
  - DC Input: 28V Nominal DC (18-36V)
- Interfaces:
  - Upto 24 port 10/100/1000 Ethernet Ports
  - Upto 4 x 1G Fibre Optic Ports (Build Option)
  - LED Indication per port (link / activity)
  - One RS-232 Console Interface
- Ruggedized for extreme environments
- Operating Temperature: -40°C to +71°C
- Connectors: Circular MIL
- Standards: Compliant to MIL-STD-810G and MIL-STD-461F
- Custom Specific Style & Layouts variant available.

HELIOS – POWER SUPPLY UNITS

- 200 W to 1.2 KW Power Output
- 18- 36VDC / 120 - 230VAC Input
- Single / Dual Slot Options
- Multi Output PSU
- 85% Efficiency (Typical)
- No Minimum Load
- Current Limit
- Input Power & Fault Status Indication
- Remote Power On/Off (Optional)
- IEEE 1101.1x Compliant Front Panel
- MIL-STD-810F & MIL-STD-461F
- MIL-STD-704F, 1275B (Optional)
- Air/Conduction Cooled Units

UNICORN – ATR CHASSIS

Forced Air Cooled

- Airborne, Shipborne & Ground Deployment
- Compliance to MIL Specs
- IEEE 1101.10 Mechanical Standards
- Rugged Aluminum Construction
- Standard or Custom Vol./Sizes
- 3U / 6U or Custom Form Factors
- OpenVPX / VPX / VME64x or cPCI Backplane Options
- AC or DC input PSU Options

- Modular I/0 transition with I/0 PWB (No Cable harness required)
- ARINC or MIL-D-38999 Connector Style
- Hard Mount or ARINC Tray Mount
- Environmental - MIL-STD-810F/RTCA-DO-160E
- EMI/EMC as per MIL-STD-461E

RHINO – ATR CHASSIS

3U/6U Liquid Cooled ATR Chassis

- Milled block construction for optimal structural integrity.
- Adherence to IEEE 1101.20 mechanical standards.
- 3U/6U high ATR chassis, providing ample space for your cards.
- Support for up to 16 slots in the card area.
- Multiple backplane options, such as 3U/6U (VPX / cPCI/ VME).
- AC/DC input power supply for flexibility in power sources.
- Input transients in accordance with MIL-STD-704E /MIL-STD-1275D for reliable performance.

- Availability of single or dual cooled side walls, catering to diverse cooling needs.
- EMI/RFI power line filtering to mitigate electromagnetic interference.
- Cable harness-free design, ensuring simplicity and efficiency.
- MIL-C-38999 type connectors for power and I/O signals located at the rear for convenient connectivity.
- Hard mount configuration for secure installation.
- Custom design options to tailor the chassis to your specific requirements.

OYSTER SERIES – RUGGED CHASSIS

- Shipborne & Ground Deployment
- Compliance to MIL Specs
- IEEE 1101.10 Mechanical Standards
- 19" Rack Mount, Upto llU High
- Forced Air Cooled
- 3U / 6U or Custom Form Factors
- Upto 18 Slots
- OpenVPX / VPX / VME64x or cPCI Backplane Options

- AC or DC input PSU Options
- Modular I/O transition with I/O PWB (No cable harness required)
- MIL-D-38999 Connectors
- Environmental - MIL-STD-810F / JSS 55555
- EMI/EMC as per MIL-STD-461E
- Altitude upto 10000ft
- Custom Designs

AURORA SERIES – INDUSTRIAL CHASSIS

- As per IEEE 1101.1 Mechanical Standards
- 1U to 2U High, Rack Mount
- 2 to 21 Slots
- 3U or 6U Cards
- Forced Air Cooled
- OpenVPX / VPX / VXS / VM E64x / cPCI Backplane Options
- Rear I/O Supported
- AC or DC input PSUs

- Upto 1000 watts
- Standard Connectors
- Custom specific Switch Controls & Indications
- Custom Designs

CCORAL – DISPLAY CONSOLE

- Airborne, Shipborne & Ground Deployment
- Compliance to MIL Specs
- Single or Dual Head Display Consoles
- Airborne, Shipborne & Ground Deployment
- Compliance to MIL Specs
- Single or Dual Head Display Consoles
- As per MIL-STD-1472F Human Engineering
- Standard Display Sizes with Tilt Mechanism

- ATRs / Rugged Chassis based Sub-system
- VME / VPX / cPCI Compute Resources
- Touch Input Display with Controls
- With or Without Shock Isolation
- Environmental as per MIL-STD-810F
- EMI/EMC as per MIL-STD-461E
- Altitude upto 30,000ft
- Custom specific Switch Controls & Indications
- Foldable or Rigid Desk; Customized Foot rest
- ARINC or MIL-D-38999 Connector Style
- Custom Designs

TAURUS – RACKS

- Airborne, Shipborne or Ground Deployment
- Multiple Levels for 19" Rack Sub-Systems
- Custom Sub-Systems; Power Supply Sub-System
- ARINC or MIL-C-38999 Connector Style (Sub-Systems level)

- Efficient Thermal Management
- Structure Stability
- EMI protection front door
- Shock Mount Integrated
- Environmental - MIL-STD-810F / JSS 55555
- EMI/EMC as per MIL-STD-461E
- Custom Designs

SMALL FORM FACTOR EMBEDDED COMPUTERS

FALCON – II

Configurable SFF Embedded Computer

- **CPU:** Intel Core i7/ Xeon E or latest
- **Cores:** Multicores
- **Memory:** up to 128 GB DDR4 RAM (with or without ECC)
- **Storage:** up to 4TB with M.2 Interface
- **Integrated Graphics:** Intel UHD Graphics Controller
- **Video Outputs:** 2 x Display Ports / DVI
- **I/O's** :
  - 2 x 10G Ethernet (Optional, Copper or Fiber)
  - 2 x 1 Gigabit Ethernet (PoE+ Option)
  - 2 x USB 3.0, 2 x USB 2.0, 1 x HD AUDIO
  - 4 x RS232 (TX/RX)/RS422/RS485,
  - 1 x RS232 (TX/RX - Console), 8 x GPIOs

- **Security:** TPM 2.0 (optional)
- **Dimensions:** 217mm x 260mm x 105mm
- **Weight:** ≤ 4.3 to 4.9 Kgs. (Configuration Dependent)
- **Connectors:** MIL-Circular
- **Storage Expansion - Option:** SSD Mass Storage Drive (with optional Secure Erase or Zeroize Function)
- **Health Monitor:** System Health Monitor & Control (Optional)
- **Power:** 28 VDC, MIL-STD-704F/MIL-STD-1275E
- **Operating Temp**: -40°C to +55 °C, up to +71°C (Depends on Thermal Load)
- **Storage Temp:** -40°C to +85 °C
- **Environmental:** MIL- STD-810H
- **EMI:** MIL-STD-461G
- **Cooling:** Fanless Conduction Cooled
- **Operating System Support:** Windows 10, Linux & VxWorks

KESTREL

Standards Based NANO Computers

- **CPU:** Intel ATOM, NXP ARM or Latest
- **RF:** Wi-Fi, Bluetooth, Cellular, GPS
- **Signal I/O:** Analog, Discrete, IRIG B, IMU
- **Standard I/O:** GigE, USB 2 / 3, Serial. Audio, GPIO
- **Data Bus I/O:** MIL-STD-1553, ARINC-429, CANbus
- **OS:** Linux, Windows, VxWorks, Integrity & others upon request.

LANIUS – II

Micro Embedded Computer

- **CPU:** Intel Core i7/ Xeon E or latest
- **Memory:** 16 - 64 GB (RAM)
- **Mass Storage:** Upto 1.9 TB (through M.2)
- **I/Os:** (through MIL-STD-38999 & Hercules Connectors)
  - 2 x 1G/10G, 2 x USB3.0, 2 x USB2.0, 1 x HD Audio,
  - 2 x UART, 8 x GPIO, 4 x miniPCIe + 2 x mSATA
- **Video Output:** 2 x DP / DVI

- **Dimensions:** 217 x 270 x 75 in mm
- **Weight:** ~3.2 Kg
- **EMI:** MIL-STD-461G
- **Environmental:** MIL- STD-810H
- **Power:** 12 - 36 VDC, MIL-STD-704F/MIL-STD-1275E
- **Operating System:** Linux and Windows 10

FALCON – III

High Performance Configurable Embedded Computing System

- **CPU**: Intel Core i7/ Xeon E or Latest
- **Memory**: up to 64 GB DDR4 RAM
- **Storage:** up to 1.9 TB through M.2 (SATA)
- **Integrated Intel UHD Graphics Controller**
- **Video Outputs:** 2 x Display Ports
- **I/O's** :
  - 2 x 10G Ethernet (Optional, Copper or Fiber)
  - 2 x Gigabit Ethernet (PoE+ Option)
  - 2 x USB 3.0, 2 x USB 2.0, 4 x RS232 / 422 / 485
  - 1 x Audio IN & 1 x Audio OUT, 8 x GPIOs
- **Removable Storage:** 2 x 2.5" SSD

- **Security:** TPM 2.0 (Optional)
- **Dimensions:** 300 x 115 x 270 in mm
- **Weight:** < 8KG including 5 x mPCIe & 2 x XMC (Configuration Dependent)
- **Connectors:** MIL-Circular
- **Health Monitor:** System Health Monitor & Control (Optional)
- **Power:** 28 VDC, MIL-STD-704F/MIL-STD-1275E
- **Operating Temp:** -40°C to +55 °C, up to +71°C
- **Storage Temp**: -40°C to +85 °C &
- **Environmental:** MIL- STD-810H
- **Operating System Support:** Windows 10, Linux & VxWorks

LANIUS – IA

Micro Embedded Computer

- **CPU:** Quad Core Atom or Latest
- **Memory:** 4 GB RAM
- 64 GB EMMC Flash
- **Video:** 1 x DVI Output / 1 x HDMI
- **Weight:** ~0.8 Kg
- **I/O:** 2 x GigE, 1 x USB 3.0 / 2 x USB 2.0, 2 x Serial, Audio, GPIO, I2C
- **Expansion:** 2 x mPCIe + 2 x mSATA
- **Dimensions:** 150 x 100 x 35 in mm
- **Power:** 28 VDC
- High Density Micro D Connector (Standard) / circular
- MIL-STD-810F, MIL-STD-461F, MIL-STD-704F/1275D
- **Operating System:** Linux, Windows

LANIUS – III

Micro Embedded Computer

- **CPU:** Intel Core i7 or ATOM x6000E Processors or latest
- **Memory:** up to 16 GB DDR4 RAM
- **Storage:** up to 512GB through mSATA
- Integrated Graphics Controller

- **Video Output:** 1 x Display Port
- **I/O's (Standard):**
  - 2 x Gigabit Ethernet
  - 1 x USB 3.0, 2 x USB 2.0
  - 2 x RS232 (TX/RX- Console), 8 x GPIOs
  - 2 x mPCIe expansion site
- **Security:** TPM 2.0 (optional)
- **Dimensions:** 72 (H) X 188(W) X 155.8 (D) all in mm
- **Weight:** < 2.2kgs (Configuration Dependent)
- **Power:** 28 VDC, MIL-STD-704F/MIL-STD-1275E
- **Operating System Support:** Windows 10 & Linux

WILLET – I

SFF System with Nvidia Xavier

- **CPU:** Intel Core i7/ Xeon E or Latest
- **Memory:** up to 64 GB DDR4 RAM (with or without ECC)
- **Storage:** up to 1.9TB with M.2 Interface
- **GPGPU:** NVIDIA or AMD-ATI GPGPU with 4GB DDR5 RAM with Teraflop Processing
- **Video Outputs:** Independent 2 x 3G-SDI, 2 x DVI/Display Port, 1 VGA (optional), 2 x ARINC 818 (optional)
- **Video Inputs:** Independent 2 x 3G-SDI and 2 x CVBS (NTSC/PAL/SECAM), 2 x ARINC 818 (optional)
- **Encode/Decode:** H.265 & H.264 Hardware Encoder/Decoder
- **Recording:** Synchronized Audio + Video Capture, Compression and Streaming/Write to Disk Support
- **I/O's :**
  - 2 x 10G Ethernet (Optional, Copper or Fiber)
  - 2 x 1 Gigabit Ethernet (PoE+ Option)
  - 2 x USB 3.0, 2 x USB 2.0, 1 x HD AUDIO
  - 4 x RS232 (TX/RX)/RS422/RS485
  - 1 x RS232 (TX/RX- Console), 8 x GPIOs

- **Security:** TPM 2.0 (optional)
- **Dimensions:** 217 (W) x 260 (D) x 120 (H) in mm
- **Weight:** ≤ 4.8 Kgs. (Configuration Dependent)
- **Connectors:** MIL-Circular
- **Health Monitor:** System Health Monitor & Control (Optional)
- **Power:** 28 VDC, MIL-STD-704F/MIL-STD-1275E
- **Operating Temp:** - 40°C to +55 °C, up to +71°C

WILLET – N

SFF System with Intel CPU + Nvidia GPU

- **CPU/GPU:** Jetson AGX Xavier or Orin
- **Memory:** 8GB/16GB/32 GB LPDDR4x
- **Storage:** 32 GB eMMC 5.1
  - Up to 512GB SSD (using mSATA Expansion site)
- **Video O/P:** DP1.2/HDMI 2.0
- **I/O's**:
  - 2 x RS232/2 x RS422 (Software Selection)
  - 2 x U SB 3.0, 1 x USB 2.0, 1 x CAN, 1 x HD Audio
  - 1 x 1 Gig Ethernet, 1 x 10 Gig Ethernet 1 x HDMI
  - 2.0/DP 1.2, 4 x GPIO
- **I/O's (Build Options):**
  - 1 x 10 Gig Ethernet, 4 x GPIO, Debug (Tx & Rx)
  - 2 x CSI (Dual Lane), 1 x USB 2.0, 1 x CAN, 1 x SPI
  - 2 x UART, 1 x I2C
- **Expansion Sites:** 1 x mSATA/1 x M.2 NVMe slot KEY M, 2 x mPCIe/1 x mSATA & 1 x mPCIe.
- **Dimensions:** 154 x 76 x 230 in mm
- **Weight:** < 2.5kg
- **Power:** 28 VDC Nominal (18-32 VDC), MIL-STD-704F/MIL-STD-1275E

- **Operating Temp:** -25°C to +65 °C
- **Environmental:** MIL- STD-810H
- **EMI**: MIL-STD-461G
- **Operating System:** NVIDIA Linux for Tegra (L4T) based on Ubuntu

SMALL FORM FACTOR – ETHERNET SWITCHES

NETSPYDER DA – 8 Port Unit Specifications

- **Dimensions:** 124 x 87 x 160 in mm (W x H x D)
- **Weight**: < 2.2 kgs
- **Voltage**: 28 VDC Nominal (18-32 VDC)
- **Power**: 30-Watt typ (configuration dependent)
- **Operating Temperature**: -40° to +71° Celsius
- **Environmental**: MIL- STD-810H
- **EMI**: MIL-STD-461G
- **Power**: MIL-STD-704F and MIL-STD-1275E

NETSPYDER DA – 24 Port Unit Specifications

- **Dimensions:** 160 x 87 x 180 in mm (WxHxD)
- **Weight**: < 4.4 kgs
- **Voltage**: 28 VDC Nominal (18-32 VDC)
- **Power**: 40-Watt typ (configuration dependent)
- **Operating Temperature**: -40° to +71° Celsius
- **Environmental**: MIL- STD-810H
- **EMI**: MIL-STD-461G
- **Power**: MIL-STD-704F and MIL-STD-1275E

NETSPYDER CA – 8 Port Unit Specifications

- **Dimensions:** 124 x 86 x 204 in mm (WxHxD)
- **Weight**: < 2.2 kgs
- **Voltage**: 28 VDC Nominal (18-32 VDC)
- **Power**: 35-Watt (200-Watt typ with POE configuration dependent)
- **Operating Temperature**: -40° to +71° Celsius
- **Environmental**: MIL- STD-810H
- **EMI**: MIL-STD-461G
- **Power**: MIL-STD-704F and MIL-STD-1275E

NETSPYDER CA – 24 Port Unit Specifications

- **Dimensions:** 124 x 142 x 204 in mm (WxHxD)
- **Weight**: < 3.3 kgs
- **Voltage**: 28 VDC Nominal (18-32 VDC)
- **Power**: 45-Watt (540 Watt with POE configuration dependent)
- **Operating Temperature**: -40° to +71° Celsius
- **Environmental**: MIL- STD-810H
- **EMI**: MIL-STD-461G
- **Power**: MIL-STD-704F and MIL-STD-1275E

SMALL FORM FACTOR – VNX FAMILY

RAPTOR – VNX COTS COMPUTER

- **CPU:** Multicore Intel ATOM, ARM® & Intel Core i7
- **GPU:** Video/Graphics Processing
- **Standard I/O:** GigE, USB 2 / 3, Serial. Audio, GPIO.
- I/O Expansion: 2 /4 / 6 miniPCIe slots to support 1553, A429, Analog & Digital I/O etc. (contact factory for various options available).
- **Storage:** Fixed, Removable or Remote Options
- **Connectors:** Circular MIL
- **Power:** 28 VDC @ 10 to 60 Watts (Configuration Dependent), MIL-STD-704F 1275E with Optional Hold-Up to 50 mSec
- **Operating Temp:** -40°C to +55 °C (standard) up to +71°C (Configuration Dependent)
- **Storage Temp:** -40°C to +85°C
- **Environmental:** MIL- STD-810H
- **EMI:** MIL-STD-461G
- **OS:** Linux, Windows

RAPTOR – VNX+(VITA 90) COTS COMPUTER

- **CPU:** Multicore Intel Architecture (i7, Atom).
- **OS:** Linux, Windows
- **Other Processors:** NVIDIA Xavier/Orin GPU/GPGPU ,FPGA, MPSoC + ARM® (Consult Factory for Specific Details).
- **Dimensions:** 19 x 12.5 x 19 in mm
- **Architecture:** Control Plane, Data Plane, Expansion Plane, and Utility Plane per VITA 90.
- **Avionics I/O:** MIL-STD-1553B, ARINC-429, CAN bus.
- **Standard I/O:** GigE, USB 2/3, RS-232/422/485, Audio, GPIO, DisplayPort, HDMI, SATA.
- **Other I/O:** Wi-Fi, Bluetooth, Cellular Modem, 10GbE and other high-speed networking. GPS, IMU/INU, ARINC-818, FibreChannel.
- **Management:** System Management per VITA 46.11 & VITA 90.
- **Storage:** Fixed, Removable, Remote Options Available.
- **Power:** 28 VDC @ Up to 130 Watts, 50 mSec Hold-Up.

VNX FAMILY – VNX+ MODULES

VNX+ SBC

- **CPU:** Intel i7 to Atom Processor: 1 Cores / Threads: 2 / 4
- RAM, DDR4-2133, Non-ECC: 8 GB
- FLASH, eMMC : 64 GB
- **PCIe** x1: 4 | 10/100/1000BaseT : 1
- **USB** 2.0: 4 | USB 3.0: 2
- **HD Audio In**: 1 | **HD Audio Out**: 1
- UART RS-232 (TX/RX): 2
- HDMI/DVI/DP: 1
- SATA III (6 Gbps): 2

VNX+ GPGPU

- **GPU:** Jetson Xavier NX
- Nvidia Volta GPU with 384-CUDA Cores 48 Tensor Cores
- **CPU:** 6-core NVIDIA Carmel ARM®v8.2 64-bit CPU
- **Memory:** 16 GB 128-bit LPDDR4x
- **Storage:** 16GB eMMC
- 4x PCIe Gen 3 Interface | 2 x HDMI/DP
- 1 x GbE | 1 x USB 2.0 & 1 x USB 3.0
- 2 x GPIO | 2 x UART RS-232 (TX/RX)
- 2 x GbE SGMII Interface

VNX+ IO Carrier

- Standard PCIe interface upstream
- Two mPCIe / Acropack communication interface downstream
- Two USB 2.0 communication interface
- One SM BUS interface
- EEPROM storage 16 Mb
- Two slots for mini PCIe cards (Full Mini or Half Mini)
- Out of two slots one Slot is compatible for both mini PCIe and mSATA

VNX+ Ethernet Switch

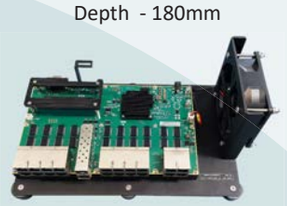
- 8 x GbE Ports (MDIO) on VNX Switch Module
- 3 x QSGMII Ports for 8 or 12-Port Expansion via optional expansion module
- 2 x 10GbE Ports
  - 2 x SFI Drive with 400-Pin with Zero-Aperture
  - 2 x MT Optical Interfaces with 320-Pin and Half-Aperture
- 1 x RS232 Console
- Ethernet Indication signals
- **Power:** 10 Watts typ.

VNX+ PSU

- **Line & Load Regulation:** Less Than 1%
- **Ripple & Noise:** Less Than 75 mV
- **Output Power** Max : 90 Watts (Limited by Cooling)
- **Efficiency:** 85% to 90%
- **Protection:** Short Circuit Protected
- Parallel Feature (Optional)
- **Power Supply - *Input Voltage :***
  +12 VDC to +36 VDC (+28 VDC Nominal)
  Output Voltage :
  +12 VDC @ 8 Amps -12 VDC @ 0.25 Amps
  +5 VDC @ 2 Amps +3.3 VDC @ 2 Amps

VNX+ Switch Test Jig

- **1GbE**: 20
- **10G SFP ports:** 2
- **120GB MLC SATAIII**: 2 SATA Connectors
- **NAND Flash**: SATA SSDs are on Raptor VNX 19mm Switch Module)
- **Dimensions:**
  Height - 119mm
  Width - 290mm
  Depth - 180mm



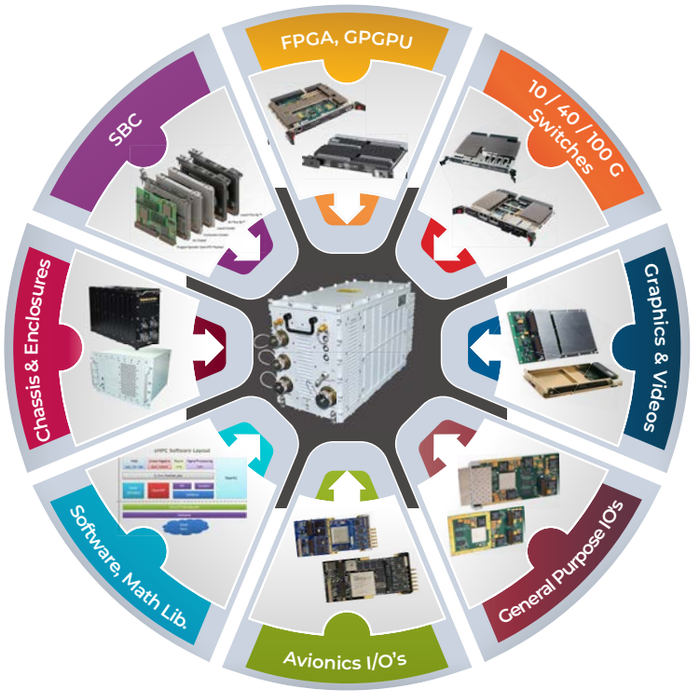
SYSTEM INTEGRATION

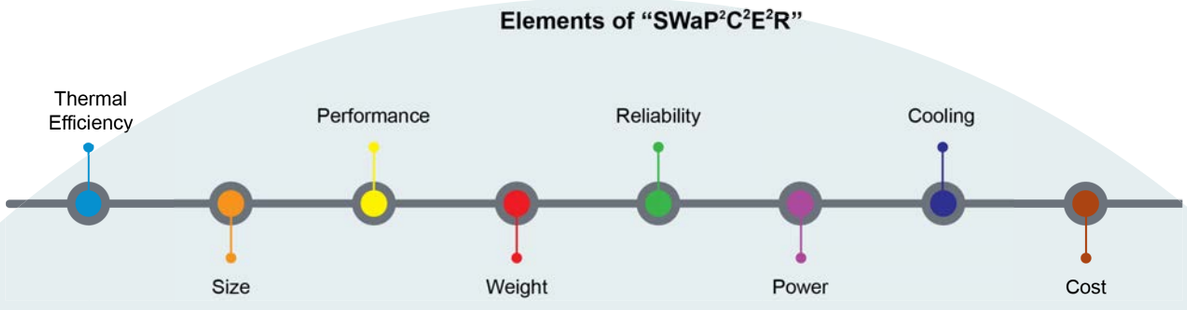
Trident offers System Integration Services for various applications meeting demanding requirements. From a basic configuration of COTS cards in a chassis to customized system configuration, including software, we reduce the risk of dealing with many suppliers. This minimizes delivery risk and the learning curve associated with Post-delivery Integration. Integrated systems are delivered more quickly and economically, allowing for higher productivity at the application development level.

- Electronic Warfare
- Unmanned Aerial/Ground vehicles
- EO/IR
- Sonars
- DO-178B & DO-254B Certifiable Avionics Systems
- Software Defined Radio
- Radars
- C31 & C41 Systems

INTEGRATED SYSTEM SOLUTIONS FOR LAND, SEA & AIR APPLICATIONS

System Packaging	Application Software	Computing Platforms
ATR, Racks, Command Consoles Displays, Enclosures, storage ..	Middleware Software & Drivers Integration	(SBC's-Intel/Freescale) Signal Processing H/W, I/Os Avionics, Acquisition, Graphic & Video





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...Transformational Technologies

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CEMILAC

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AS 9100 D

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GENERATION 1.0