



GACI

TECHNOLOGIES





ACTIVITIES

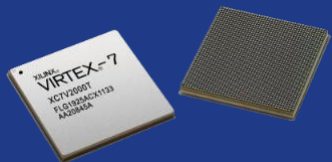
**COTS
Solutions**



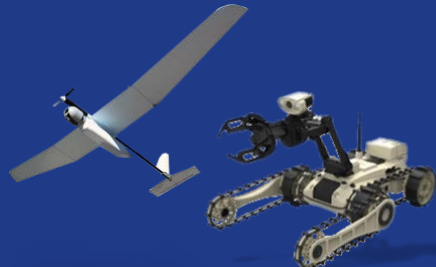
**Embedded
Systems**



**Signal
Engineering**



**Operations
Services**



**COMPANY
PROFILE**

**BUSINESS
MODEL**

OFFSET

**CYBER
SECURITY**





Key Facts



Capital 2,6 M€



Embedded market specialist

Created in 1992



50 people

2 600 m² facilities



Paris and Toulouse

ISO 9001:2015

EN9100 planned





Evolution

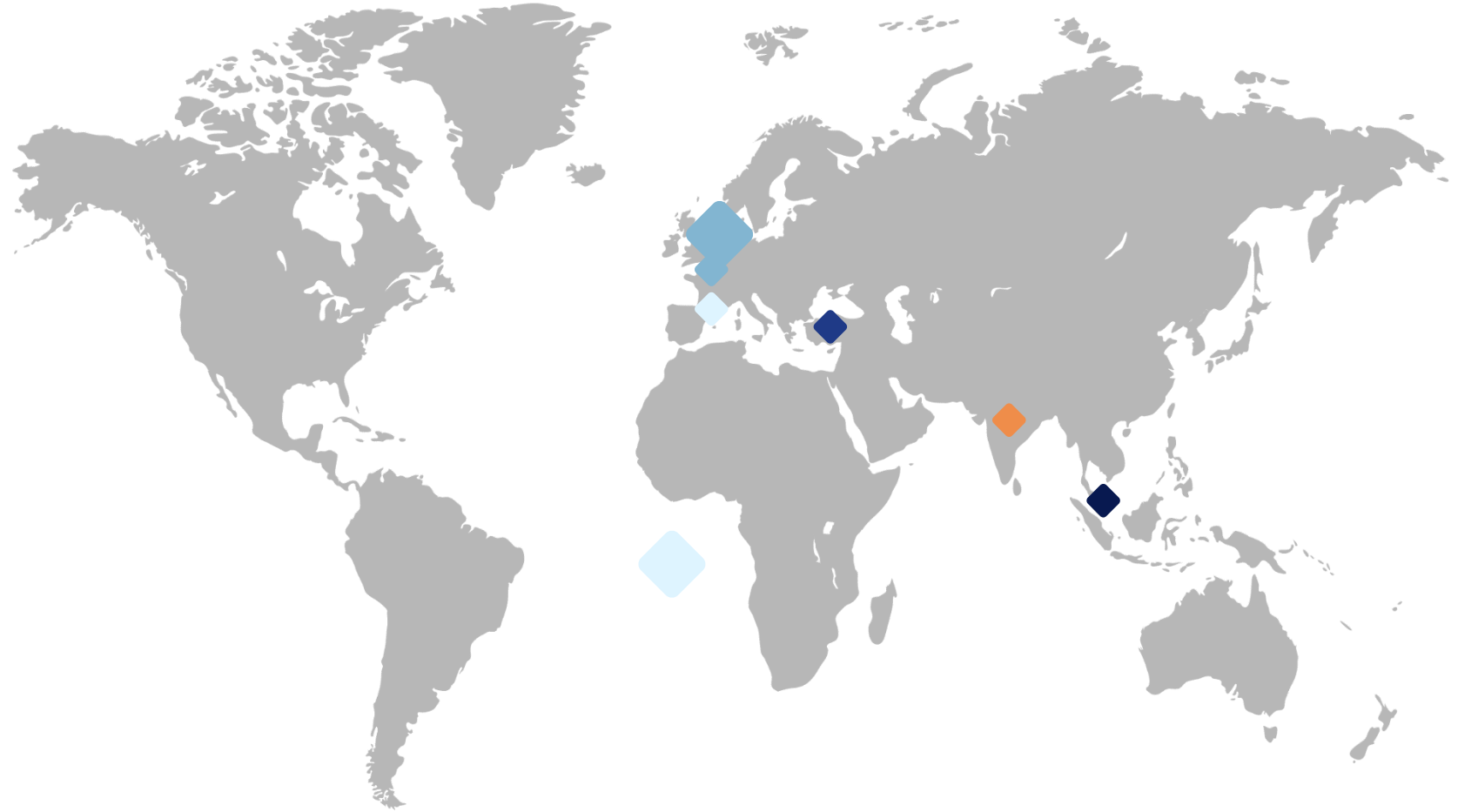
GACI constantly adapts itself to customer's needs and markets





Locations

-  Paris Head Office
-  Toulouse Business Unit
-  Turkey Distributor
-  India Offset Partnership
-  Singapore Distributor





Main Customers

AIRBUS
GROUP

 **DASSAULT**
AVIATION



MBDA

SIEMENS

ALSTOM



Kreon

NAVAL
GROUP

 **ST Electronics**
A company of ST Engineering

COBHAM



LATECOERE

 **SAFRAN**
AEROSPACE · DEFENCE · SECURITY

THALES





Business Fundamentals



80%  DEFENCE 

15%  AEROSPACE

5%  INDUSTRY

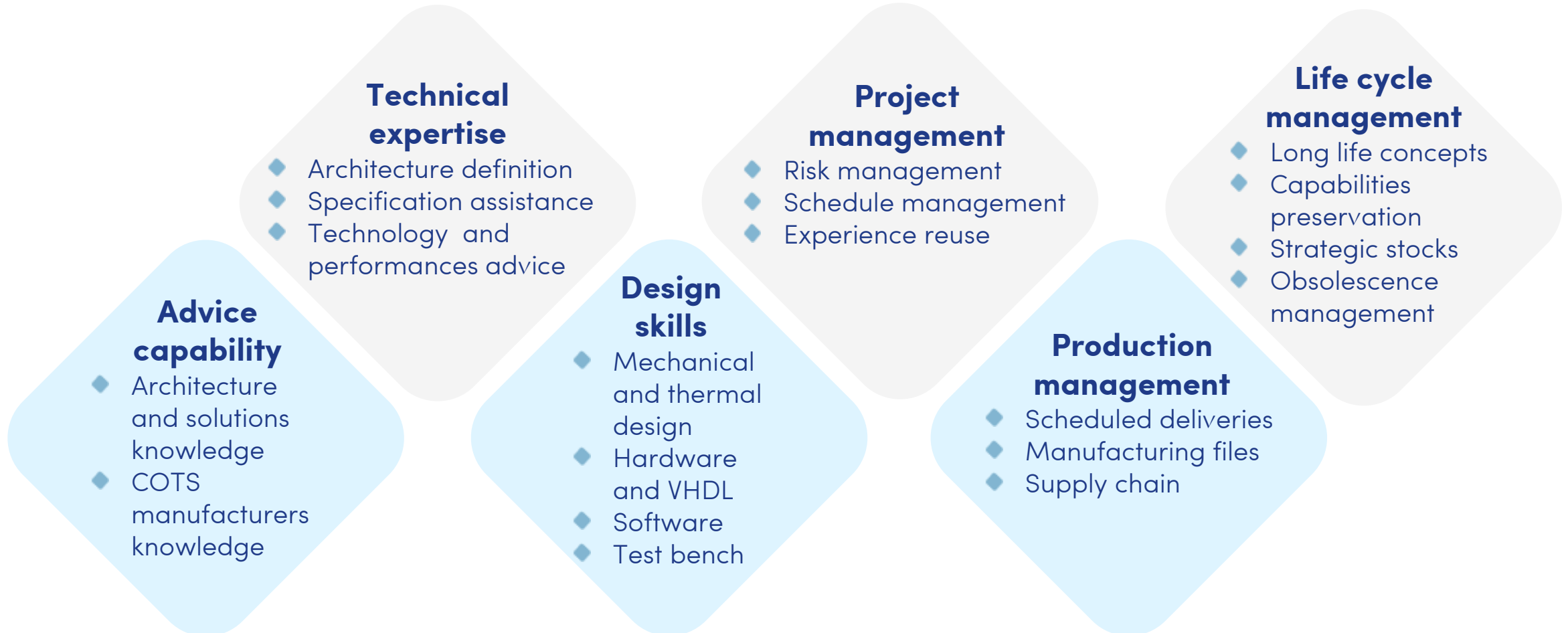
Including **5%**  EXPORT





Life Cycle Management

Your special product at a financial and a technological COTS risk





Sustainability

>10 years

Scheduled deliveries

With ongoing contracts

50 M€

Contracts

Public and private
in progress

500

systems

Production capacity
Annual rate

25 years

Support

Ongoing on all
products

8 years

Production down time

Capacity to restart
without redesign

400m²

Extra room

Available for
production
expansion





ACTIVITIES

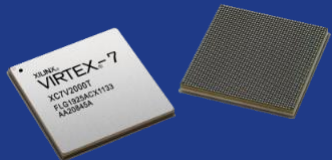
**COTS
Solutions**



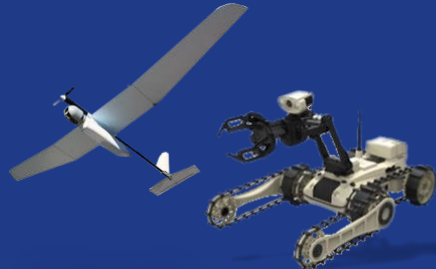
**Embedded
Systems**



**Signal
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**Operations
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ACTIVITIES

COTS Solutions



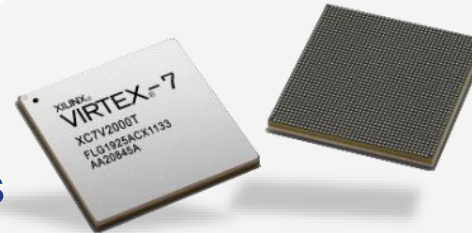
- ◆ Partner COTS portfolio
- ◆ GACI product lines

Embedded Systems



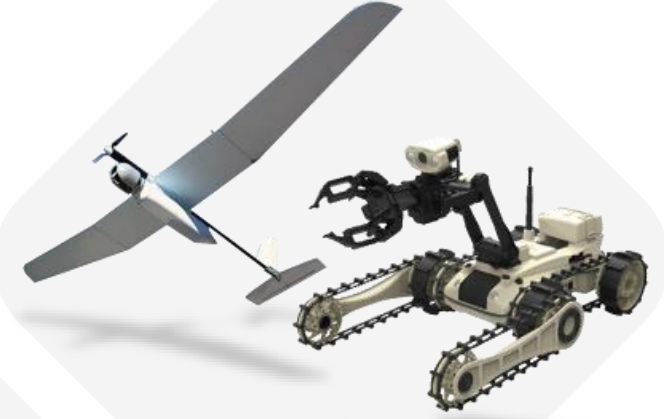
- ◆ COTS boards
- ◆ ESP building blocks
- ◆ Software
- ◆ Mechanical

Signal Processing



- ◆ FPGA boards
- ◆ Building blocks
- ◆ Expertise

Operations Services



- ◆ Deployment
- ◆ Training
- ◆ Maintenance
- ◆ Technical assistance

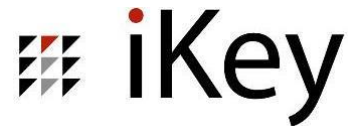




Main Partners



EIZO Rugged Solutions





BAYTEK

Rugged COTS Displays



HIGHLIGHTS

- ◆ Rugged monitor expert
- ◆ Military Ground
- ◆ Airborne
- ◆ Navy



FEATURES

- ◆ Monitor and Panel PC from 6,5" to 30"
- ◆ Custom solution
- ◆ Life cycle management proposal
- ◆ ITAR Free





IT Solutions



HIGHLIGHTS

- ◆ Network
- ◆ Storage
- ◆ Processing
- ◆ Printing
- ◆ Display



FEATURES

- ◆ World leader of IT Solutions
- ◆ OEM team dedicated
- ◆ Wide-ranging of products
- ◆ Hardware and software designer
- ◆ Extended life availability and warranty
- ◆ 48h worldwide support

Air traffic management



Military air traffic control



Avionic simulation





Cabinets Integration



FEATURES

- ◆ 400m² dedicated assembly hall
- ◆ Integration and wiring folders
- ◆ Equipment and cabinets procurement
- ◆ Wiring and mechanical integration
- ◆ Power-up, OS installation, test script
- ◆ Final inspection
- ◆ Type of integrated functions :
 - ◆ Acquisition
 - ◆ Processing
 - ◆ Storage
 - ◆ Network



More than 3 000 servers within 500 cabinets supplied





High Level Protections



HIGHLIGHTS

- ◆ 19" rugged case
- ◆ Transport case
- ◆ Storage case



FEATURES

- ◆ Patented salt-water resistant aluminum alloy
- ◆ Large standard portfolio and custom design
- ◆ Resistant and repairable
- ◆ MIL-STD-810 rugged design
- ◆ Hard mount / shock absorber / wire rope





High Performance Graphics Video Boards

EIZO Rugged Solutions



HIGHLIGHTS

- ◆ XMC / VPX Graphics
- ◆ Video solutions
- ◆ Dedicated equipment for video compression, conversion or split



FEATURES

- ◆ Expert for video treatment
- ◆ Solution incorporating the major standards, for input and output format
- ◆ Large range of mixed, input and output solutions
- ◆ Commercial/Rugged, Conduction/Convection, Front/Rear/I/O...





Specialist of High Performance Bus Interfaces



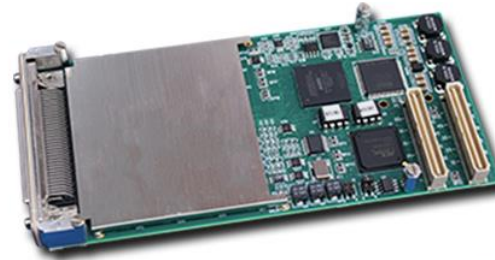
HIGHLIGHTS

- ◆ Analog, Digital
- ◆ High Speed serial
- ◆ Data acquisition
- ◆ All form factors



FEATURES

- ◆ Configurable sampling rates
- ◆ Large FIFO
- ◆ Resolution up to 24 bits
- ◆ Auto-calibration
- ◆ Multi-protocol supported
- ◆ Free drivers and loaner boards
- ◆ Support Linux, Windows, VxWorks, QNX, Solaris, LynxOS x86 or PowerPC





Tactical Data Link Solutions



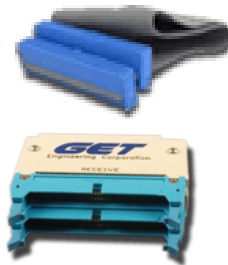
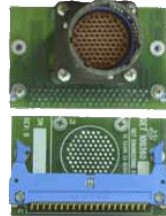
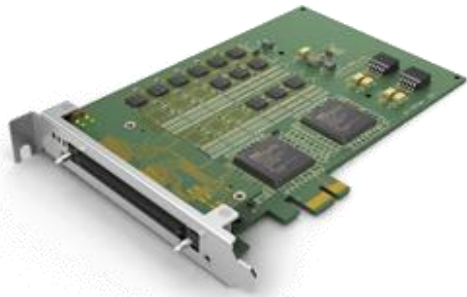
HIGHLIGHTS

- ◆ Leader for NTDS and ATDS solutions
- ◆ Adapters
- ◆ Rugged systems
- ◆ Cable assemblies
- ◆ MIL-SPECs



FEATURES

- ◆ Over 30 years experience in Tactical Data Solutions (Industrial and Government)
- ◆ Free lifetime software support 'live' for every customer
- ◆ Complete range of solutions :
 - ◆ PCIe - PCI - PMC - PC104 - cPCI
 - ◆ NTDS over Ethernet system
 - ◆ Fiber optic solutions
 - ◆ Tactical data systems
 - ◆ Cables and connectors





iKey Expert for Pointing and Keyboard Solutions



HIGHLIGHTS

- ◆ Rugged keyboards
- ◆ Pointers
- ◆ Rugged computer peripherals



FEATURES

- ◆ World wide specialist on Rugged and Customizable keyboards
- ◆ IP68 keyboards
- ◆ Large scale of available solutions
- ◆ All size and character type
- ◆ Different pointing devices
- ◆ Partnership with Dell





kontron

Rugged COTS Boards



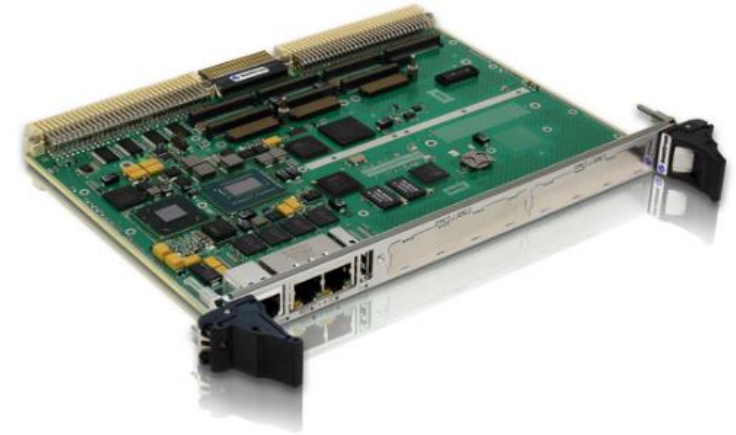
HIGHLIGHTS

- ◆ VME
- ◆ VPX
- ◆ cPCI
- ◆ COM express
- ◆ SMARC
- ◆ CPU
- ◆ Ethernet Switch
- ◆ GPU
- ◆ Carrier



FEATURES

- ◆ Long experience in embedded board design
- ◆ Competitiveness board price
- ◆ Large range of CPU boards
- ◆ Life cycle management program
- ◆ ITAR Free





Protection of Your Electronic



SCHROFF

HIGHLIGHTS

- ◆ PCB accessories
- ◆ Subracks
- ◆ Cases
- ◆ Backplanes
- ◆ Power supplies
- ◆ Cabinets and pre-assembled chassis



FEATURES

- ◆ Privileged technical exchanges with GACI
- ◆ Large standard portfolio and custom design
- ◆ From lab to MIL/SEISMIC qualified products
- ◆ Specific needs addressed with COTS products
- ◆ On line solution configurator





Technobox[®], inc.

PMC/XMC Mezzanine Cards



HIGHLIGHTS

- ◆ PMC/XMC digital and serial I/O
- ◆ Ethernet, Memory Storage



FEATURES

- ◆ Mezzanine cards expert
- ◆ Boards and embedded solutions
- ◆ Carrier and adapter boards
- ◆ Large accessories range
- ◆ VITA and IPC610 certified
- ◆ Designed and assembled in US





Embedded I/Os



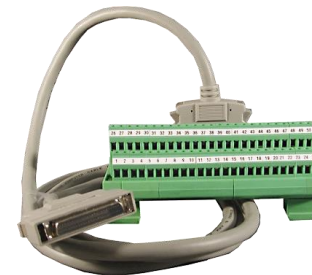
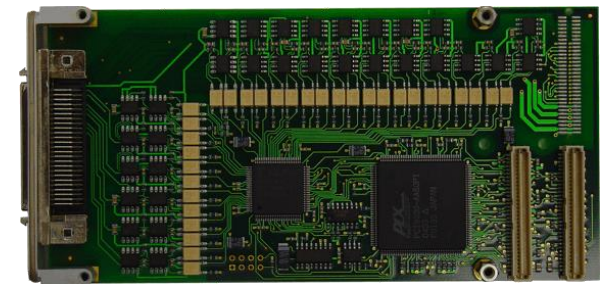
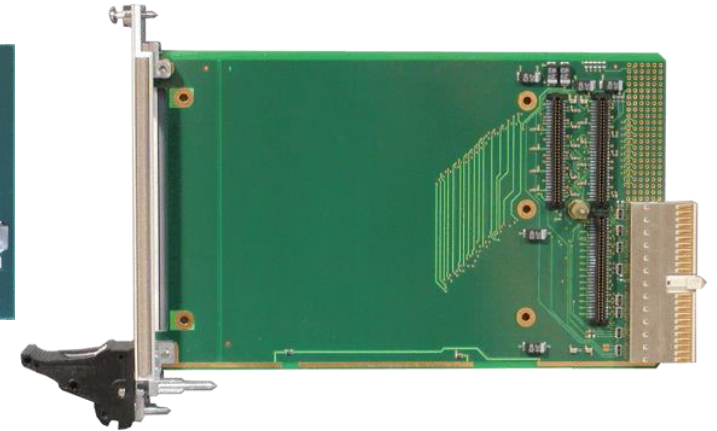
HIGHLIGHTS

- ◆ Open architecture standards
- ◆ PMC, XMC, cPCI, VME, PC104+, FMC



FEATURES

- ◆ Worldwide leader for standard I/O solution
- ◆ Over 40 years of experience
- ◆ FPGA, Communication Network, Digital I/O, Analog I/O, Memory, Carrier
- ◆ Extended temperature [-40°C,+85°C]
- ◆ High level of customization
- ◆ 5 years warranty basis
- ◆ ITAR free





GACI VME Boards



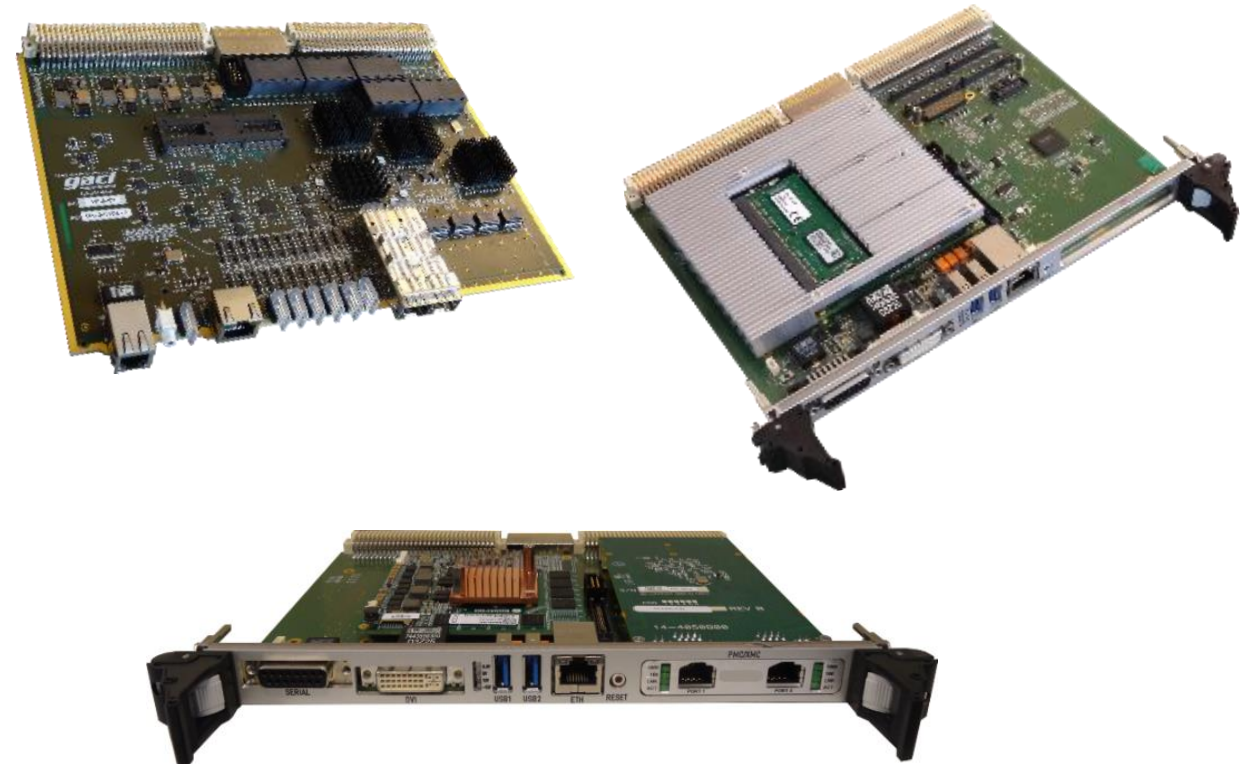
HIGHLIGHTS

- ◆ Low Power Single Board Computer
- ◆ PowerPC Single Board Computer
- ◆ Gigabit Ethernet switch



FEATURES

- ◆ Long experience in embedded systems
- ◆ Based on domestic customer expectations
- ◆ Competitiveness price
- ◆ Qualified in harsh environment
- ◆ ITAR Free
- ◆ Ready to be customized if needed





CRC3 Family

Customized Rugged Conduction Cooled Computer

Low risk and controlled price solution for critical program

More than 100 CRC3 in operation



COTS ADAPTIVE

- ◆ 3U / 6U Architectures
- ◆ 2 to 4 payload slots
- ◆ Fully customizable I/O
- ◆ COTS benefits for risk reduction



APPLICATIONS

- ◆ Naval
- ◆ Aerospace
- ◆ Land



FEATURES

- ◆ Small form factor
- ◆ IP67 sealed system
- ◆ Conduction cooled system
- ◆ -40°C to +60°C
- ◆ ITAR Free



MULTI FUNCTION COMPUTER

- ◆ Communication
- ◆ Console
- ◆ Video/Storage
- ◆ Vetric
- ◆ On demand customization





CRC3-HE

Compact Rugged Computer Range



HIGHLIGHTS

- ◆ CRC3-HE-RTE with CISCO router
- ◆ CRC3-HE-STO with storage capabilities
- ◆ CRC3-HE-SW with Ethernet Switch



FEATURES

- ◆ Ultra Small Form Factor
- ◆ 2 slots 3U VPX or ComExpress Module
- ◆ Intel i3/i5/i7
- ◆ IP67 sealed system
- ◆ -40°C / +71°C operating
- ◆ Military connector
- ◆ Linux or Windows



APPLICATIONS

- ◆ Radar Supervision
- ◆ Turret Management
- ◆ Networking
- ◆ Mission Recording System





CRC3-HME



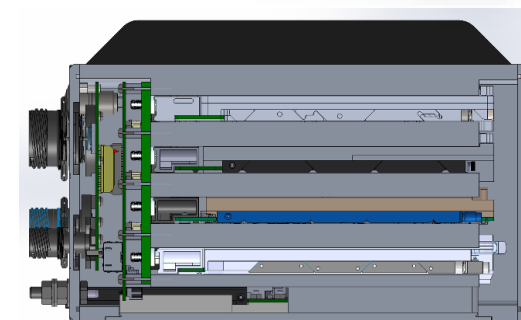
FEATURES

- ◆ 3 slots 3U VPX for Payload
- ◆ HPEC Intel Core Xeon 7th gen
- ◆ AMD / NVIDIA Embedded GPU
- ◆ Fully customizable I/O
- ◆ Small form factor
- ◆ IP67 sealed system
- ◆ -40°C / +71°C operating
- ◆ Conduction cooled system
- ◆ COTS benefits for risk reduction
- ◆ 130W consumption
- ◆ 8,3Kg at full payload / 180x150x250 mm



APPLICATIONS

- ◆ Embedded communication management
- ◆ Console management
- ◆ Avionic mission computer
- ◆ Video acquisition
- ◆ Vetric applications



Architecture example





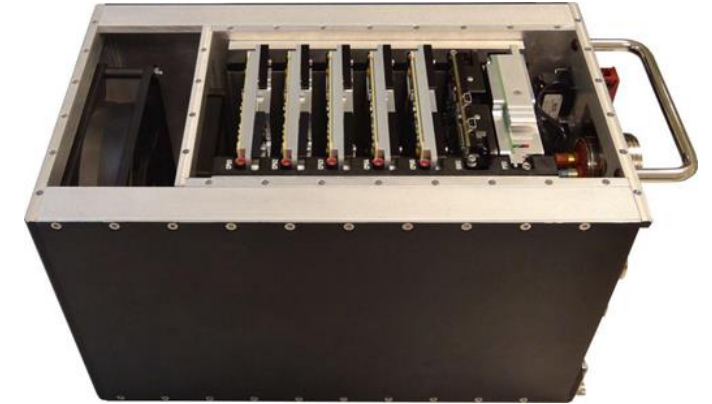
VULCAIN

Graphic and video processing rugged computer



FEATURES

- ◆ Combination of Air-forced and conduction-cooled dissipation
- ◆ Up to 300W dissipation @ 71°C
- ◆ COTS and tailored design
- ◆ 7 slot VPX backplane with OpenVPX topology
- ◆ High speed CPU links – PCIe with VxFabrics
- ◆ Up to 5 core i7 processing boards
- ◆ 10 GbE Ethernet switch
- ◆ 400 W Power supply



APPLICATIONS

- ◆ MIL-STD-1553 and 3910
- ◆ ARINC429, CANbus, AFDX
- ◆ RS links, discretes
- ◆ Stanag 3350 Video desk





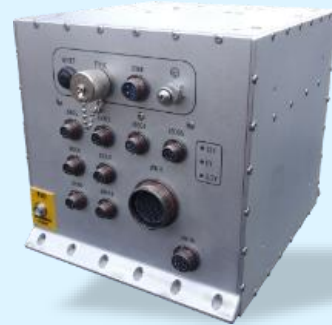
ACTIVITIES

COTS Solutions



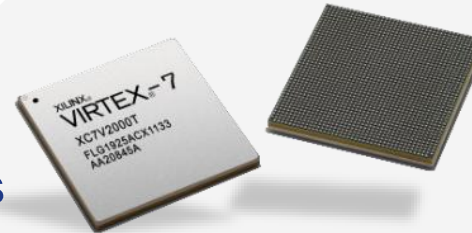
- ◆ Partner COTS portfolio
- ◆ GACI product lines

Embedded Systems



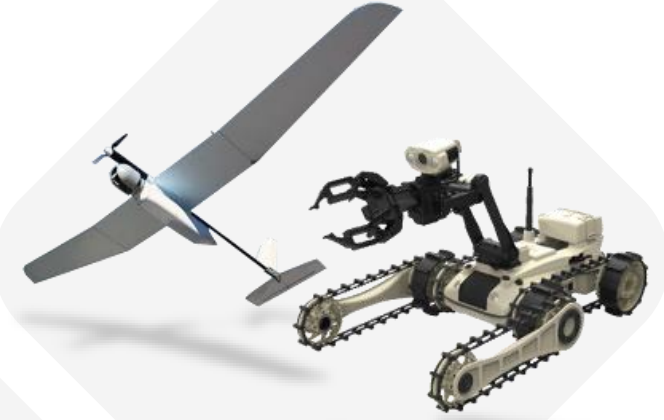
- ◆ COTS boards
- ◆ ESP building blocks
- ◆ Software
- ◆ Mechanical

Signal Processing



- ◆ FPGA boards
- ◆ Building blocks
- ◆ Expertise

Operations Services



- ◆ Deployment
- ◆ Training
- ◆ Maintenance
- ◆ Technical assistance





We build Your Product



PROJECT MANAGEMENT

- ◆ Specifications
- ◆ Supply chain
- ◆ Project life cycle
- ◆ Qualifications
- ◆ Maintenance concept

HARDWARE

- ◆ COTS
- ◆ Mechanical design
- ◆ Electronic Designs
 - ◆ VHDL
 - ◆ Analog
 - ◆ Digital
 - ◆ PSU

SOFTWARE

- ◆ OS choice
- ◆ System software
- ◆ PowerPC, x86, μP
- ◆ Processors IP cores μC
- ◆ Integration
- ◆ Configuration

PRODUCTION

- ◆ Production planning
- ◆ Cable manufacturing
- ◆ Mechanical assembly
- ◆ Rack and cabinet Cabling
- ◆ Configuration
- ◆ Logistic

SUPPORT

- ◆ Final Acceptance
- ◆ Technical assistance
- ◆ Debug, setup and Tests
- ◆ Maintenance

 **50 people dedicated**
30 years of technical challenges





Multi Tasks Combat Computer



APPLICATIONS

- ◆ Cameralink video acquisition
- ◆ Optical Fiber / Cameralink conversion
- ◆ Image analysis and target detection
- ◆ Overlay target designation
- ◆ Interface with operator consoles
- ◆ Video recording
- ◆ Guided rocket and gun management



2011



2018



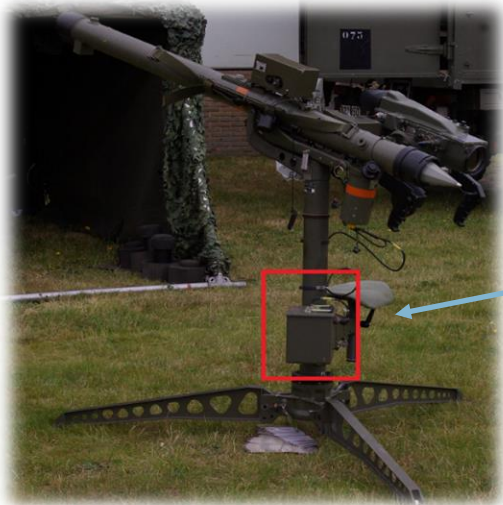
- ◆ Small form factor
- ◆ IP67 sealed system
- ◆ -40°C / +71°C operating
- ◆ Conduction cooled system
- ◆ 130W and 8,3Kg at full payload
- ◆ 180x150x250 mm





CRC3-HME

Graphic and video processing rugged computer



Missile firing simulation



Firing management system on light ground vehicle



Graphic and video processing for naval console on surface shipboard





Firing Management Systems



FEATURES

- ◆ Designed for severe environmental conditions
- ◆ HPC :
 - ◆ 4 CPU boards
 - ◆ 24 Ethernet links
- ◆ Outdoor computers
 - ◆ IP67
 - ◆ Conduction cooled
 - ◆ 150W dissipation



Tactical
operation
computer



Missiles launching computers



Launch
Vehicle
computer





ELINT / SIGINT Warfare



FEATURES

- ◆ Signal and data processing
- ◆ Embedded computer based on FPGAs
- ◆ Development, industrialization and ILS contract
- ◆ GACI Hardware and Software integration

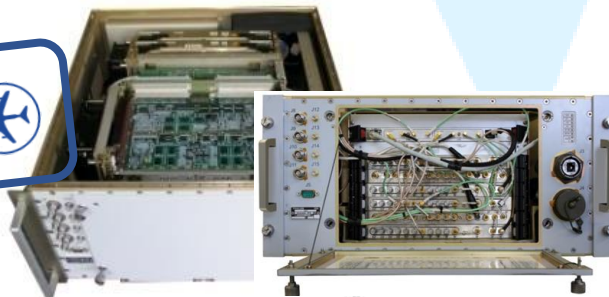
Shipboard

Aluminium enclosure
with shock absorbers
Radio Frequency front end



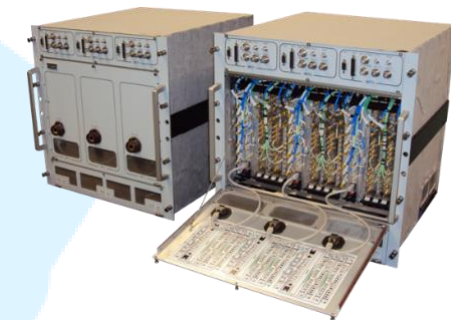
Airborne

Radio Frequency front end
5U Air-cooled rack-mounted chassis



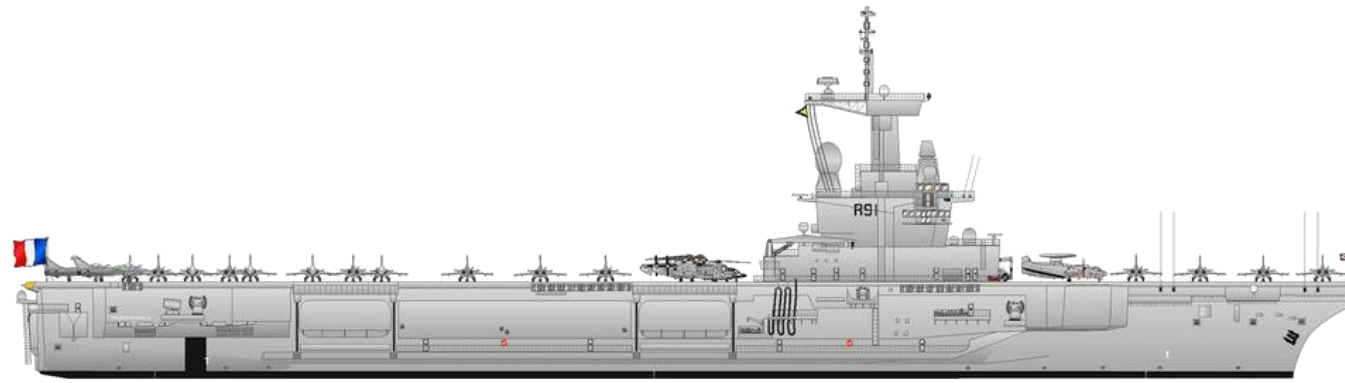
11U rack-mounted system
3 heads frequency front end

Ground





Aircraft Carrier Solutions



R91-CDG Charles de Gaulle



Data processing cabinet for optical landing system



Optical landing System Gateway



Middle Range Air Defence System



Combat Computer Gateway



FEATURES

- ◆ Air flow or conduction cooled technology
- ◆ Waterproof chassis / suspended enclosure
- ◆ From 3 to 12 user slots
- ◆ Software on demand
- ◆ Chassis Management
- ◆ Tactical data / serial link / NMEA to Ethernet
- ◆ I/O options :
 - ◆ MIL-STD 1553, CAN bus, ARINC 429
 - ◆ NTDS / ATDS, L11
 - ◆ Analog video and signal
 - ◆ Others
- ◆ Various interfaces are available such as :
 - ◆ Discrete, RS links, CAN bus...

More than 200 airflow gateways in operation





Combat Computer Gateway

- ◆ BPC 1, 2, 3 and BPC-R
- ◆ SCORPENE Malaysia - Nav
- ◆ F70 Sonar, F70 LDT
- ◆ FAA CABSM and BSM FAA
- ◆ SKJOLD
- ◆ AGOSTA Pakistan - Torpedo
- ◆ SNA Barracuda LDT
- ◆ SNA LDT
- ◆ SNG ITSM10 – SM39
- ◆ SNG Nav - CMS
- ◆ SNG Corset – SGN/M51
- ◆ PA CDG Nav/Avia



More than 200 naval CMS gateways already deployed

- ◆ GUN
- ◆ Jammer
- ◆ Naval tactical data link
- ◆ MRR radar
- ◆ RADAR video ripper
- ◆ Missile et torpedo interface
- ◆ Optical landing interface





Compact Combat Management System for situation awareness, sensor acquisition, target tracking and target allocation to firing units



FEATURES

- ◆ Computer
 - ◆ Air flow technology
 - ◆ Suspended enclosure
 - ◆ Chassis Management
 - ◆ Multiple CPUs + NAS capability
 - ◆ IP54
- ◆ Video desk
 - ◆ Ergonomic design
 - ◆ Two tactile screens
 - ◆ Integrated switches
 - ◆ Graphic board for long range transmission



VIDEO BOARD

- ◆ Compact video board with XILINX FPGA KINTEX7
 - ◆ Digital Signal Processing
 - ◆ GIGA bit Ethernet
 - ◆ SFP+
 - ◆ 10Gb



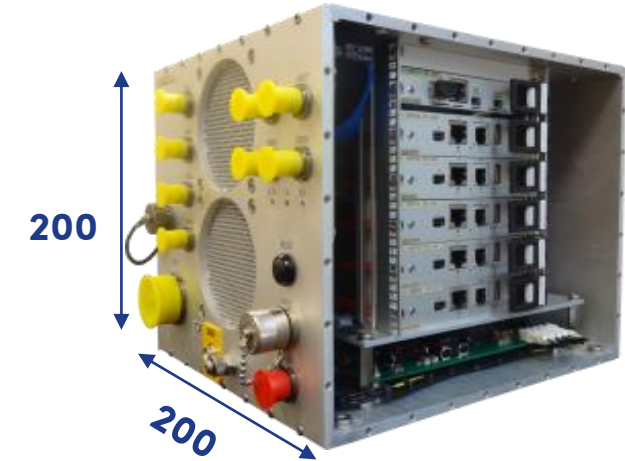


Unmanned Vehicles High Power Computer



FEATURES

- ◆ VPX backplane
- ◆ Up to 5 CPU boards core i7
- ◆ 24 ports Ethernet switch
- ◆ USB 3.0 and 10GBEth interfaces
- ◆ High speed CPU links – PCIe with VxFabrics
- ◆ Power dissipation 325W



DESIGNED FOR SEVERE ENVIRONMENTAL CONDITIONS

- ◆ Designed for severe environmental conditions
- ◆ High temperature
- ◆ Vibration/shocks
- ◆ Air-cooled and conduction cooled





Naval Missile Firing Simulation



FEATURES

- ◆ Polyester deployment enclosure
- ◆ GACI motherboard with SMARC iMX6 module
- ◆ Firing simulation management
- ◆ PSU VAC 230V $\pm 10\%$ / VDC 20-48V
- ◆ Missile Load Simulation board
- ◆ 10s hold-up time
- ◆ Customized IHM



FREMME



MdCN Missile



DESIGNED FOR TRAINING AND SIMULATION

- ◆ Onboard Firing Launching Simulation computer
- ◆ 100% designed by GACI
- ◆ Compact and mobile



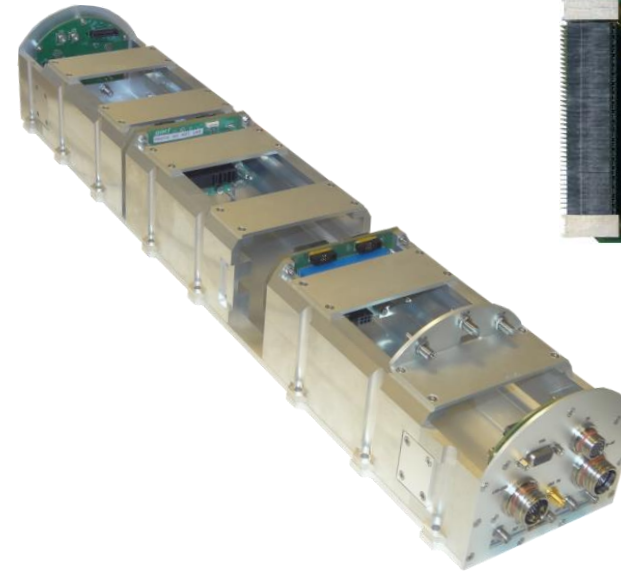


Airborne ELINT Test Bench



FEATURES

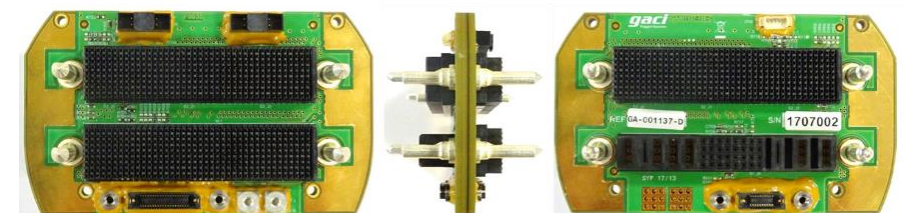
- ◆ 6 slots VPX with 2x2 and 1x2 backplanes
- ◆ Power dissipation 170W by side flange and metal glide sole
- ◆ COTS boards
- ◆ Specific design for mechanical parts and electronics
- ◆ Backplane
- ◆ Signals adaptation
- ◆ Connectors boards
- ◆ 600mm length and Ø 128



DESIGNED FOR FIGHTER ENVIRONMENTAL CONDITIONS

- ◆ High temperature
- ◆ Vibration/shocks
- ◆ Conduction cooled

3U VPX backplane developed by GACI with 4 slots mounted head-to-tail





Flight Video Recorder



FEATURES

- ◆ Designed for Fighter environmental conditions
- ◆ COTS and tailored design
- ◆ 2x HD-SDI Video channel recording
- ◆ Simultaneous recording at 1080p30
- ◆ 1x HD-SDI output
- ◆ Gstreamer video monitoring (recording, Tag, replay, erasing)
- ◆ H264 compression / MPEG-4 Streaming
- ◆ GB Ethernet link
- ◆ Sata III recording on slim sata disks (2x Cfast 64Go)



Flight video
recorder family





Civil Avionic Computer



FEATURES

- ◆ Avionic bus interfaces (ARINC429/717, AFDX, CAN, RS422/432/485, discrete I/Os...)
- ◆ ARINC818, DVI, VGA video acquisition and conversion
- ◆ Internal Gigabit switching
- ◆ 18-36VDC input power
- ◆ EMI/RFI protected
- ◆ Compliant to ARINC600 (2 to 12 MCU)
- ◆ Airborne system and avionics
- ◆ Forced-air-cooled chassis



APPLICATIONS

- ◆ Airborne maintenance computing
- ◆ Aircraft Health monitoring
- ◆ IFE content storage





Fighter ATR Computer

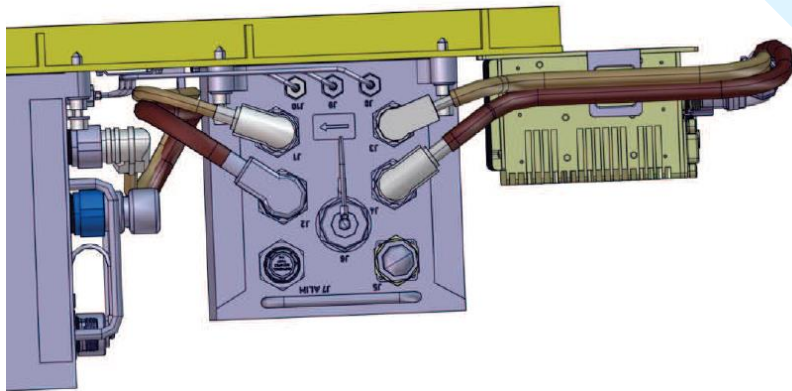


FEATURES

- ◆ Digital signal processing computer for next generation of fighter



SCAF Fighter Aircraft



GACI Customization



From Vulcain $\frac{3}{4}$
ATR family





SIGINT Mission Computer



FEATURES

- ◆ Small Form Factor / Less than 5kg
- ◆ Intel® Xeon-E2276ME Coffee Lake @ 2,8 GHz
- ◆ PEG x16 Gen3, 8x PCIe x1
- ◆ NVIDIA Quadro P2000 GPU 2,3 TFLOPS / 768 CUDA Cores
- ◆ I/Os : USB 2.0, USB3.1, DVI, GBEth, HDMI 4K
- ◆ 2x 1To 2,5" SSD
- ◆ Up to 130W dissipation @ 71°C
- ◆ GACI 28VDC PSU with 20ms hold-up time
- ◆ DO-160 fully qualified / [-40°C;+55°C] operational temperature



APPLICATIONS

- ◆ Mission recording system for radar monitoring
- ◆ "CUGE" New French ELINT program



Falcon F8X as an electronic warfare aircraft





ACTIVITIES

COTS Solutions



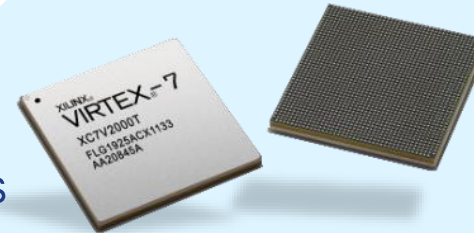
- ◆ Partner COTS portfolio
- ◆ GACI product lines

Embedded Systems



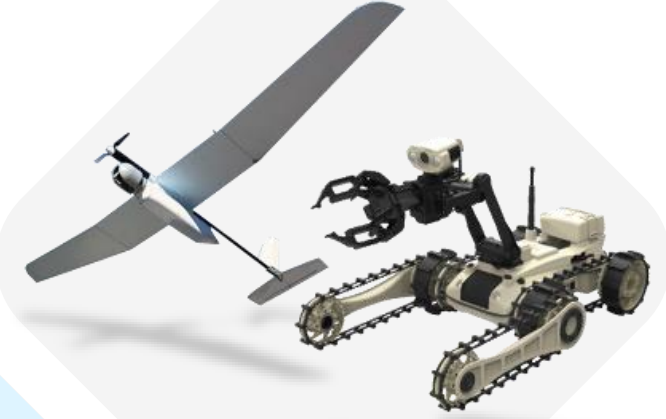
- ◆ COTS boards
- ◆ ESP building blocks
- ◆ Software
- ◆ Mechanical

Signal Processing



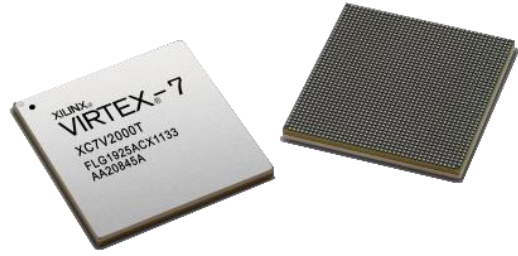
- ◆ FPGA boards
- ◆ Building blocks
- ◆ Expertise

Operations Services



- ◆ Deployment
- ◆ Training
- ◆ Maintenance
- ◆ Technical assistance

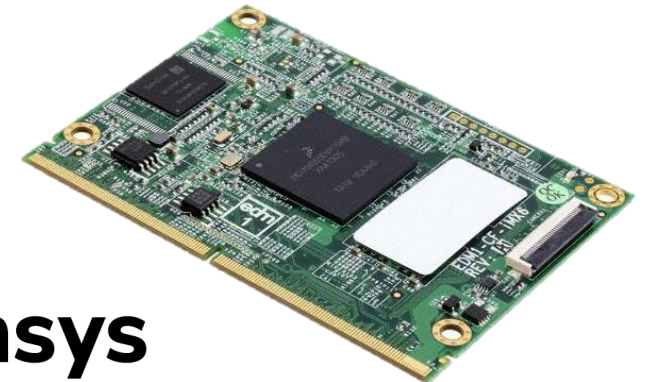
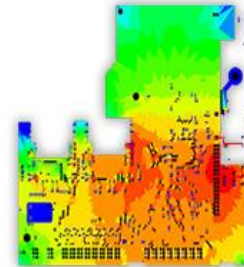
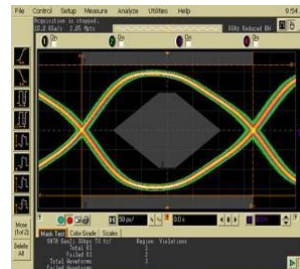




USB 3.1



USB 3.0





HIGHLIGHTS

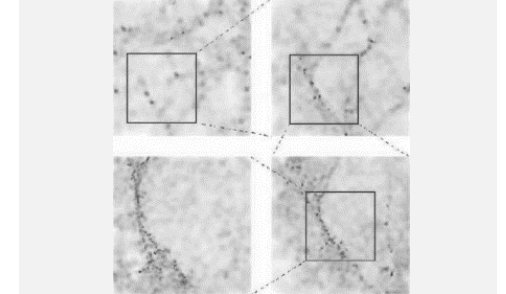
- ◆ High Speed and high density board design
- ◆ FPGA and Processor architecture
- ◆ Expertise on FPGA, SOC and Digital Signal Processing
- ◆ FPGA IP, Video and Telecom applications on specification



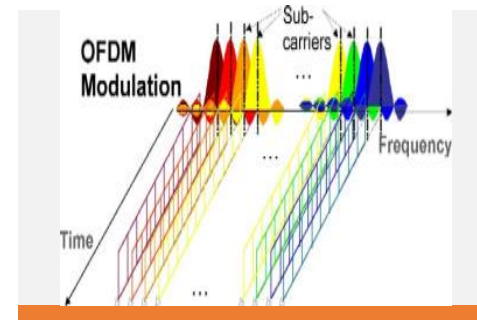
Resizing



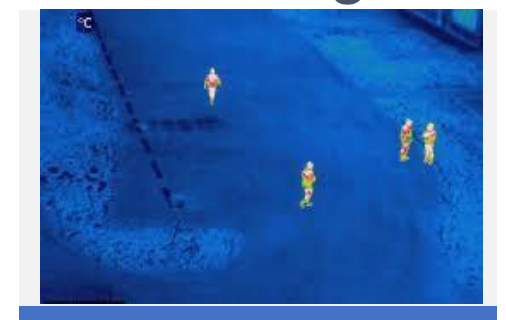
Zoom



Modulation

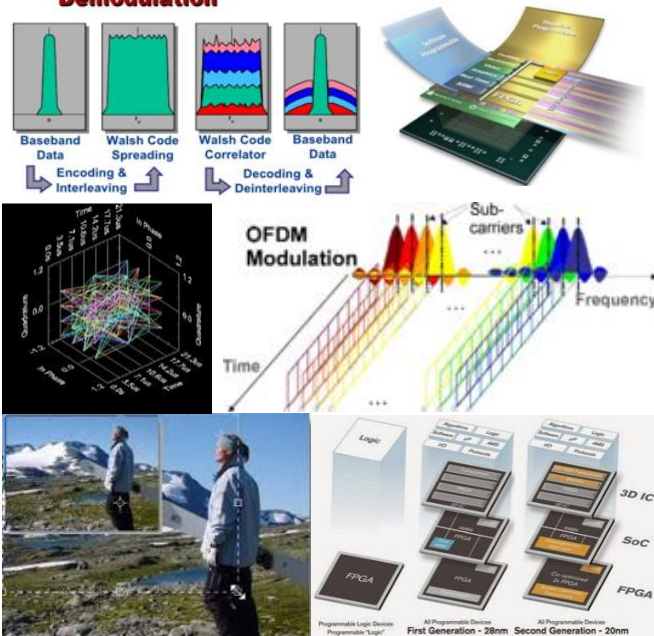


Filtering





CDMA Modulation and Demodulation



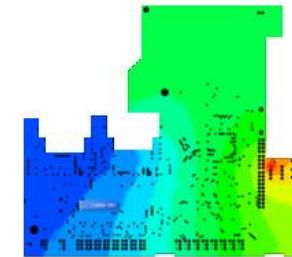
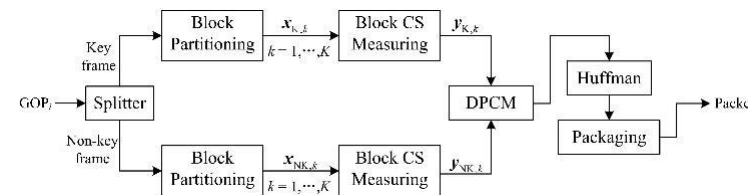
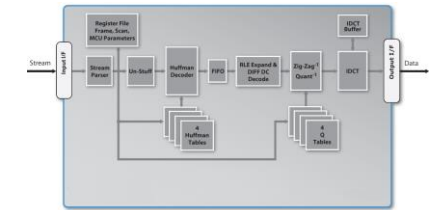
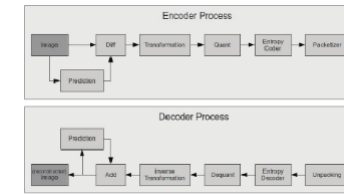
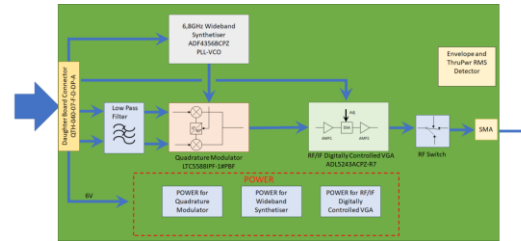
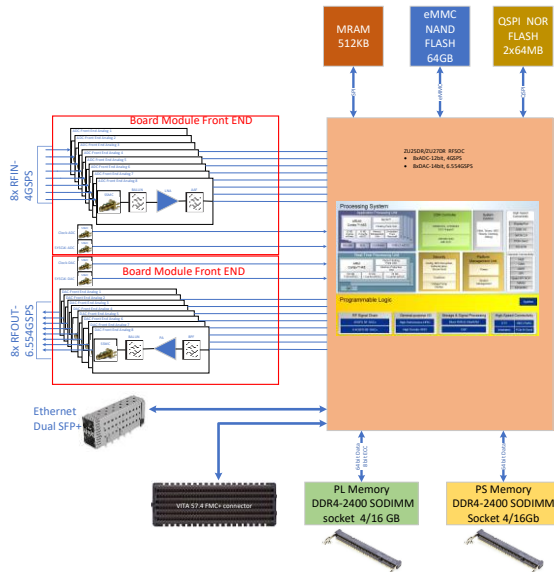
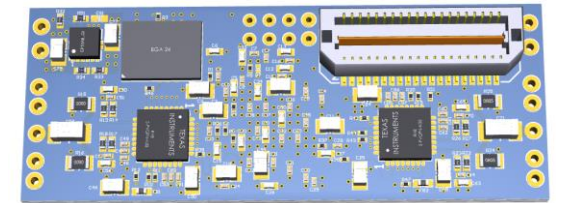
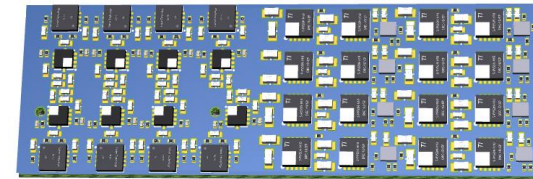
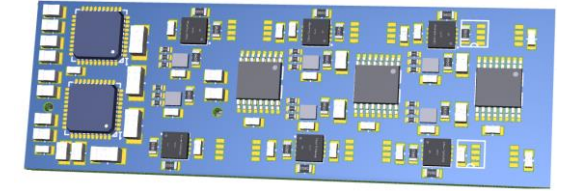
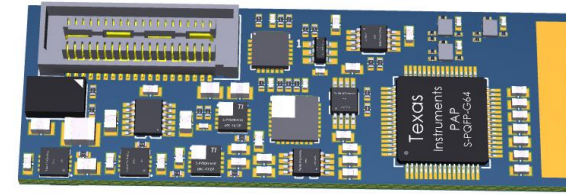
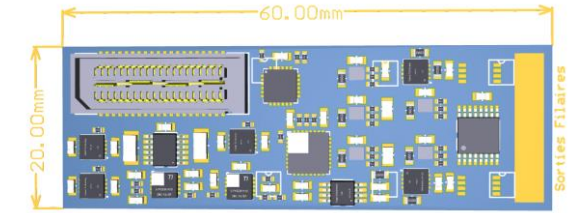
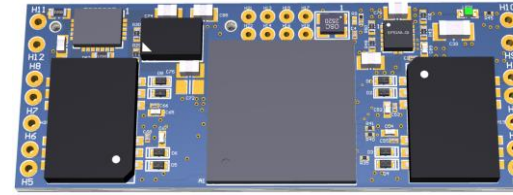
- ◆ Rotation and image stabilization
- ◆ Resizing video
- ◆ Interpolation
- ◆ Superposition (Chromakey or transparency)
- ◆ ZOOM (with or without interpolation)
- ◆ Filtering Video
- ◆ Implementation of interface in FPGA
(GIGE Vision, PCI, DVI, LVDS, Display port, etc.)
- ◆ Numerical Filtering
- ◆ Modulation (QAM, FM, QPSK, OFDM, CDMA, etc.)
- ◆ Source coding, Channel coding, Viterbi coding
- ◆ Carrier Recovery, Symbol Recovery
- ◆ Adaptive Filtering (FIR, IIR), equalizer
- ◆ SoC (µblaze, Power PC, ARM...)





FEATURES

- ◆ Hardware Designs
- ◆ FPGA Designs
- ◆ Digital Signal Processing
- ◆ Software Designs





Defence Avionic



APPLICATIONS

- ◆ A400M Cargo Video Monitoring
- ◆ Severe environmental condition
- ◆ Interface HD-SDI to SD-SDI



FEATURES

- ◆ FPGA ARTIX7
- ◆ Digital Signal Processing
 - ◆ HD-SDI Wrapper
 - ◆ Cropping, Frozen video detection, interlacing, sequencer, etc.
 - ◆ SD-SDI Wrapper





Defence



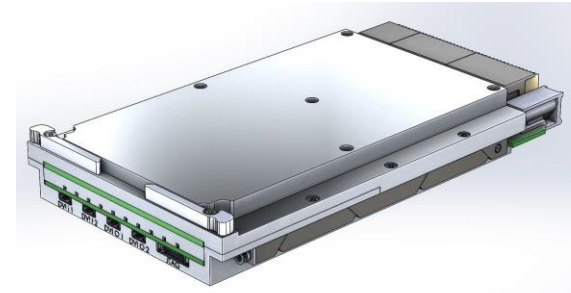
APPLICATIONS

- ◆ Video board VPX 3U
- ◆ Missile firing post calculator
- ◆ Drive system calculator
- ◆ Severe environmental condition

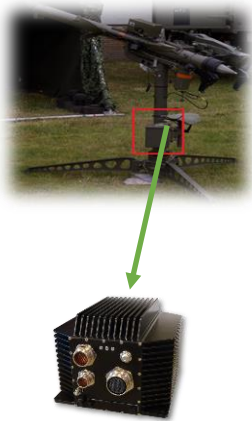
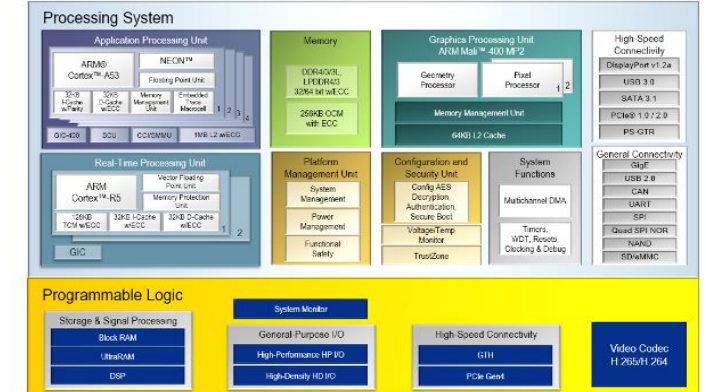


FEATURES

- ◆ VPX, Gigabit Ethernet QSGMII, SATA2, Display port(2), DVI , GPIO interfaces, MIPI-CSI-4 (1), MGT Links in 10Gigabit ethernet, PCIE, SMARC IMX6 module, Wake on LAN,
- ◆ FPGA ZYNQ Ultrascale+ , DDR4, Flash, power, etc.
- ◆ Digital Signal Processing
 - ◆ Compression H264/H265 (1080P)and player in MPEGTS
 - ◆ Video processing, superposition, chroma key
 - ◆ Switching Ethernet (7 ports), Receiver and transmitter GIGEVISION
 - ◆ Recorder sound and video with dating
 - ◆ Video processing, Video Tracker in input, etc.



Zynq® UltraScale+™ MPSoCs: EV Block Diagram





Naval Asymmetrical Warfare



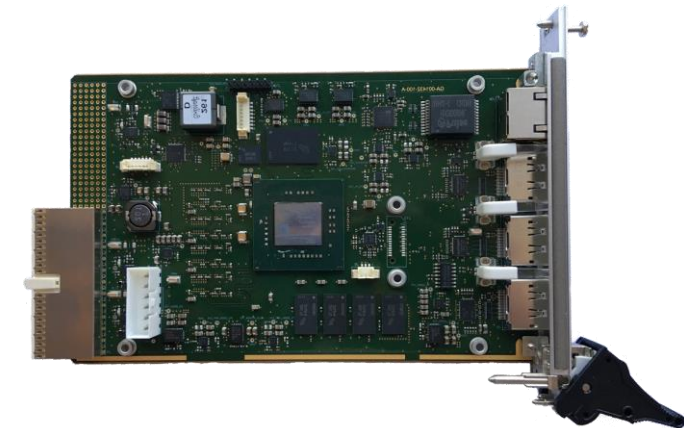
APPLICATIONS

- ◆ Countering Asymmetrical threats
- ◆ 360° panoramic optronic vision
- ◆ Video signal processing and broadcasting



FEATURES

- ◆ Fully designed by GACI
- ◆ cPCI form Factor
- ◆ Gigabit Ethernet , Display port 1.4 and 1.2, GPIO interfaces
- ◆ 4k or 8k video processing and streaming
- ◆ FPGA ZYNQ Ultrascale+ , DDR4, Flash, power, etc.
- ◆ Digital Signal Processing
 - ◆ Compression H265
 - ◆ Video processing, superposition, chroma key
 - ◆ Filtering Video , Zoom, Down Scaling, Up Scaling





Naval



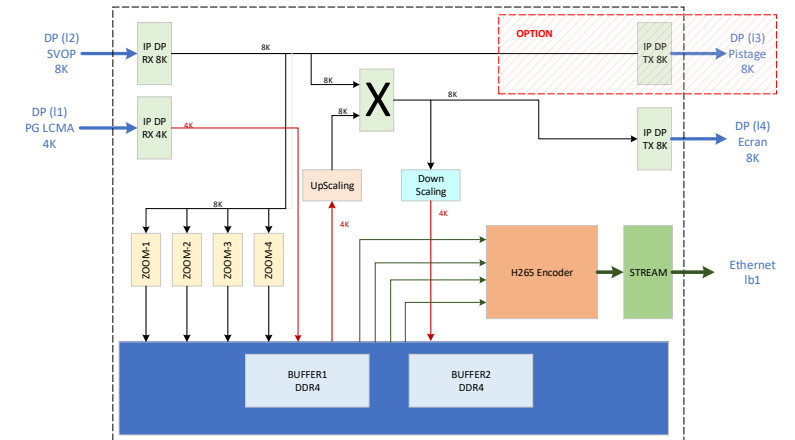
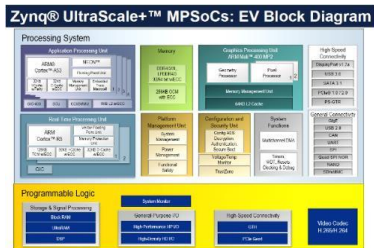
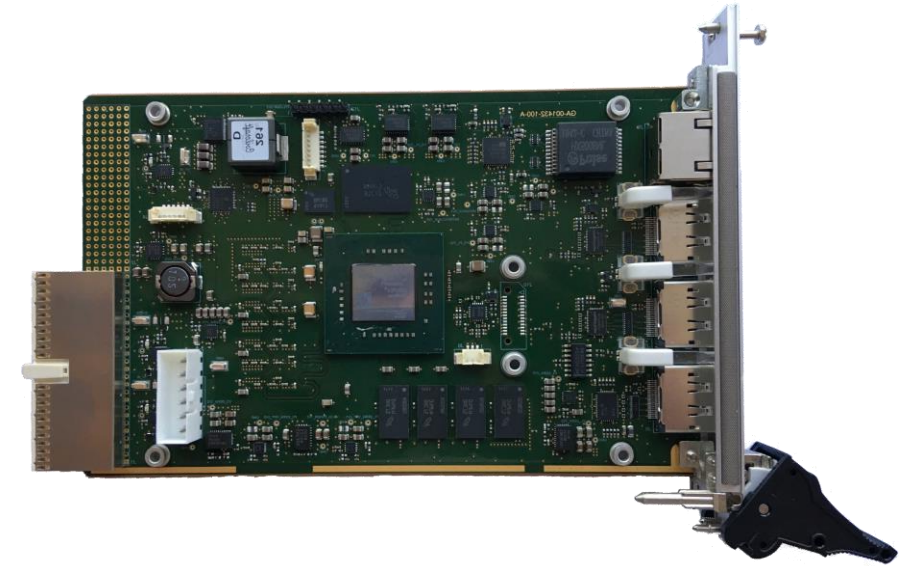
APPLICATIONS

- ◆ Video board CompactPCI 3U
- ◆ Naval combat systems
- ◆ Short-lived self-defence
- ◆ Severe environmental condition



FEATURES

- ◆ cPCI, Gigabit Ethernet , Display port 1,4&1,2, GPIO interfaces.
- ◆ FPGA ZYNQ Ultrascale+ , DDR4, Flash, power, etc.
- ◆ Digital Signal Processing
 - ◆ Compression H265
 - ◆ Video processing, superposition, chroma key
 - ◆ Filtering Video , Zoom (Bilinear & Bicubic interpolation)
 - ◆ Down Scaling (biquadratical), Up Scaling (bicubic), etc.



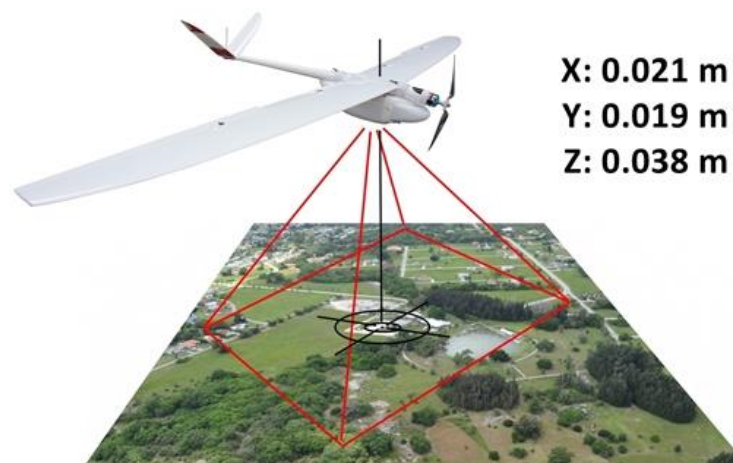
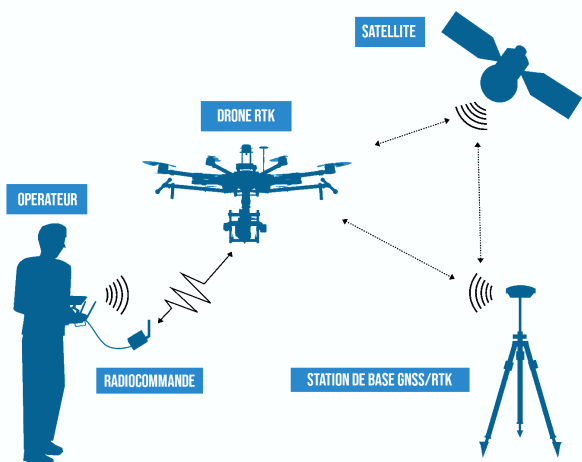
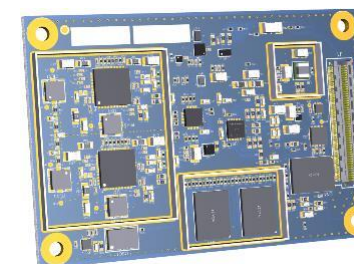
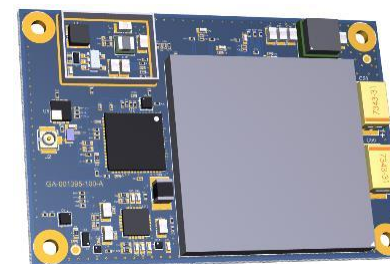


Satellite Drone Piloting

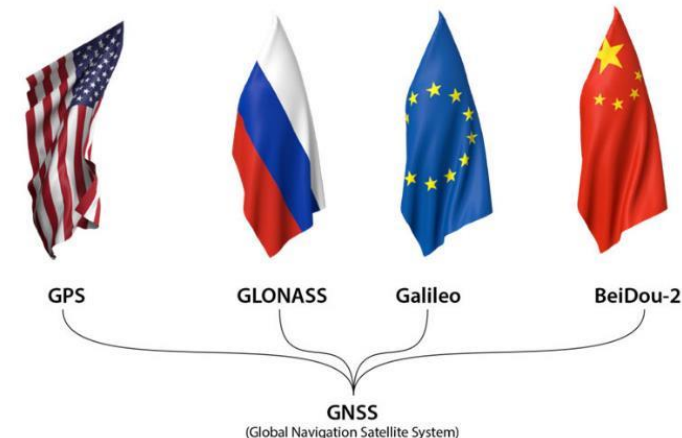


FEATURES

- ◆ GNSS compliant
- ◆ High Precision Navigation
- ◆ Secure Approach before landing



Global Navigation Satellite Systems





APPLICATIONS

- ◆ GNSS Receiver Board
- ◆ Drone
- ◆ Severe environmental condition

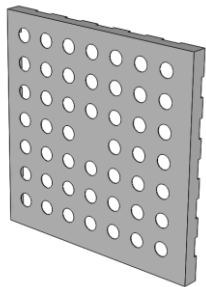
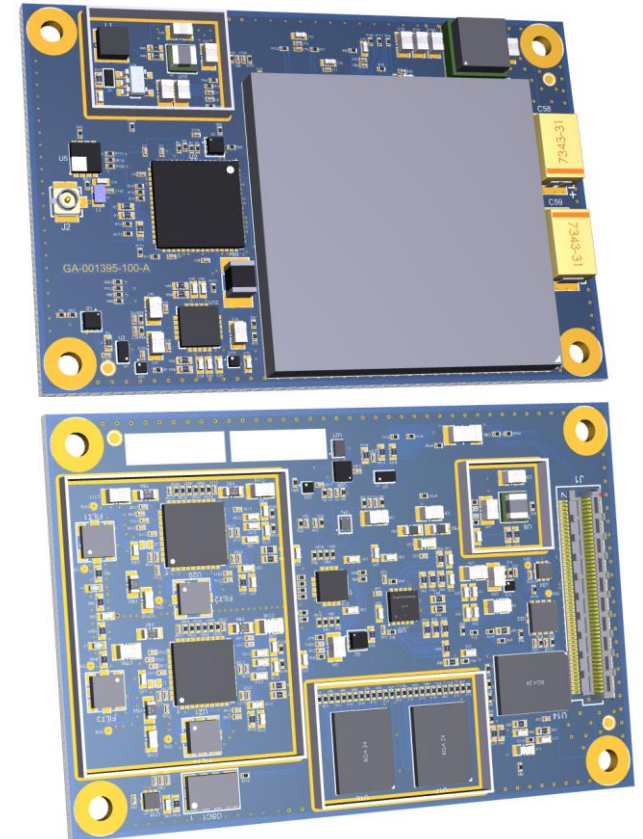


FEATURES

- ◆ Small form factor: 60mmx40mmx7,5mm, small weight <30g
- ◆ Front End RF, L1 & L5 demultiplexer, Clocks distribution, Power Supply (conversion & Sequencing/monitoring), specific RF shield
- ◆ FPGA KINTEX Ultrascale+, RF ASIC, HyperRAM, HyperFlash, power, etc.
- ◆ Digital Signal Processing
 - ◆ Interface Control, Data RF ASIC
 - ◆ Interface SoC and Memories
 - ◆ RF characterizations for L1 & L5 :
 - ◆ Bandwidth, Isolation, Noise Figure from RF input (ANA_IF) to digital output (FPGA I/O)
 - ◆ Compression point , Spurious level, VSWR, etc.

Avionic

KINTEX.
UltraSCALE+





Interface CMOS Sensor



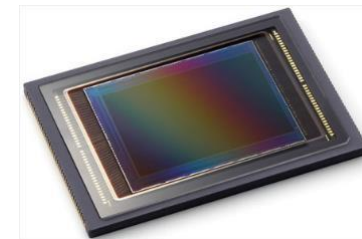
APPLICATIONS

- ◆ 3D Scanner



FEATURES

- ◆ Digital Signal Processing
 - ◆ XILINX FPGA ARTIX7 include
 - ◆ Acquisition, Raw image processing
 - ◆ LUT, Sub Pixel processing, Filtering
 - ◆ Windowing, Ethernet GIGA bit /FAST communications
 - ◆ Interface CMOS sensor 2048x1080@340FPS
 - ◆ DDR3 Industrial environment
- ◆ Design
 - ◆ Hardware, VHDL, controlled impedance power interface, test bench





Industry



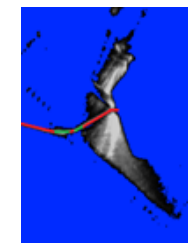
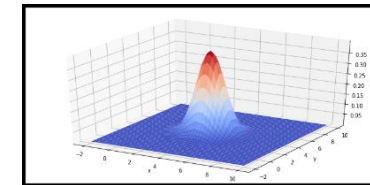
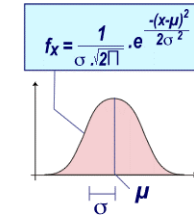
APPLICATIONS

- ◆ VHDL Algorithm Implementation, laser line treatment shiny piece



FEATURES

- ◆ Matlab/Simulink modeling,
- ◆ Laser PIC detection,
- ◆ Threshold, pre-processing, post-processing, data formatter, etc.
- ◆ VHDL development



$$\begin{aligned}
 & -\frac{1}{2}\partial_x\partial_y\partial_zg_{\mu}^{\mu} - g_{\mu}^{\mu}f^{abc}\partial_xg_{\mu}^{\mu}g_{\mu}^{\mu} - \frac{1}{2}g_{\mu}^{\mu}f^{abc}f^{abc}g_{\mu}^{\mu}g_{\mu}^{\mu}g_{\mu}^{\mu} + \\
 & \frac{1}{2}ig_{\mu}^{\mu}(\partial_x^2\gamma^{\mu}g_{\mu}^{\mu} + C^{\mu}\partial^{\mu}C^{\mu} + g_{\mu}^{\mu}f^{abc}C^{\mu}C^{\mu}g_{\mu}^{\mu} - \partial_xW_{\mu}^{\mu}\partial_xW_{\mu}^{\mu} - \\
 & M^2W_{\mu}^{\mu}W_{\mu}^{\mu} - \frac{1}{2}\partial_xZ_{\mu}^{\mu}\partial_xZ_{\mu}^{\mu} - \frac{1}{2}M^2Z_{\mu}^{\mu}Z_{\mu}^{\mu} - \frac{1}{2}\partial_xA_{\mu}A_{\mu} - \frac{1}{2}\partial_xH\partial_xH - \\
 & \frac{1}{2}m_{\mu}^2H^2 - \partial_x\phi^{\dagger}\partial_x\phi - M^2\phi^{\dagger}\phi - \frac{1}{2}\partial_x\phi^{\dagger}\partial_x\phi - \frac{1}{2}M\phi^{\dagger}\phi - \frac{1}{2}M\phi^{\dagger}\phi - \beta_{\mu}[\frac{2M^2}{g} + \\
 & \frac{2M}{g}H + \frac{1}{2}(H^2 + \phi^{\dagger}\phi + 2\phi^{\dagger}\phi)] + \frac{2M^2}{g}\alpha_{\mu} - ig_{\mu}^{\mu}\partial_xZ_{\mu}^{\mu}(W_{\mu}^{\mu}W_{\mu}^{\mu} - \\
 & W_{\mu}^{\mu}W_{\mu}^{\mu}) - Z_{\mu}^{\mu}(W_{\mu}^{\mu}\partial_xW_{\mu}^{\mu} - W_{\mu}^{\mu}\partial_xW_{\mu}^{\mu}) + Z_{\mu}^{\mu}(W_{\mu}^{\mu}\partial_xW_{\mu}^{\mu} - \\
 & W_{\mu}^{\mu}\partial_xW_{\mu}^{\mu}) - ig_{\mu}^{\mu}\partial_xA_{\mu}(W_{\mu}^{\mu}W_{\mu}^{\mu} - W_{\mu}^{\mu}W_{\mu}^{\mu}) - A_{\mu}(W_{\mu}^{\mu}\partial_xW_{\mu}^{\mu} - \\
 & W_{\mu}^{\mu}\partial_xW_{\mu}^{\mu}) + A_{\mu}(W_{\mu}^{\mu}\partial_xW_{\mu}^{\mu} - W_{\mu}^{\mu}\partial_xW_{\mu}^{\mu}) - \frac{1}{2}g^2W_{\mu}^{\mu}W_{\mu}^{\mu}W_{\mu}^{\mu} + \\
 & \frac{1}{2}g^2W_{\mu}^{\mu}W_{\mu}^{\mu}W_{\mu}^{\mu} + g^2\partial_x(Z_{\mu}^{\mu}W_{\mu}^{\mu} - Z_{\mu}^{\mu}W_{\mu}^{\mu}) - Z_{\mu}^{\mu}\partial_x(W_{\mu}^{\mu}W_{\mu}^{\mu}) + \\
 & g^2\partial_x(A_{\mu}W_{\mu}^{\mu}W_{\mu}^{\mu} - A_{\mu}W_{\mu}^{\mu}W_{\mu}^{\mu}) + g^2s_{\mu}C_{\mu}(A_{\mu}Z_{\mu}^{\mu}(W_{\mu}^{\mu}W_{\mu}^{\mu} - \\
 & W_{\mu}^{\mu}W_{\mu}^{\mu}) - 2A_{\mu}Z_{\mu}^{\mu}W_{\mu}^{\mu}W_{\mu}^{\mu}) - g\alpha[H^2 + H\phi^{\dagger}\phi + 2H\phi^{\dagger}\phi] - \\
 & \frac{1}{2}g^2\alpha_{\mu}[H^2 + (\phi^{\dagger}\phi)^2 + 4(\phi^{\dagger}\phi)\phi^{\dagger}\phi + 4H^2\phi^{\dagger}\phi + 2(\phi^{\dagger}\phi)^2H^2] - \\
 & gM^2W_{\mu}^{\mu}W_{\mu}^{\mu}H - \frac{1}{2}g\frac{2M}{g}Z_{\mu}^{\mu}Z_{\mu}^{\mu}H - \frac{1}{2}ig[W_{\mu}^{\mu}(\phi^{\dagger}\partial_x\phi - \phi^{\dagger}\partial_x\phi) - \\
 & W_{\mu}^{\mu}(\phi^{\dagger}\partial_x\phi - \phi^{\dagger}\partial_x\phi)] + \frac{1}{2}ig[W_{\mu}^{\mu}(H\partial_x\phi - \phi^{\dagger}\partial_xH) - W_{\mu}^{\mu}(H\partial_x\phi - \\
 & \phi^{\dagger}\partial_xH)] + \frac{1}{2}g\frac{2M}{g}(Z_{\mu}^{\mu}(H\partial_x\phi - \phi^{\dagger}\partial_xH) - ig\frac{2M}{g}M^2Z_{\mu}^{\mu}(W_{\mu}^{\mu}\phi - W_{\mu}^{\mu}\phi^{\dagger}) + \\
 & ig_{\mu}^{\mu}MA_{\mu}(W_{\mu}^{\mu}\phi - W_{\mu}^{\mu}\phi^{\dagger}) - ig\frac{2M}{g}Z_{\mu}^{\mu}(\phi^{\dagger}\partial_x\phi - \phi^{\dagger}\partial_x\phi) + \\
 & ig_{\mu}^{\mu}A_{\mu}(\phi^{\dagger}\partial_x\phi - \phi^{\dagger}\partial_x\phi) - \frac{1}{2}g^2W_{\mu}^{\mu}W_{\mu}^{\mu}[H^2 + (\phi^{\dagger}\phi)^2 + 2\phi^{\dagger}\phi] - \\
 & \frac{1}{2}g^2\frac{2M}{g}Z_{\mu}^{\mu}Z_{\mu}^{\mu}H^2 + (\phi^{\dagger}\phi)^2 + 2(2s_{\mu}^2 - 1)\phi^{\dagger}\phi - \frac{1}{2}g^2\frac{2M}{g}Z_{\mu}^{\mu}\phi^{\dagger}(W_{\mu}^{\mu}\phi - \\
 & W_{\mu}^{\mu}\phi^{\dagger}) - \frac{1}{2}ig^2\frac{2M}{g}Z_{\mu}^{\mu}H(W_{\mu}^{\mu}\phi - W_{\mu}^{\mu}\phi^{\dagger}) + \frac{1}{2}g^2s_{\mu}A_{\mu}\phi^{\dagger}(W_{\mu}^{\mu}\phi - \\
 & W_{\mu}^{\mu}\phi^{\dagger}) + \frac{1}{2}ig^2s_{\mu}A_{\mu}H(W_{\mu}^{\mu}\phi - W_{\mu}^{\mu}\phi^{\dagger}) - g^2\frac{2M}{g}(2s_{\mu}^2 - 1)Z_{\mu}^{\mu}A_{\mu}\phi^{\dagger}\phi - \\
 & g^2s_{\mu}^2A_{\mu}A_{\mu}\phi^{\dagger}\phi - e^{\lambda}(\gamma\theta + m_{\mu}^2)e^{\lambda} - \partial^{\lambda}\gamma\partial^{\lambda} - \partial^{\lambda}\gamma\partial^{\lambda} - \partial^{\lambda}\gamma\partial^{\lambda} - \partial^{\lambda}\gamma\partial^{\lambda} - \partial^{\lambda}\gamma\partial^{\lambda} - \\
 & m_{\mu}^2\partial^{\lambda}\partial^{\lambda} + ig_{\mu}^{\mu}A_{\mu}[-(e^{\lambda}\gamma e^{\lambda}) + \frac{3}{2}(\partial^{\lambda}\gamma\partial^{\lambda}) - \frac{1}{2}(\partial^{\lambda}\gamma\partial^{\lambda})] + \frac{2M}{g}Z_{\mu}^{\mu}[(e^{\lambda}\gamma e^{\lambda} + \\
 & \gamma^{\lambda}\mu^{\lambda}) + (e^{\lambda}\gamma e^{\lambda}(4s_{\mu}^2 - 1 - \gamma^{\lambda}\gamma^{\lambda})) + (\partial^{\lambda}\gamma\partial^{\lambda}(\frac{3}{2}s_{\mu}^2 - 1 - \gamma^{\lambda}\gamma^{\lambda})) + \\
 & (\partial^{\lambda}\gamma\partial^{\lambda}(1 - \frac{3}{2}s_{\mu}^2 - \gamma^{\lambda}\mu^{\lambda})) + \frac{2M}{g}W_{\mu}^{\mu}[(\partial^{\lambda}\gamma\partial^{\lambda}(1 + \gamma^{\lambda}\mu^{\lambda})) + (\partial^{\lambda}\gamma\partial^{\lambda}(1 + \\
 & \gamma^{\lambda}\mu^{\lambda}))] + \frac{2M}{g}W_{\mu}^{\mu}[(e^{\lambda}\gamma e^{\lambda}(1 + \gamma^{\lambda}\mu^{\lambda})) + (\partial^{\lambda}\gamma\partial^{\lambda}(1 + \gamma^{\lambda}\mu^{\lambda}))] + \\
 & \frac{2M}{g}\frac{2M}{g}[-\phi^{\dagger}(\partial^{\lambda}(1 - \gamma^{\lambda})e^{\lambda}) + \phi^{\dagger}(e^{\lambda}(1 + \gamma^{\lambda})e^{\lambda}) - \frac{2M}{g}H(e^{\lambda}e^{\lambda}) + \\
 & i\phi^{\dagger}(e^{\lambda}\gamma e^{\lambda}) + \frac{2M}{g}\frac{2M}{g}\phi^{\dagger}[-m_{\mu}^2(\partial^{\lambda}\gamma\partial^{\lambda}(1 - \gamma^{\lambda}\mu^{\lambda})) + m_{\mu}^2(\partial^{\lambda}\gamma\partial^{\lambda}(1 + \\
 & \gamma^{\lambda}\mu^{\lambda})) + \frac{2M}{g}\frac{2M}{g}\phi^{\dagger}[-m_{\mu}^2(\partial^{\lambda}\gamma\partial^{\lambda}(1 + \gamma^{\lambda}\mu^{\lambda})) - m_{\mu}^2(\partial^{\lambda}\gamma\partial^{\lambda}(1 - \gamma^{\lambda}\mu^{\lambda})) - \\
 & \frac{2M}{g}\frac{2M}{g}H(\partial^{\lambda}\gamma\partial^{\lambda}) - \frac{2M}{g}\frac{2M}{g}H(\partial^{\lambda}\gamma\partial^{\lambda}) + \frac{2M}{g}\frac{2M}{g}\phi^{\dagger}(\partial^{\lambda}\gamma\partial^{\lambda}) - \frac{2M}{g}\frac{2M}{g}\phi^{\dagger}(\partial^{\lambda}\gamma\partial^{\lambda}) + \\
 & \bar{X}^{\dagger}(\partial^2 - M^2)X^{\dagger} + \bar{X}^{\dagger}(\partial^2 - M^2)X^{\dagger} + \bar{X}^{\dagger}(\partial^2 - \frac{M^2}{g})X^{\dagger} + \bar{X}^{\dagger}\partial^{\mu}Y + \\
 & ig_{\mu}^{\mu}W_{\mu}^{\mu}(\partial_{\mu}\bar{X}^0X^0 - \partial_{\mu}\bar{X}^{\dagger}X^{\dagger}) + ig_{\mu}^{\mu}W_{\mu}^{\mu}(\partial_{\mu}\bar{X}^{\dagger}X^{\dagger} - \partial_{\mu}\bar{X}^0X^0) + \\
 & ig_{\mu}^{\mu}W_{\mu}^{\mu}(\partial_{\mu}\bar{X}^{\dagger}X^{\dagger} - \partial_{\mu}\bar{X}^0X^0) + ig_{\mu}^{\mu}W_{\mu}^{\mu}(\partial_{\mu}\bar{X}^{\dagger}X^{\dagger} - \partial_{\mu}\bar{X}^0X^0) + \\
 & ig_{\mu}^{\mu}Z_{\mu}^{\mu}(\partial_{\mu}\bar{X}^{\dagger}X^{\dagger} - \partial_{\mu}\bar{X}^0X^0) + ig_{\mu}^{\mu}A_{\mu}(\partial_{\mu}\bar{X}^{\dagger}X^{\dagger} - \partial_{\mu}\bar{X}^0X^0) - \\
 & \frac{1}{2}gM[\bar{X}^{\dagger}X^{\dagger}H + \bar{X}^{\dagger}X^{\dagger}H + \frac{1}{g}\bar{X}^{\dagger}X^{\dagger}H] + \frac{1-2s_{\mu}^2}{2g}igM[\bar{X}^{\dagger}X^{\dagger}\phi^{\dagger} - \\
 & \bar{X}^{\dagger}X^{\dagger}\phi^{\dagger}] + \frac{1}{2}igM[\bar{X}^{\dagger}X^{\dagger}\phi^{\dagger} - \bar{X}^{\dagger}X^{\dagger}\phi^{\dagger}] + igM_{\mu}[\bar{X}^{\dagger}X^{\dagger}\phi^{\dagger} - \\
 & \bar{X}^{\dagger}X^{\dagger}\phi^{\dagger}] + \frac{1}{2}igM[\bar{X}^{\dagger}X^{\dagger}\phi^{\dagger} - \bar{X}^{\dagger}X^{\dagger}\phi^{\dagger}]
 \end{aligned}$$


Defence



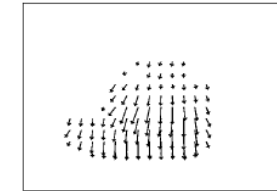
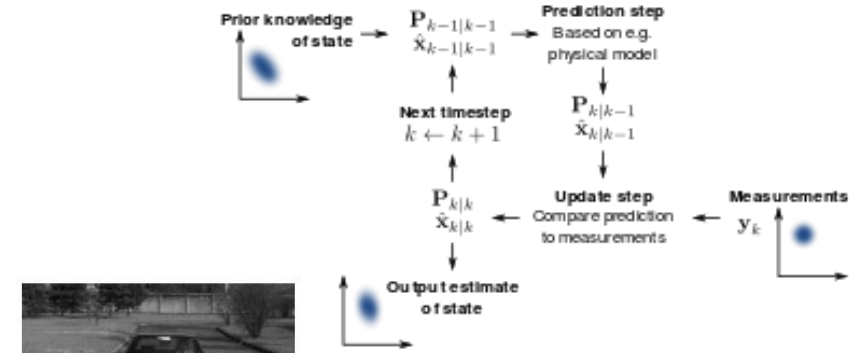
APPLICATIONS

- ◆ VHDL Algorithm Implementation, Moving object detection on a static shot movie
- ◆ Kalman filter



FEATURES

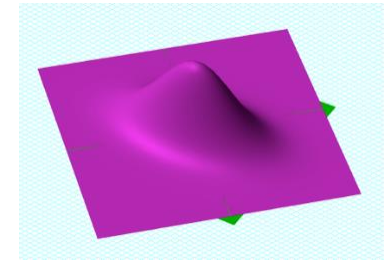
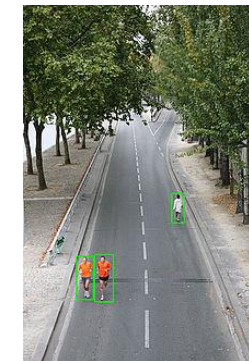
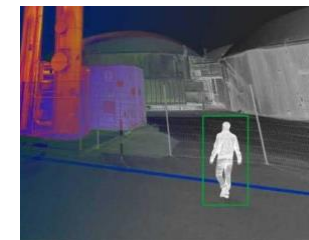
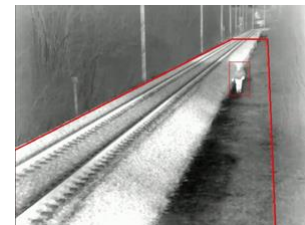
- ◆ Matlab/Simulink modeling,
- ◆ Infinite Impulse Response Filter algorithm implementation, clustering, etc.
- ◆ VHDL development



$$\hat{\mathbf{x}}_{k|k-1} = \mathbf{F}_k \hat{\mathbf{x}}_{k-1|k-1} + \mathbf{B}_k \mathbf{u}_k$$

$$\mathbf{P}_{k|k-1} = \mathbf{F}_k \mathbf{P}_{k-1|k-1} \mathbf{F}_k^T + \mathbf{Q}_k$$

$$\begin{bmatrix} V_x \\ V_y \end{bmatrix} = \begin{bmatrix} \sum_i I_x(q_i)^2 & \sum_i I_x(q_i)I_y(q_i) \\ \sum_i I_x(q_i)I_y(q_i) & \sum_i I_y(q_i)^2 \end{bmatrix}^{-1} \begin{bmatrix} -\sum_i I_x(q_i)I_t(q_i) \\ -\sum_i I_y(q_i)I_t(q_i) \end{bmatrix}$$





Defence



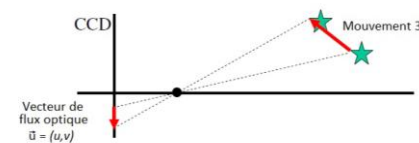
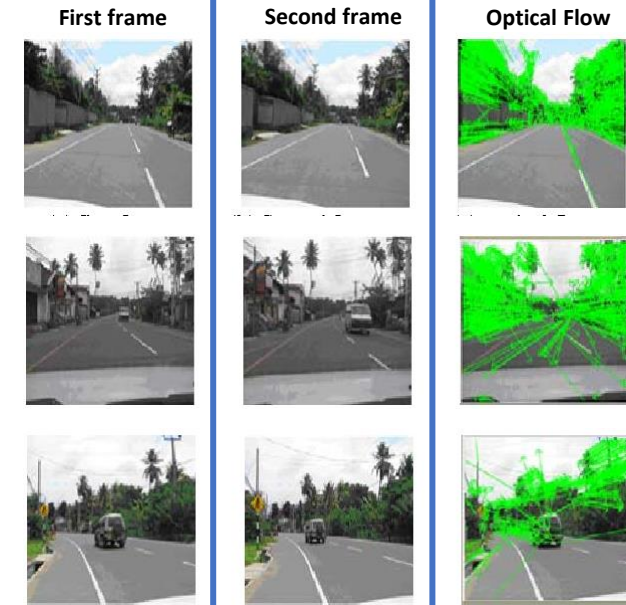
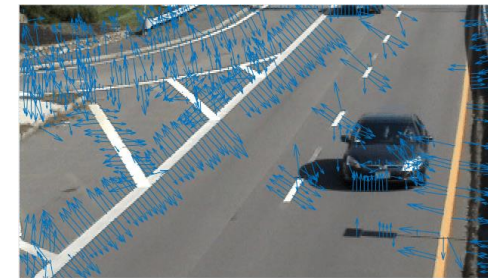
APPLICATIONS

- ◆ VHDL Algorithm Implementation, Moving object detection on a static shot movie
- ◆ Lucas Kanade filter



FEATURES

- ◆ Matlab/Simulink modeling,
- ◆ Infinite Impulse Response Filter algorithm implementation, clustering, etc.
- ◆ VHDL development
- ◆ 7 680x 4 320, 5 Fps



Mouvement apparent VS Mouvement 3D

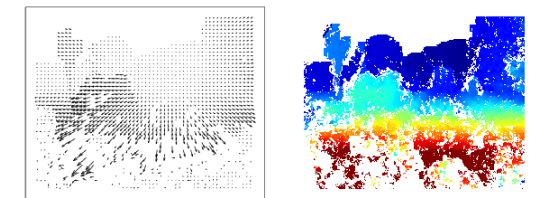
Le vecteur vitesse local (V_x, V_y)

$$\begin{aligned} I_x(q_1)V_x + I_y(q_1)V_y &= -I_t(q_1) \\ I_x(q_2)V_x + I_y(q_2)V_y &= -I_t(q_2) \\ &\vdots \\ I_x(q_n)V_x + I_y(q_n)V_y &= -I_t(q_n) \end{aligned}$$

$$A = \begin{bmatrix} I_x(q_1) & I_y(q_1) \\ I_x(q_2) & I_y(q_2) \\ \vdots & \vdots \\ I_x(q_n) & I_y(q_n) \end{bmatrix}, \quad v = \begin{bmatrix} V_x \\ V_y \end{bmatrix}, \quad \text{and} \quad b = \begin{bmatrix} -I_t(q_1) \\ -I_t(q_2) \\ \vdots \\ -I_t(q_n) \end{bmatrix}$$

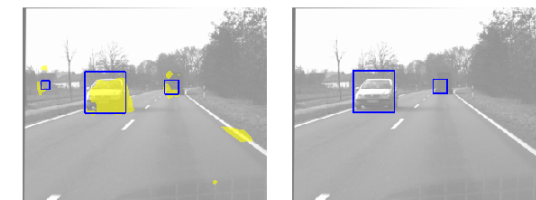
méthode des moindres carrés.

$$\begin{bmatrix} V_x \\ V_y \end{bmatrix} = \begin{bmatrix} \sum_i I_x(q_i)^2 & \sum_i I_x(q_i)I_y(q_i) \\ \sum_i I_x(q_i)I_y(q_i) & \sum_i I_y(q_i)^2 \end{bmatrix}^{-1} \begin{bmatrix} -\sum_i I_x(q_i)I_t(q_i) \\ -\sum_i I_y(q_i)I_t(q_i) \end{bmatrix}$$



(a) optical flow

(b) dense stereo disparity



(c) IMO detection

(d) simple IMO tracking





ACTIVITIES

COTS Solutions



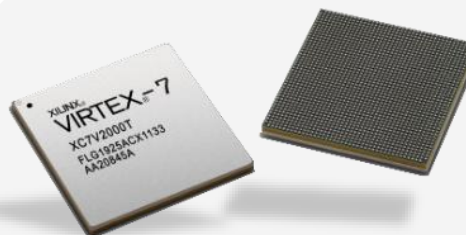
- ◆ Partner COTS portfolio
- ◆ GACI product lines

Embedded Systems



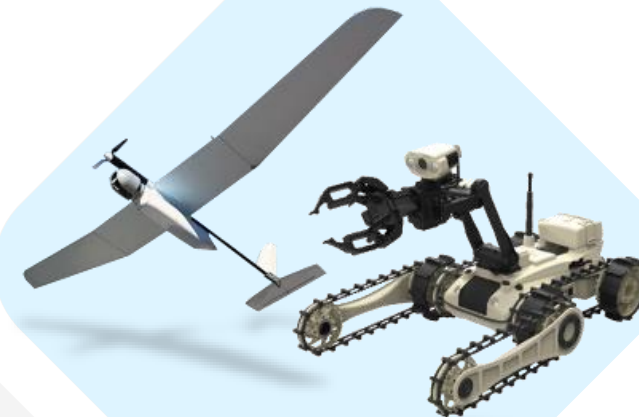
- ◆ COTS boards
- ◆ ESP building blocks
- ◆ Software
- ◆ Mechanical

Signal Processing



- ◆ FPGA boards
- ◆ Building blocks
- ◆ Expertise

Operations Services



- ◆ Deployment
- ◆ Training
- ◆ Maintenance
- ◆ Technical assistance





UAV Maintenance Program



SKYLARK UAV MAINTENANCE

- ◆ 10 years MCO
- ◆ Hardware maintenance
- ◆ Spare management
- ◆ Supply chain management



SKYLARK I-FLEX FEATURES

- ◆ Manpacked system for tactical surveillance and reconnaissance
- ◆ Launching by hand
- ◆ Daylight CCD or optional Flir
- ◆ Sending real-time video to a portable ground station
- ◆ Landing on a small inflatable cushion
- ◆ Action range of 10 km





ROBOTTEAM



ROBOTTEAM
HUMAN DRIVEN





IRIS

INDIVIDUAL ROBOTIC INTELLIGENCE SYSTEM



MAIN APPLICATIONS

- ◆ SWAT Operations
- ◆ Mobile Communication Relay
- ◆ Subterranean and Culvert Inspection
- ◆ Public Safety
- ◆ Urban Warfare



FEATURES

- ◆ Secure digital encrypted
- ◆ 12V Replaceable battery
- ◆ 1-2 hour battery
- ◆ Ethernet, RS232, audio, video
- ◆ 2 integrated cameras for real time day and night video + zoom, laser and audio
- ◆ 20 x 23 x 11 cm
- ◆ Ruggedized, IP65
- ◆ 1.85 kg
- ◆ 5 Km/h
- ◆ -20°C to 60°C
- ◆ 200 m LOS



Rugged Tactile
7" Control Unit

ROBOTTEAM HUMAN DRIVEN





PROBOT

HEAVY PAYLOAD AUTONOMOUS CARRIER



MAIN APPLICATIONS

- ◆ Logistics Carrier
- ◆ Intelligence, Surveillance, Reco (ISR) and Target Acquisition Sensors
- ◆ Search and Rescue
- ◆ Sensors Integration- CBRNE, ECOM, Remote-controlled Weapon Station
- ◆ Medical evacuation



FEATURES

- ◆ Secure IP Mobile Ad-hoc network
- ◆ External Power, Ethernet RJ45, GPS ant, RF ant, IOP 12V,24V,28V, NATO Receptacle
- ◆ 360° Real time day and night video
- ◆ 360° NIR illumination
- ◆ Towing capabilities up to 50 mph
- ◆ Navigation by "Follow me", remote or GPS waypoints
- ◆ 150x120x60 cm
- ◆ Ruggedized, IP67
- ◆ 410 kg including carriage
- ◆ Max Payload 700 kg
- ◆ 9.6 km/h
- ◆ Up to 500 m LOS
- ◆ 8 hours Battery



Dedicated Joystick and ROCU®-7
Ruggedized Control and Display Unit

ROBOTTEAM HUMAN DRIVEN





MTGR

MICRO TACTICAL GROUND ROBOT



MAIN APPLICATIONS

- ◆ Reconnaissance, Surveillance and Target Acquisition
- ◆ Subterranean and Culvert inspection
- ◆ Dismounted EOD operations
- ◆ Law Enforcement, SWAT and First Responders
- ◆ CBRNE Detection



Rugged Tactile
7" Control Unit



FEATURES

- ◆ 5 integrated cameras for 360° Real time day and night, 2 cameras on manipulator and optional pole camera (8 in total)
- ◆ 35cm vertical obstacle / 20 cm stair climbing ability
- ◆ Max Gripper Opening 11 cm
- ◆ Max Lift Capacity 5 kg fully extended
- ◆ Reach Length 49 cm
- ◆ Multiple Piccantly Rails for mounting
- ◆ Secure IP Mobile Ad-hoc network
- ◆ 45.5 x 36.8 x 14.5 cm
- ◆ 7.3Kg
- ◆ 3.5 km/h
- ◆ -20°C to 60° C
- ◆ 500m LOS
- ◆ 3 hour battery 24V MIL STD
- ◆ Ruggedized IP65
- ◆ accessories (disruptors, ext. cameras, wire cutter, long fingertips, etc.)



ROBOTTEAM HUMAN DRIVEN





TIGR

TRANSPORTABLE INTEROPERABLE GROUND ROBOT



MAIN APPLICATIONS

- ◆ CIED
- ◆ IEOD
- ◆ Chemical Biological Radiological Nuclear (CBRN) detection
- ◆ Hazardous Material (HAZMAT) incidents
- ◆ Subterranean and culvert inspection



Rugged Tactile
7" Control Unit



FEATURES

- ◆ 24.5 cm Stairs Climbing and 30 cm vertical obstacle
- ◆ 1300 m LOS
- ◆ 8 hours operating time
- ◆ MILSTD 209,461,464,810,882,1472,1474
- ◆ 5 Color HD cameras, 1 thermal camera
- ◆ Optical zoom x30
- ◆ Two-way audio
- ◆ Human recognition :Day 600m, Low light: 400m and Night 300m
- ◆ 5D – continuous, shoulder pitch and yaw, elbow pitch, wrist yaw and continuous roll
- ◆ Front of Platform Pick up 19Kg
- ◆ Full extension pick up 7 Kg
- ◆ 8 X IOP for user
- ◆ 91.2 cm x 58.8 cm x 35.3 cm
- ◆ Ruggedized, IP67
- ◆ 74kg including 6 batteries
- ◆ -30°C to 50°C operating



ROBOTTEAM HUMAN DRIVEN

