WE INNOVATE. WE DELIVER.
YOU SUCCEED.

abaco
SYSTEMS

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About Abaco

For 30 years, we have worked with our customers to deliver leading edge commercial off-the-shelf open architecture, rugged electronics for the most demanding applications in defense and industry – electronics that are characterized by minimal SWaP, and that benefit from our innovative extended lifecycle support. We're present in hundreds of national asset programs in many countries around the world.

Bernie Anger
CEO, Abaco Systems

Although we have been supporting our customers for three decades, we're also a start-up. Operating independently since December 2015, we're reinventing ourselves based on three principles: innovation, delivery and customer focus.

Our commitment to innovation extends beyond a sustained and significant reinvestment in engineering. We are also innovating in every aspect of how we do business, so that we can set new benchmarks in customer service. When "better" is possible, "good enough" no longer is.

We understand how, in a changing world, you face increasing pressure to deliver faster, more predictably and at a competitive price. That's why we're committed to raising the bar on every aspect of what we do - from concept to retirement - so that what we do aligns with what you need. Before you ask.

We also understand that our success is predicated on yours, and we're building a culture where each one of our 750+ people represents your interests and frames every decision around the answer to one question: "What does this mean to our customer?"

We look forward to continuing to serve you.

Our vision

Our vision is to be your embedded partner of choice as you design and deploy mission-critical systems in the harshest, most challenging environments.

How do we plan to do that?

INNOVATE
Fresh, new thinking to create better ways of solving problems.

DELIVER
We live up to our commitments. Time after time. Every time.

SUCCEED
Our business only succeeds when our customers succeed. Period.

With development and manufacturing facilities in Huntsville, AL and Towcester, UK and offices throughout the USA, Europe and Asia, we serve customers worldwide.

"We're proud and honored that many of the world's armed forces, and the organizations that serve them, have trusted us for so long. We know that what we do has a profound impact on them. Our number one goal is to continue to earn and deserve that trust, and to support their success."

WE INNOVATE. WE DELIVER. YOU SUCCEED.

Our expertise

Open architecture rugged COTS electronics

Starting with the latest commercially available silicon, we create solutions based on open industry standards. Then, we leverage our expertise in creating rugged solutions, packaging them for the harshest environments. That means our customers get the latest in performance at competitive cost with no-compromise reliability.

Process excellence

We understand the sensitive nature of our market, and have deployed robust processes across our business to ensure compliance. From counterfeit component avoidance through full traceability throughout production to diligent export control, our customers can trust that their information and products will always be in safe hands.

SWaP optimization

Abaco leads the trend for smaller, lighter platforms with our decades-long expertise in thermal management, allowing us to deliver maximum performance in environments that are highly constrained in size, weight and power. Optional air, forced-air, liquid and/or convection cooled deliver optimum cost-effectiveness for any application.

Product Lifecycle Management

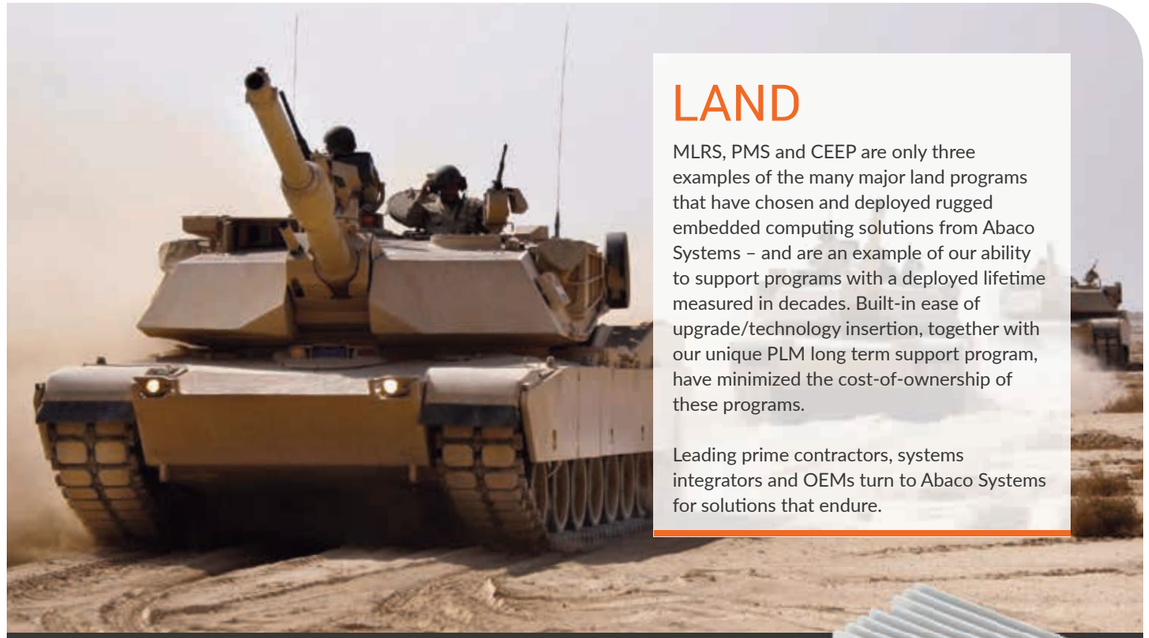
We substantially mitigate the impact of obsolescence by creating products that remain in production for many years – and that we support for as many more years as our customers need us to. We also work to ensure that new Abaco products are backward-compatible, minimizing the cost of migrating to later generation technology.

High Performance Embedded Computing

We have extensive knowledge of processor architectures and deep understanding of how to integrate and optimize them. Our Center of Excellence works hand-in-hand with our customers to create highly complex solutions, advising on strategies to optimize efficiency and performance. Here, our AXIS development environment is invaluable.

Field organization

Our technical sales engineers and field application engineers bring decades of experience in helping to design, develop and support high performance embedded systems for mission critical applications. We often work as an extension of our customer's team, acting as trusted advisors - even when Abaco solutions dont exactly fit the bill?



LAND

MLRS, PMS and CEEP are only three examples of the many major land programs that have chosen and deployed rugged embedded computing solutions from Abaco Systems – and are an example of our ability to support programs with a deployed lifetime measured in decades. Built-in ease of upgrade/technology insertion, together with our unique PLM long term support program, have minimized the cost-of-ownership of these programs.

Leading prime contractors, systems integrators and OEMs turn to Abaco Systems for solutions that endure.

RES3000

Created for VICTORY compliance and optimized for size, weight, power and cost, this switch supports Abaco's OpenWare, making it uniquely flexible and manageable.

General Dynamics AJAX

The General Dynamics AJAX for the British Army features scalable, open architecture Ethernet switches, gateway processors, data servers and video servers from Abaco that provide the backbone of the vehicle electronics architecture. The data and video servers allow the vehicle to store and distribute vehicle and scenario data and video around the platform and on into the wider connected battlefield. ●

Harris MLRS/Himars

Harris first chose Abaco's rugged 6U VME PowerXtreme single board computers for the MLRS/HIMARS program at the turn of the century. Since then, Harris has consistently taken advantage of Abaco's commitment to maximizing the value of customer investments with form-, fit- and function compatible upgrades – providing enhanced performance with minimal cost or disruption. ●

GDLS Abrams M1A2/ CEEP

The US Army has deployed over 1,000 Abrams M1A2 tanks. Chosen by General Dynamics Land Systems for their performance and value for money, Abaco single board computers – based on Power Architecture – were deployed by General Dynamics Land Systems to enhance the vehicles' core electronics performance. This technology insertion delivered enhanced processing, communications and graphics display capabilities to the M1A2. ●

SBC367D

Intel Xeon-class performance combined with a 40 Gigabit Ethernet data plane and the ability to implement advanced security capabilities make the SBC367D a powerful, market-leading 3U VPX solution.

Raytheon MK-48 ADCAP

Abaco's rugged, high performance digital signal processors and single board computers were chosen by Raytheon for deployment in the MK-48 Advanced Capability (ADCAP)/Advanced Common Torpedo (ACOT) upgrade program. At the time, the MK-48 was the US Navy's premier heavyweight submarine-launched torpedo and was widely recognized as the world's most capable anti-submarine weapon. ●

Northrop Grumman UH-1Y, AH-1Z

The ability to guarantee extended availability over the multi-year lifetime of the program was a key element in Northrop Grumman's decision to award a contract to Abaco for rugged, high performance, high reliability MIL-STD-1553 and ARINC-429 avionics solutions. These were deployed as part of the Integrated Avionics System (IAS) that is at the heart of the Bell Helicopter UH-1Y and AH-1Z helicopters. ●

BAE Systems Spearfish

To provide advanced real time signal processing for the Royal Navy's anti-submarine and anti-surface Spearfish torpedo, BAE Systems turned to Abaco. Each torpedo's ESCU features a number of Abaco OpenVPX single board computers to enable destination finding and host submarine communication. The 6U development system provided straightforward deployment to the onboard 3U system. ●

SEA

When Raytheon was looking for COTS single board computers for the RAM program, it turned to Abaco Systems. Raytheon also turned to Abaco Systems for the ADCAP program. When General Dynamics was looking for a secure net-working supplier for the FCS program, it turned to Abaco Systems.

Abaco Systems products and tech-nologies are integrated into the most challenging environments where leading edge performance needs to be coupled with the ultimate in rugged reliability.

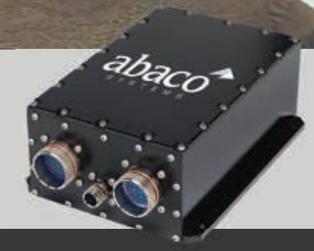
AIR

Few applications leverage the breadth and depth of Abaco's extensive product range, experience and expertise more completely than solutions for aircraft, helicopters and UAVs. DASS, Barracuda UAV, ASTOR, ATFLIR, AWACS, LAMPS and CAP all feature one or more of our solutions such as single board computers, avionics interfaces, graphics and imaging subsystems or DSP boards.

When the deployed environment is highly constrained in terms of size, weight and power, yet demands outstanding computing throughput, Abaco Systems has the solutions.

DAQMAG2A

This TRL9 video processing powerhouse is DO-160G qualified and mission ready. A complete, ready-to-run graphics subsystem, it is compact, lightweight – and rugged.



Northrop Grumman MQ-8 Fire Scout

When Northrop Grumman was looking for rugged, intelligent Ethernet switches for the MQ-8 Fire Scout unmanned helicopter, the company turned to Abaco for small, light-weight 10-port fully managed layer 2/3+ Gigabit Ethernet switches designed for size- and weight- constrained deployments. The switch, which was the only one that met Northrop Grumman's exacting specification, supports IPv6 and IPv4. ●

BAE Systems Eurofighter Typhoon

At the time of its introduction, the Eurofighter Typhoon was described as the world's most advanced multi-role combat aircraft. The program faced the challenge of inserting a new generation of technology into the electronic warfare suite of DASS (Defensive Aids Sub-System) - one of the aircraft's key sub-systems – and BAE Sys-tems turned to Abaco to replace the existing General Purpose Processor (GPP). ●

Boeing B1-B

When faced with the need to keep the B1-B in service competitively, Boeing chose Abaco's rugged video/graphics processor to refresh the strategic bomber's capabilities in the form of a Vertical Situation Display Upgrade (VSDU). Key to Boeing's decision was Abaco's ability to demonstrate DO-178B certification, and to customize the processor to Boeing's requirements. ●

Energy

Few environments are more challenging for computing than sub-sea exploration, not least because their inaccessibility means 100% reliability is non-negotiable. We have supported customers in creating networks to bring sonar signals from the sea bed to the vessel, deploying rugged switches capable of withstanding intense vibration and thermal extremes.

Transportation

Today's railroad platforms feature extensive networking technology – both within the locomotive and throughout the train. Abaco has provided rugged managed and unmanaged switches as well as other networking technologies – capable of withstanding extremes of shock, vibration, heat and electrical noise - to manage these networks with absolute reliability.

Technology

Sophisticated semiconductor fabrication systems must operate in environments that are completely clean, sterile and dust-free – but they still need high performance and total reliability in constrained spaces. Abaco provides leading OEMs with a range of single board computers, backed by the long term availability and support that is critical to their success.

mCOM10-K1

Delivering an incredible 326 GFLOPS of performance yet consuming only 10 watts of power, this tiny COM Express module is ideal for SWaP-constrained environments.

INDUSTRIAL

For commercial and industrial applications, we leverage our experience in developing high performance, rugged solutions for mission critical, life-or-death applications for many of the world's armed forces and apply it to a broad range of manufacturing, infrastructure and transportation environments that are no less demanding.

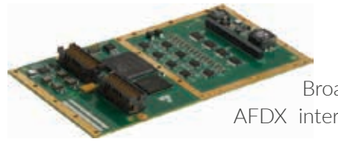
MANUFACTURING SERVICES

With over 30 years' experience in manufacturing sophisticated, high performance, high reliability electronics, it's no surprise that many other companies – in military/aerospace, medical, industrial/commercial and motor racing, among others - have chosen to leverage Abaco's manufacturing expertise.

We offer a range of capabilities including PCB prototyping and assembly, electronics sub-assembly and full turnkey box build services. That's backed up by extensive consultancy that helps our customers achieve the optimum outcome in terms of technology choices, manufacturability, testing strategy, sourcing and much more.

Our manufacturing services business is wholly focused on ensuring the success of our customers' projects. Our extensive expertise, our account management team, the reliability of our supply chain and our absolute commitment to quality principles all exist exclusively for the benefit of our customers.

Our portfolio

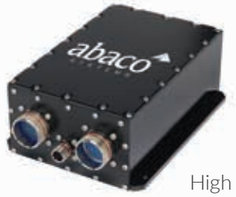


AVIONICS

Broad range of embedded ARINC, MIL-STD-1553 and AFDX interfaces as well as databuses, analyzers and software for avionics test and measurement.

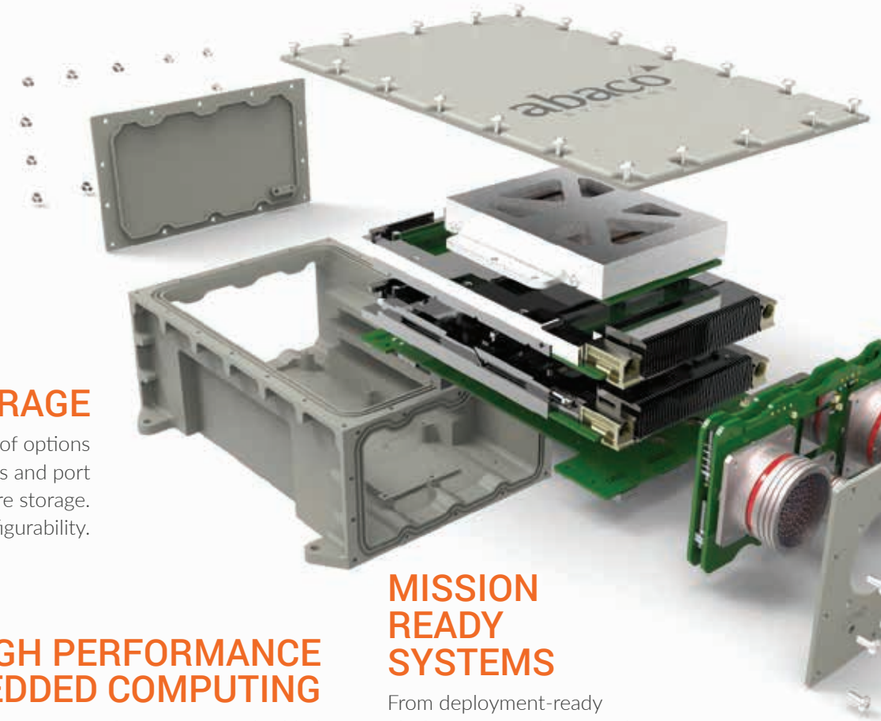
NETWORK COMMUNICATIONS

Rugged, secure switches and routers in a broad range of port counts and media options, combined with advanced management and security.



GRAPHICS AND VIDEO

High resolution video display and image processing solutions for mission critical applications.



ADVANCED RF AND DSP SOLUTIONS

Leading edge sensor processing solutions that rapidly turn sensor-acquired data into actionable intelligence while minimizing communications bandwidth.

I/O AND STORAGE

The industry's broadest range of options offered in a broad array of form factors and port configurations as well as rugged/secure storage. Now including MMS for maximum configurability.

SINGLE BOARD COMPUTERS

Latest generation Intel, PowerPC and GPGPU compute platforms with advanced thermal capabilities to maximize performance in SWaP-constrained environments.

HIGH PERFORMANCE EMBEDDED COMPUTING

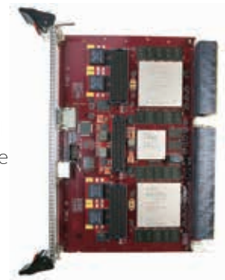
Bringing data center performance to embedded systems with multi-processor, multi-core and many-core compute platforms combined with advanced software tools and libraries.

MISSION READY SYSTEMS

From deployment-ready platforms to pre-integrated application-ready subsystems and completely custom configurations.

FPGA SYSTEM CARDS

Advanced DSP capabilities combining FPGA boards and mezzanine cards (FMC) along with IP cores and software tools for demanding signal processing applications.



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AXIS SOFTWARE

ADVANCED INTEGRATED SOFTWARE DEVELOPMENT TOOLS

The industry's most advanced, most intuitive embedded software development tool suite, AXIS enables rapid software development.

MISSION READY SYSTEMS

Powerful, flexible and based on open standards, Abaco's Mission Ready Systems are pre-integrated and pre-qualified so that they're ready for immediate deployment – minimizing cost, risk and program leadtime.

FORCE 2 Display Computer

For certifiable applications

- FACE support with roadmap to DO-178/DO-254 certification provides compliance with industry initiatives, mitigates time and cost burden of certification
- Multiple configurations for, display and flight computing, together with minimal SWaP, provide optimal flexibility for a broad range of applications
- Mix of DO-160, MIL-STD-704, MIL-STD-461 and MIL-STD-810 qualification increases confidence, reduces risk, minimizes NRE

CESCC820

SWAP optimized integrated system

- Rugged small form factor embedded system designed to provide a complete and generic processing platform for data acquisition, signal processing and communication
- Ultrascale FPGA provides a flexible and powerful processing backbone for interfacing to FMC sites, CPU and DDR3 SDRAM
- Ideal as an embedded solution for demanding field deployment

GVC1000 Graphics/Vision Computer

Maximum graphics performance, maximum connectivity

- Rugged, mission ready system for graphics applications based on the new NVIDIA Jetson TX2 SoM. Optimized for SWaP-C, the GVC1000 is designed for deployment in harsh, constrained environments that require significant computing capability, including autonomous unmanned vehicles and robotic systems
- Two 10Gb Ethernet ports for multiple camera inputs. Two MilCAN/CAN ports to receive vehicle data. Comprehensive USB provision for peripheral attachment
- With internal storage of up to 128 GBytes of solid state disk, there's almost no limit to how much mission- and moving map data that can be accessed - fast
- ImageFlex provides an easy to use framework to enable rapid development of high performance image processing and graphics applications

Mission Ready Systems

PRODUCT	FORM FACTOR	PROCESSOR	COOLING	OPERATING TEMPERATURE	WEIGHT LB (KG)	DESCRIPTION
GVC1000 Rugged Graphics and Mission Computer	Small Form Factor Package	NVIDIA Tegra TX2 SoM	Baseplate/Natural Convection Cooled	-40C to +71C	5.5 lbs (2.5 kg)	Rugged, mission ready system for graphics applications
FORCE2 Rugged Display and Mission Computer	3U boxed, VPX 3U	NXP QorIQ T2081/ T1042 SBC, AMD Radeon GPU	Base Plate	-40˚C to +70˚C	7.0 lbs (3.2kg)	2nd Gen., Power Architecture-based display computer and open reference computing environment for FACE applications.
RES3000 Compact, Rugged Ethernet Switch	-	-	Natural conduction / convection cooled / Baseplate cooled	-40˚C to +71˚C	3.5 - 6.9 lbs - (1.6 - 3.1 kg)	Rugged Fully Managed Ethernet Switch Family.
CRS-D8I-3VF1 COTS Rugged System	VPX 3U	3rd Gen. Intel Core i7	Conduction Cooled (Forced Air)	-40˚C to +55˚C	22 lbs (9.98 kg)	Half ATR application-ready data processing system.
DAQMAG2A Rugged Display Computer	3U Boxed, VPX 3U	3rd Gen. Intel Core i7, 2nd Gen. Intel Core i7	Base Plate	-40˚C to +85˚C	9 lbs (4 kg)	High performance rugged display computer.
CRS 48.5 COTS Rugged System	OpenVPX 6U	Intel Quad Core i7	Air-Flow Through-Cooled	-40˚C to +55˚C	61 lbs (28 kg)	High Performance Embedded Computing VITA 48.5 prevalidated system.
CRS-D4I-3VB1 COTS Rugged Computer	Standalone	2nd Gen.Intel Core i7 @2.2 GHz	Conduction	-40˚C to +70˚C	13.4 lbs (6.1 kg)	Conduction-cooled 3U VPX application-ready computer.
CESCC820	VITA 75	Intel Atom Quad Core 1.91 GHz	Conduction	-40 to +85°C	6.6 lbs (3 kg)	Field ready for beamforming, direction finding, SDR, DRFM, communication systems.
VPX167	VPX	Intel Quad Core i7	Conduction	-40 °C to +70 °C	40 lbs (18.1 kg)	Airborne electronic warfare.
VPX370	VPX	4th Gen Intel Quad Core i7	Air Cooled, Configurable for Conduction Cooled	0 °C to +55 °C	12 lbs (5.4 kg)	DRFM, multi-channel digital receivers, SDR, Satellite communications, Radar/Sonar image processing.

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SINGLE BOARD COMPUTERS

OpenVPX 3U and 6U. VME. 3U and 6U CompactPCI. Intel or Power Architecture. Whatever's right for your program – and backed by our long term support and technology insertion programs to maximize return on investment.

SBC367D 3U VPX Single Board Computer

Fast, secure

- Designed for demanding electronic warfare applications such as ISR, the SBC367D features a 40 Gigabit Ethernet architecture to handle larger, multi-module systems
- Provides SmartFusion2 FPGA and support for Intel Trusted Execution Technology, enabling inclusion of customer anti-tamper, information assurance strategies
- Based on Intel Xeon D-1500 product family, offers up to 16 CPU cores and processor speeds up to 2.1 GHz for the highest possible performance in demanding applications

SBC314 3U OpenVPX Single Board Computer

Certifiable support

- Choice of low power or high performance Power Architecture processors allows optimum solution to be configured for specific application requirements
- Support code for Wind River VxWorks653 eases path to certification, reducing time, effort and cost and minimizing time-to-deployment
- VITA 48 formats support 2-level maintenance for cost-effective deployment and minimal in-theatre downtime

PPC11A 6U VME Single Board Computer

Extended availability

- Latest upgrade for 20+ year PowerXtreme family, providing customers with long term program support to maximize performance and return on investment, minimize lifetime cost
- Extended in-deployment lifetime enhanced by processors from NXP 15-year Longevity Program, FPGA-based VME support, Abaco Product Lifecycle Management services
- Available in two versions, providing customers with the ability to choose the best power/performance match for the planned application

Intel Architecture SBCs

PRODUCT	FORM FACTOR	PROCESSOR	MAXIMUM MEMORY	MEZZANINE	AXIS SUPPORT	RUGGEDIZATION
SBC329	VPX 3U	Intel Xeon E3-1505M, E3-1505L v6	Up to 16 GB DDR4 SDRAM soldered with ECC	1	Yes	Level 1-5 Air, Conduction Cooled
SBC328	VPX 3U	6th Gen. Intel Core 4-core @ 2.8 GHz	Up to 16 GB DDR4 SDRAM soldered with ECC	1	Yes	Level 1-5 Air, Conduction Cooled
SBC367D	VPX 3U	Intel Xeon D	32 GB DDR4 SDRAM soldered with ECC	-	Yes	Level 1-5 Air, Conduction Cooled
SBC347D	VPX 3U	Intel Xeon D	32 GB DDR4 SDRAM soldered with ECC	-	Yes	Level 1-5 Air, Conduction Cooled
SBC627	VPX 6U	5th Gen. Intel Core i7 4-core up to 2.7 GHz	Up to 32 GB DDR3 SDRAM	2	Yes	Level 1-5 Air, Conduction Cooled
SBC346	VPX 3U	4th Gen. Intel Core i7 4-core up to 2.4 GHz	Up to 16 GB DDR3 SDRAM	-	Yes	Level 1-5 Air, Conduction Cooled
XCR15	cPCI 6U	3rd Gen. Intel Core i7 2/4-core up to 2.5 GHz	Up to 16 GB DDR3 SDRAM	2	Yes	Level 1-5 Air, Conduction Cooled

Power Architecture SBCs

PRODUCT	FORM FACTOR	PROCESSOR	MAXIMUM MEMORY	MEZZANINE	AXIS SUPPORT	RUGGEDIZATION
SBC314	VPX 3U	NXP QorIQ T2081/ T1042 @ up to 1.8 GHz	4 GB DDR3L SDRAM with ECC	1	Yes	Level 1-5 Air, Conduction Cooled
SBC312	VPX 3U	NXP QorIQ P4080 @ 1.5 GHz	4 GB DDR3 SDRAM with ECC	1	Yes	Level 1-5 Air, Conduction Cooled
SBC612	VPX 6U	NXP QorIQ P4080 @ 1.5 GHz	Up to 8 GB DDR3 SDRAM with ECC	2	Yes	Level 1-5 Air, Conduction Cooled
PPC11A	VME 6U	NXP QorIQ T2081/ T1042 @ up to 1.8 GHz	Up to 8 GB DDR3L SDRAM with ECC	2	-	Level 1-5 Air, Conduction Cooled
PPC10A	VME 6U	NXP QorIQ P4080 @ 1.5 GHz	Up to 8 GB DDR3 SDRAM with ECC	2	-	Level 1-5 Air, Conduction Cooled
PPC9B	VME 6U	NXP QorIQ P2020 @ 1.2 GHz	4 GB DDR3 SDRAM with ECC	2	-	Level 1-5 Air, Conduction Cooled
PPC9A	VME 6U	NXP 8641D @ 1.33 GHz	4 GB DDR2 SDRAM with ECC	2	-	Level 1-5 Air, Conduction Cooled
IMP3A	cPCI 3U	NXP QorIQ P2020 @ 1.2 GHz	4 GB DDR3 SDRAM with ECC	1	-	Level 1-5 Air, Conduction Cooled

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GRAPHICS AND VIDEO

Leading edge commercial technology coupled with Abaco's ruggedization expertise delivers blazing graphics and video performance from a range of platforms and small, lightweight mission-ready, pre-integrated subsystems.

XMCGA8 Video/Graphics Processor

Certifiable, flexible

- With high performance video/graphics technology from AMD and CoreAVI, the XMCGA8 offers blazing performance for the most demanding applications
- For certifiable applications, the XMCGA8 can be provided with DO-178 and DO-254 certifiable artefacts, reducing cost, risk and time to market
- Available with a choice of graphics chipsets, the CoreAVI-based XMCGA8 benefits from up to 20 years support, providing peace of mind and low cost of ownership

GRA113 Video/Graphics Processor

Powerful, high-performance

- A high end NVIDIA GPU delivers unparalleled throughput in the toughest environments that are constrained in size, weight and power (SWaP)
- Dual, quad and legacy video options – all highly configurable – bring flexibility that can translate into an optimum lower cost solution
- Form-, fit- and function compatible with its predecessors, the GRA113 provides a straightforward, cost-effective upgrade path

mCOM10-K1 Miniature Video/Graphics Processor

Tiny, scalable

- Delivering 326 GFLOPS of performance, consuming only 10 watts of power and measuring just 84 x 55mm, the mCOM10-K1 redefines what's possible in the tightest spaces
- NVIDIA technology brings unique scalability – from GPU in the cloud to mobile devices – reducing development time and cost
- Benefiting from Abaco's expertise in rugged embedded computing and experience in long term support, the mCOM10-K1 ensures minimal program risk

Graphics & Video Boards

PRODUCT	FORM FACTOR	CHIP SET	I/O	COOLING	CONFORMAL COATING	EXTENDED TEMPERATURE RANGE
GRA113 Graphics Board	VPX 3U, VPX REDI	NVIDIA GM107 GPU	2x DVI, 2x VGA	Air, Conduction	Option	Yes
XMCGA8 Graphics Board	XMC	AMD/CoreAVI E8860 GPU	4x DVI, 2x VGA	Air, Conduction	-	Yes
mCOM10-K1 mini COM Express module	COM Express mini, Type 10	NVIDIA Tegra K1 SoC	Audio, Gigabit Ethernet, GPIO, HDMI or DV1, SATA, Serial, USB	Air, Conduction	Option	Yes
ICS-8580 Video Compression Board	XMC	TI TMS320DM6467 DSP	Analog Video, Digital Video, PCIe, Ethernet	Air, Conduction, Spray	Option	Yes
IPN252 6U OpenVPX GPGPU Multiprocessor	VPX 6U	NVIDIA GM107 GPU	COM, DVI, GbE, PCIe, USB, SATA, GPIO, Audio, TV Input, RGB, SATA, USB	Air, Conduction	-	Yes
GRA112 Graphics Board	VPX 3U	NVIDIA EXK107 GPU	CVBS, DVI, NTSC, PAL, RS-170, S-Video, VGA	Air, Conduction	Option	Yes

Rugged Display

PRODUCT	FORM FACTOR	PROCESSOR	I/O	COOLING	MAXIMUM STORAGE	ENVIRONMENTAL
GVC1000 Rugged Graphics & Mission Computer	Small Form Factor Package	NVIDIA Tegra TX2 SoM	Gigabit Ethernet, MilCAN/CANbus, USB, RS232, GPIs and GPOs	Baseplate/Natural Convection Cooled	Up to 128GB	MIL-STD-810G, DO160, MIL-STD-461G, MIL-STD-704F, MIL-STD-1275D
FORCE2 Mission Computer	3U Boxed, VPX 3U	NXP QorIQ T2081/ T1042 SBC, AMD Radeon GPU	DVI, USB, AMD, DVI/ RGsB	Cold Plate	1 TeraByte	MIL-STD-810G, DO-160G, MIL-STD-461G, MIL-STD-704F
DAQMAG2A Rugged Display Computer	3U Boxed, VPX 3U	2nd or 3rd Gen. Intel Core i7 SBC	COM, Gigabit Ethernet, NTSC, PAL, RGB, USB, VESA	Base Plate	Up to 64GB	DO-160G, MIL-STD-704
MAGIC1 Rugged Display Computer	3U Boxed, VPX 3U	NVIDIA EXK107 384-core GPU	Audio, DVI, Gigabit Ethernet, Keyboard and Mouse, Serial, SSD, USB, VGA, Video/TV	Base Plate	Up to 256 GBytes	Level 4-5 Conduction Cooled
daq8580 FMV Compression System	Standalone	Dual ARM 9	Analog Video, Digital Video, Ethernet, RS-422, Cameralink	-	-	MIL-STD-704F, MIL-STD-1275B

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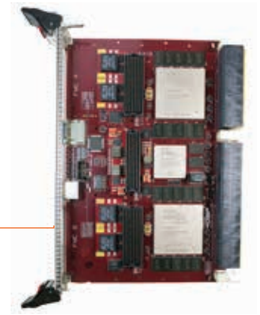
ADVANCED RF AND DSP SOLUTIONS

Abaco has an extensive track record in helping our customers turn sensor-acquired data into actionable information in the shortest time and at the lowest bandwidth in a broad range of digital and analog applications.

FMC170 Data Acquisition/Generation Mezzanine Card

Ideal for Electronic Warfare

- Small and rugged makes it perfect for radar/sonar, aerospace test and measurement
- 2.5GHz instantaneous Tx/Rx bandwidth for low latency applications such as DRFM
- Obsolescence-proof with FMC (VITA 57.1) compliance enabling simple future upgrade



VP868 High Performance Signal Processing

Dual Ultrascale, Dual FMC+, Zynq Ultrascale

- High performance 6U OpenVPX (VITA-65) compliant plug-in module with advanced digital signal processing capabilities
- Support for both Kintex and Virtex UltraScale devices with a migration path to UltraScale+ devices
- Ideal for applications requiring both high performance processing and I/O with the ability to scale from the lab to deployed rugged environments

ICS-8580 Video Compression Processor and Frame Grabber

High speed, high quality

- Broad range of current and legacy video input/output support maximizes flexibility and cost-effectiveness for multiple platform types
- Lowest latency H.264 compression/decompression delivers actionable visual information with maximum image quality in minimum time
- Standalone, autonomous operation eliminates requirement for host, minimizing size, weight and power (SWaP) and cost

FMC Products and Parameters

PRODUCT	FUNCTION	# CHANNELS	DATA RATE (MSPS)	RESOLUTION (BITS)	CONNECTOR	SIGNALING	COUPLING
FMC120	ADC DAC	4 4	1000 1250	16 16	HPC	JESD204B	DC
FMC170	ADC DAC	1 1	5000 5000	10 10	HPC	LVDS	AC
FMC216	DAC	4, 8, 16	1250, 625, 312.5	16	HPC	JESD204B	DC
FMC424	Digital Communications	2	40000	-	HPC	GBT	-
FMC116	ADC	16	125	14	HPC	LVDS	DC
FMC230	DAC	2	2850	14	HPC	LVDS	AC
FMC407	Clock Distribution	2	40000	-	HPC	GBT	-

FPGA System Cards

PRODUCT	FORM FACTOR	FPGA TYPE	FMC SITES	COMMENTS
VP868	6U VPX	2x Ultrascale Kintex or Virtex	2x HSPC FMC+	Optionally 1x Virtex and 1x Zynq
VP880	3U VPX	Ultrascale Kintex or Virtex and Zynq Ultrascale+	1x HSPC/FMC+	-
PC821	PCIe	Ultrascale Kintex or Virtex	1x HSPC/FMC+,1x HPC	-
VP780	3U VPX	Virtex 7	1x HPC	-
FM780	XMC	Virtex 7	Optional	FMC site takes second slot space

Sensor Processing

PRODUCT	FORM FACTOR	CHANNELS	FUNCTION	MAXIMUM SAMPLING/ CONVERSION FREQUENCY
SPR507B Serial FPDP XMC/PMC	XMC/PMC	4	Quad Serial FPDP Interface	-
SPR870A Wideband Digital Receiver/Exciter	VPX 3U	2 out	Transceiver (Analog Input & Output)	1.375 GHz Tx/Rx
ICS-1620 DAC	PCI Express	16	Analog Output	2.5 MHz/ch
ICS-1640 ADC	PCI Express	16	Analog Input	2.5 MHz/ch
ICS-8580 Video Compression Board	XMC	2HD or 4SD	Video Compression	60 fps
daqNet Acoustic Data Conversion System	1U Rackmount	192 Analog & 240 Digital	Analog Output & Digital I/O options	625 kHz/ch

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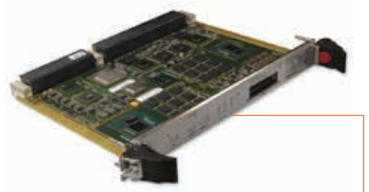
HIGH PERFORMANCE EMBEDDED COMPUTING

We help you take your lab-developed performance-intensive application and, using our experience and advanced software tools, optimize it for real world deployment in constrained spaces and the harshest environments.



DSP282A Multiprocessor

Low latency, high performance

- Dual Intel Core i7 processors combine to deliver 600+ GFLOPS of throughput from a single 6U card slot for blistering performance
- High inter-processor bandwidth at extremely low memory-to-memory latencies enables sensor-acquired data to be delivered in real time
- Large radar systems and SAR/GMTI applications benefit from support for 40 Gigabit Ethernet, providing optimum scalability

IPN252 Multiprocessor

Blending the best

- Intel Core i7 processor and 640-core NVIDIA Maxwell GPU team to provide an unprecedented 1.4 TeraFLOPS of compute capability/slot in demanding DSP applications
- GPUDirect support streams data direct to GPU memory, resulting in significantly lower latency and higher throughput.
- Innovative, advanced cooling enables maximum, no-compromise performance – with ultimate reliability

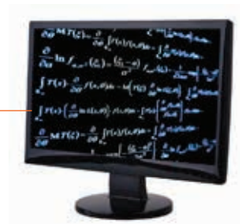
DSP & Multiprocessing

PRODUCT	FORM FACTOR	MEMORY	EXPANSION SITES	AXIS SUPPORT	RUGGEDIZATION	OTHER
IPN252 GPGPU Multiprocessor	VPX 6U	Up to 16 GB DDR3 SDRAM with ECC	1	Yes	Level 1-5 Air, Conduction Cooled	Intel+NVIDIA technologies
DSP282A 2/4-Core Multiprocessor	VPX 6U	Up to 32 GB DDR3 SDRAM	-	Yes	Level 1-5 Air, Conduction Cooled	Fabric: 10/40GigE
SBC627	VPX 6U	5th Gen. Intel Core i7 4-core up to 2.7 GHz	2	Yes	Level 1-5 Air, Conduction Cooled	Security Hub FPGA; 10/40 GbE
6U OpenVPX HPEC Starter System	VPX 6U	-	-	Yes	Air cooled, rugged	-
SWE540 Ethernet Switch	VPX 6U	-	-	Yes	Level 1-5 Air, Conduction Cooled	Fully Managed 40/10GigE Ethernet Switch

AXIS Pro

Powerful, intuitive

- Powerful and flexible yet intuitive, easy to learn, easy to use, AXIS Pro simplifies and speeds complex application development for reduced cost, faster time to deployment
- Specifically designed for demanding, sophisticated embedded applications where the requirement is to maximize performance while minimizing SWaP
- Minimal system overhead delivers optimum throughput, while scalability, portability and hardware/software independence deliver complete flexibility



AXISLIB

Portable, optimized

- 500+ highly optimized signal processing and math functions for Intel and Power Architecture processors delivers optimum performance while minimizing development effort
- VSIPL open standard API facilitates code portability across multiple CPU generations and architectures to support technology refresh during the entire program life cycle
- Comprehensive functionality and feature set optimized for mil/aero application development, enabling superior efficiency and optimum performance

AXIS Software

PRODUCT	SHORT DESCRIPTION
AXIS Pro	HPEC application development tool; greatly improving application efficiency; reducing development time.
AXIS DataView Toolkit	Facilitates fast development of GUIs.
AXIS EventView	Detailed, Visual Performance Analysis.
AXIS MPI	Industry standard API provides compatibility, interoperability.
AXISLib DSP and Math Libraries	High performance libraries to aid with SWaP-constrained mission computing platform development.
AXISLib-AVX 2.5 DSP and Math Libraries	Supports 5th generation Intel Core i7 and Xeon-D architecture processors.
AXIS ImageFlex	High performance image processing, visualization and graphics toolkit.

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NETWORK COMMUNICATIONS

Abaco's unique OpenWare switch management software provides an extensive, powerful and flexible feature set that, together with our 30+ years of experience, means we can solve our customers' toughest networking problems.

SWE540 40 Gbit Ethernet Switch

Low latency, optimum flexibility

- Provides high speed, low latency interconnect across a 6U backplane
- Only fully managed Layer 2/3 40 GigE embedded switch offering Layer 3 forwarding in the fabric, providing dynamic routing support using standard routing protocols.
- With patent-pending thermal management for even greater reliability
- Extensive support for a broad range of security measures

RES3000 Gigabit Ethernet Switch

Flexible, secure, powerful and tiny

- At just 148 x 131 x 86mm, and weighing just 1.4Kg, the rugged 12-port RES3000 is designed for the most confined spaces typical of today's ground, air and sea vehicles
- With Abaco's uniquely powerful and secure OpenWare switch management software, and the option of 28 ports of which 4 are 10GigE, the RES3000 is a flexible solution to fit most applications
- VICTORY switch compliance comes built-in, enabling the RES3000 to easily and quickly function as the data distribution heartbeat of modern army platforms

SWE440 40 Gbit Ethernet Switch

Ultimate bandwidth, low power

- Fully managed 3U VPX 10/40 Gigabit Ethernet switch consuming less than 40 watts
- OpenWare switch management software delivers the fully managed Layer 3 routing and customization needed to create almost any network topology
- Includes comprehensive military-grade security features such as Denial of Service, multi-level passwords and sanitization for maximum protection of sensitive data

Ethernet Switches and Routers

PRODUCT	PORT TYPE	MANAGEMENT TYPE	PORTS	MANAGEMENT SOFTWARE	NETWORK OPERATIONS
RES3000 Compact, Rugged Ethernet Switches	10/100/1000BaseT, 10GBASE-SR	Fully Managed Layer-2/3+	12, 24, 28	OpenWare	L2 & L3 switching and routing (IPv4 & IPv6)
RES-210 Rugged Ethernet Switch	10/100/1000BaseT	Fully Managed Layer-2/3+	10	OpenWare	L2 & L3 switching and routing (IPv4 & IPv6)

Embedded Ethernet Switches

PRODUCT	FORM FACTOR	PORT TYPE	MANAGEMENT TYPE	PORTS	NETWORK OPERATIONS
SWE540 Ethernet Switch	6U VPX	40GBase-KR4, 10GBase-KX4, 1000BaseKX	Fully Managed Layer -2/3+	Up to 39	Wire speed switching and routing including IPv6
SWE440 Ethernet Switch	VPX 3U	40GBase-KX4, 10GBase-KR & KX4, 10GBase-T, 1000BaseKX	Fully Managed Layer -2/3+	Up to 32	Wire speed switching and routing including IPv4/IPv6
NETernity™ GBX411 Ethernet Switch	VPX 3U	10GBASE-SR/LR, 1000BaseT, 1000BaseKX, 10GBASE-KX4	Fully Managed Layer-2/3+	Up to 28	Wire speed switching and routing including IPv6
NETernity™ GBX460 Ethernet Switch	VPX 6U	10GigE, Gigabit Ethernet	Fully Managed Layer-2/3+	20 10GigE + 16 1GigE or 24 10GigE	Wire speed switching and routing including IPv6
NETernity™ RM921NB Ethernet Switch	VME 6U	10/100/1000BaseT, 1000BaseLX, 1000BaseSX, 100BaseFX	Fully Managed Layer-2/3+	12, 24	Wire speed switching and routing including IPv6
NETernity™ RM980RC Ethernet Switch	VME 6U	10/100/1000BaseT	Unmanaged Layer-2	12 or 24	L2 switching at wire speed
NETernity™ RM981RC	VME 6U	10/100/1000BaseT, 1000BaseLX, 1000BaseSX	Unmanaged Layer -2	8, 12 or 24	L2 switching at wire speed
NETernity™ CP923RC Ethernet Switch	cPCI 3U	10/100/1000BaseT	Fully Managed Layer-2/3+	10	Wire speed switching and routing including IPv6
NETernity™ CP921BRC-30x	cPCI 6U	10/100/1000BaseT, 10GigE	Fully Managed Layer-2/3+	up to 26 ports	Wire speed switching and routing including IPv6

Ethernet Network Interface Cards

PRODUCT	FORM FACTOR	PORTS	PORT TYPE	FRONT PANEL I/O CONNECTORS	REAR PANEL I/O CONNECTORS
NIC10GBT, NIC1GBT Network Interface Cards	XMC	2 or 4	10GBase-T, 1GigE	-	10GBase-T, 10/100/1000BaseT
PMC676RC Network Interface Card	PMC	2	1000BaseLX, 1000BaseSX, 10/100/1000BaseT	LX, SC, RJ-45	-
NIC10G, NIC10GFT, NIC1GFT Network Interface Cards	XMC	2 or 4	10GigE, 10GBase-T, 1GigE	SFP+, RJ-45	10GBase-KX4 & 10GBase-CX4

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AVIONICS

Our broad and deep line of avionics interfaces, test platforms, tools and software support the development of modern military and commercial aircraft from small SWaP-constrained platforms to commercial airliners.

RAR15-XMC-CC

Embedded Avionics I/O

- Direct supplier-to-user support provides fast-turn expertise to shorten problem-solving, minimize development time and decrease time-to-market
- No-cost board support package – complete with source code – provides developers with the easy API visibility that facilitates problem solving and shortens lead-time
- FPGA-based designs mitigate the impact of obsolescence, delivering longer deployed lifetimes while minimizing impact on customer architectures and designs

RPCIE-1553

Test, Simulation and Development

- With extensive and feature-rich functionality and a highly flexible API, operational test envelopes are maximized for optimum usability
- Provision of on-board management capability offloads tasks from the host, enabling more powerful, higher performance processing
- API compatibility across all hardware formats/families reduces learning curve, delivers greater efficiency

BTP-1553, BTP-ARINC, BTP-AFDX

Databus Analyzer

- Easy to use, powerful GUI tool provides instant visibility, enabling faster resolution of user interface issues
- Turnkey plug-and-play package eliminates unnecessary time spent in configuration, enables fast start and maximizes productivity while minimizing lead-time
- Real-time acquisition of analysis information pre-acquisition, during acquisition and post-acquisition delivers instant actionable intelligence for both data and interface

Embedded I/O

PRODUCT	FORM FACTOR	PROTOCOL	# CHANNELS	TEMPERATURE RANGE	DISCRETES
RAR15-XMC-CC	XMC	MIL-STD-1553, ARINC 429	ARINC 10RX 8TX, MIL-STD-1553 2 or 4	-40°C to +85°C	0, 6 or 12
RXMC1553-CC	XMC	MIL-STD-1553	MIL-STD-1553 1 or 2	-40°C to +85°C	0, 8 or 12
RAR-XMC-CC	XMC	ARINC 429, 573, 575, 582 2-wire, 717	ARINC 2 To 32	-40°C to +85°C	0 or 2
QPM-1553-CC	PMC	ARINC 429, 573, 575, 582 2-wire, 717	MIL-STD-1553 1, 2 or 4	-40°C to +85°C	0 or 18
RCEI-830A-CC	PMC	ARINC 429, 573, 575, 582 2-wire, 717	ARINC 2 to 16	-40°C to +85°C	0 or 2
RAR-MPCIE	Mini PCI Express	MIL-STD-1553	MIL-STD-1553 1, 2 or 4	-40°C to +85°C	2+1
R15-MPCIE	Mini PCI Express	ARINC 429, 573, 575, 582 2-wire, 717	ARINC 4 to 12	-40°C to +85°C	4

Test, Simulation and Development

PRODUCT	FORM FACTOR	PROTOCOL	# CHANNELS	TEMPERATURE RANGE	DISCRETES
RPCIE-1553	PCI Express	MIL-STD-1553	MIL-STD-1553 1, 2 or 4	-40°C to +70°C	18
RAR-PCIE	PCI Express	ARINC 429, 573, 575, 582 2-wire, 717	ARINC 2 to 16	-40°C to +75°C	16
RCNIC-A2PAU4	PCI Express	AFDX/ARINC 664	AFDX/ARINC 664 2 ports	0°C to +70°C	-
RAR-USB	USB	ARINC 429, 573, 575, 582 2-wire, 717	ARINC 4 to 21	-40°C to +75°C	8
R15-USB	USB	MIL-STD-1553	MIL-STD-1553 1 or 2	-40°C to +75°C	8
RAR15-XMC-FIO	XMC	MIL-STD-1553, ARINC 429	ARINC 10RX 8TX, MIL-STD-1553 2 or 4	-40°C to +70°C	0 OR 6

Databus Analyzer

PRODUCT	FORM FACTOR	# CHANNELS	APPLICATION	DESCRIPTION
BT-1553	Software	-	Lab Simulation Test Development	Windows based Avionics databus GUI analyzer
BT-ARINC	Software	-		
BT3-R15-USB	Software & I/O card	MIL-STD-1553 1 or 2		Windows based Avionics databus GUI analyzer combined with protocol I/O hardware
BTA-USB	Software & I/O card	ARINC 16 RX, 5 TX		
BTP-1553	Turnkey analyzer	MIL-STD-1553 1 or 2		Portable turnkey databus analyzer includes databus analyzer software and hardware installed in a laptop computer.
BTP-ARINC	Turnkey analyzer	ARINC 7 RX, 4 TX		
BT-AFDX-A	Turnkey analyzer	AFDX/ARINC 664 2 ports		
BTP-2M-22W	Turnkey analyzer	MIL-STD-1553 2; ARINC 2 RX, 2 TX		

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I/O AND STORAGE

With the addition of the innovative MMS line of “create it yourself” I/O products, your ability to configure exactly the right connectivity options to create a complete system has never been greater – or more flexible.

VME-6500 Analog/Digital Processor

Multifunction I/O

- Single board supporting 16 analog and 32 digital channels delivers maximum functional density, saving slots and minimizing SWaP while optimizing performance
- Support for Microsoft Windows, Linux and VxWorks enables development across broad and flexible range of platforms and applications
- Enables data acquisition as close as possible to sensors, minimizing latency and delivering actionable information faster

PCIE-5565PIORC

Reflective Memory

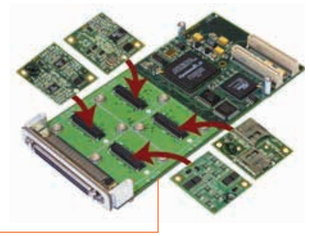
- High-speed, extremely low latency, deterministic interface allows data sharing by up to 256 nodes at up to 170 Mbytes/s for real time interactive applications
- Operating system, processor and backplane independence together with scalability deliver versatility in choosing the optimum software/hardware environment for the application
- Comprehensive tool infrastructure substantially reduces software development time and eases integration to minimize cost and time-to-market

Micro Mezzanine System

Uniquely flexible I/O for almost any application

- Design efficiently with mix-n-match modular components
- Choose a carrier and a blend of modules specific to your application

More details visit: **abaco.com/products/mms**



Multifunction I/O

PRODUCT	FORM FACTOR	SPECIAL CHANNELS	STANDARD CHANNELS	OTHER
VME-6500 6U VME Multifunction I/O Board	VME 6U	8 Input & 8 Output Analog I/O	16 Input & 16 Output Discrete Digital I/O	16-bit ADC, 16-bit DAC, Discrete I/O
VME-6600	VME 6U	8 Thermo Input or 8 RTD Input	16 Input & 16 Output Discrete Digital I/O	Temperature measurement, Discrete I/O
VME-6700	VME 6U	12 Input & 12 Output	16 Input & 16 Output Discrete Digital I/O	Pulse Measurement/ Generation, Discrete I/O

Test, Simulation and Development

PRODUCT	FORM FACTOR	CHANNELS	FUNCTION	OTHER
VME-1128 Digital Input Board	VME 6U	128 Input	Voltage sourcing or contact sense inputs	1.25 to 66 VDC Range
VME-2128 Digital Output Board	VME 6U	128 Input	High-voltage outputs, 600 mA Sink, 22 mA Source	5 to 55 VDC Range
VME-3122A	VME 6U	64 Input	16-bit ADC	100 kHz scan rate, Multiplexed inputs
VME-3123A	VME 6U	16 Input	16-bit ADC	Simultaneous sample-and-hold, one ADC per channel
VME-4145	VME 6U	4 Output	16-bit ADC	Waveform Generator, Up to 2.5 million samples/sec
VME-9081	VME 6U	-	Intelligent I/O Controller (IIOC) SBC	I/O system interface from simulator to host computer running simulation software
VME-5532L Bus Repeater	VME 6U	Fiber Optic Cables	Slave chassis System Controller	VMEbus Fiber-Optic Repeater Link

Reflective Memory

PRODUCT	FORM FACTOR	MEMORY OPTIONS	BAUD RATE	OTHER
PCIE-5565PIORC	PCIE	128 or 256 Mbyte	2.12Gbaud	Low-profile PCI Express, 4-Lane PCIE bus
PMC-5565PIORC Reflective Memory Node Card	PMC	128 or 256 Mbyte	2.12Gbaud	Mezzanine card, 4-Lane PCIE bus
HUB-5595 Managed Hub	DIN	-	2.12Gbaud	Max 8 ports of either multimode or single mode transmission
PEAZ-5565 Reflective Memory Analyzer	PCIE	128 Mbyte	2.12Gbaud	A powerful analytic tool for our industry-leading 5565
PCI-5565PIORC	PCI	128 or 256 Mbyte	2.12Gbaud	PCI interface 33 MHZ / 64-bit or 66 MHz / 64-bit bus
VME-5565 Reflective Memory	VME 6U	128 Mbyte	2.12Gbaud	VMEbus DMA support

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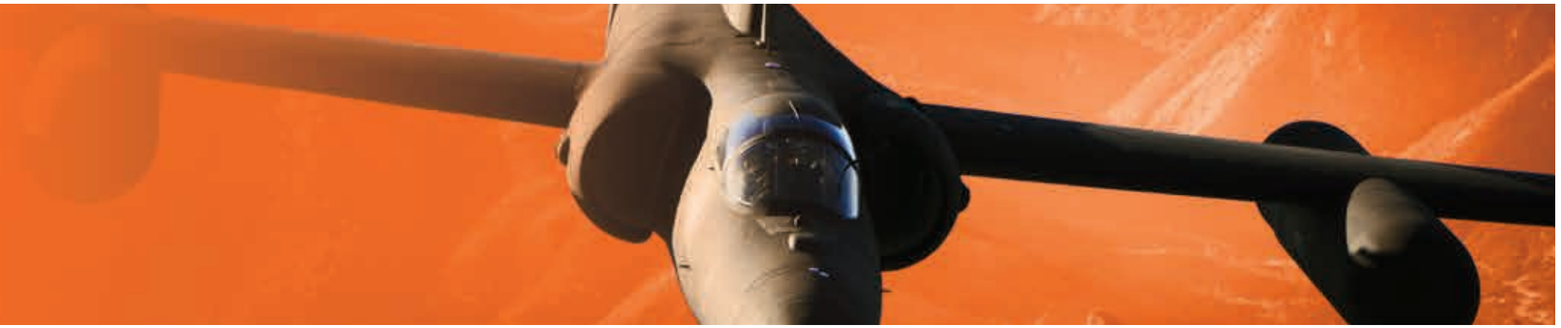
PRODUCT LIFECYCLE MANAGEMENT



Making the difference for over 30 years

For multi-year program deployments, obsolescence mitigation can be a significant challenge for our customers. In addition to designing in compatibility across generations of our products, Abaco's industry-leading Product Lifecycle Management program – developed over many years – provides a flexible, cost-effective range of choices. Our experience enables us to advise on the most appropriate strategies – whether defensive, progressive or hybrid – to ensure our customers the optimum return on investment and minimum cost of ownership for any deployment.

Configuration Management

Abaco provides customers with the opportunity to be part of the configuration management/change approval process throughout the life of the program – with the choice of being advised of, or being able to veto, planned changes in order to minimize risk.

Defensive strategy

In adopting a defensive strategy for obsolescence, a customer freezes the design of the system from the outset of production. The impact of obsolescence is then managed through a combination of component health checks and 'buy ahead' and storage of spare parts.

Progressive strategy

Regular, planned system updates leverages Abaco's strategy of ensuring form-, fit- and function capability from one generation of products to the next, allowing a progressive upgrade in performance over the lifetime of the program – with minimal risk or disruption.

Mixed strategy

For many programs, a combination of the defensive and progressive approaches may yield optimum results. A project might be divided into cycles, with configuration management and lifetime buys early on, followed by a plan to upgrade using technology insertion in subsequent phases.

Technology

Rugged Systems
For more than three decades, Abaco has been a pioneer in delivering embedded computing for deployment in the harshest, most challenging environments. To this experience and expertise, we add advanced manufacturing processes and innovative cooling technologies such as heat pipes that enable higher system performance, greater reliability and minimal SWaP.

Security
Information Assurance is a critical element in today's leading edge systems, ensuring the integrity of data as it flows from where it is captured to where it is needed. Abaco hardware and firmware can support customer software to play a vital role in facilitating the implementation of appropriate anti-tamper safeguards that maximize system integrity.

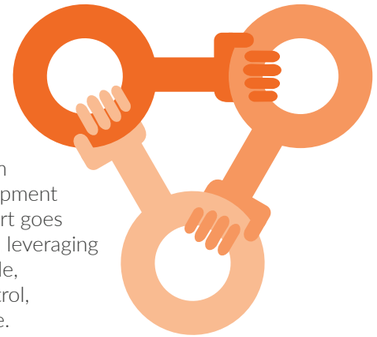
Open Standards
Abaco's commitment to open architectures/industry standards and industry initiatives such as FACE, GVA and VICTORY is unwavering. From hardware architectures and mainstream commercial technologies to software development tools, we understand the value this commitment brings to our customers in terms of reduced cost, reduced risk and reduced time-to-deployment.

Program Experience & Partners

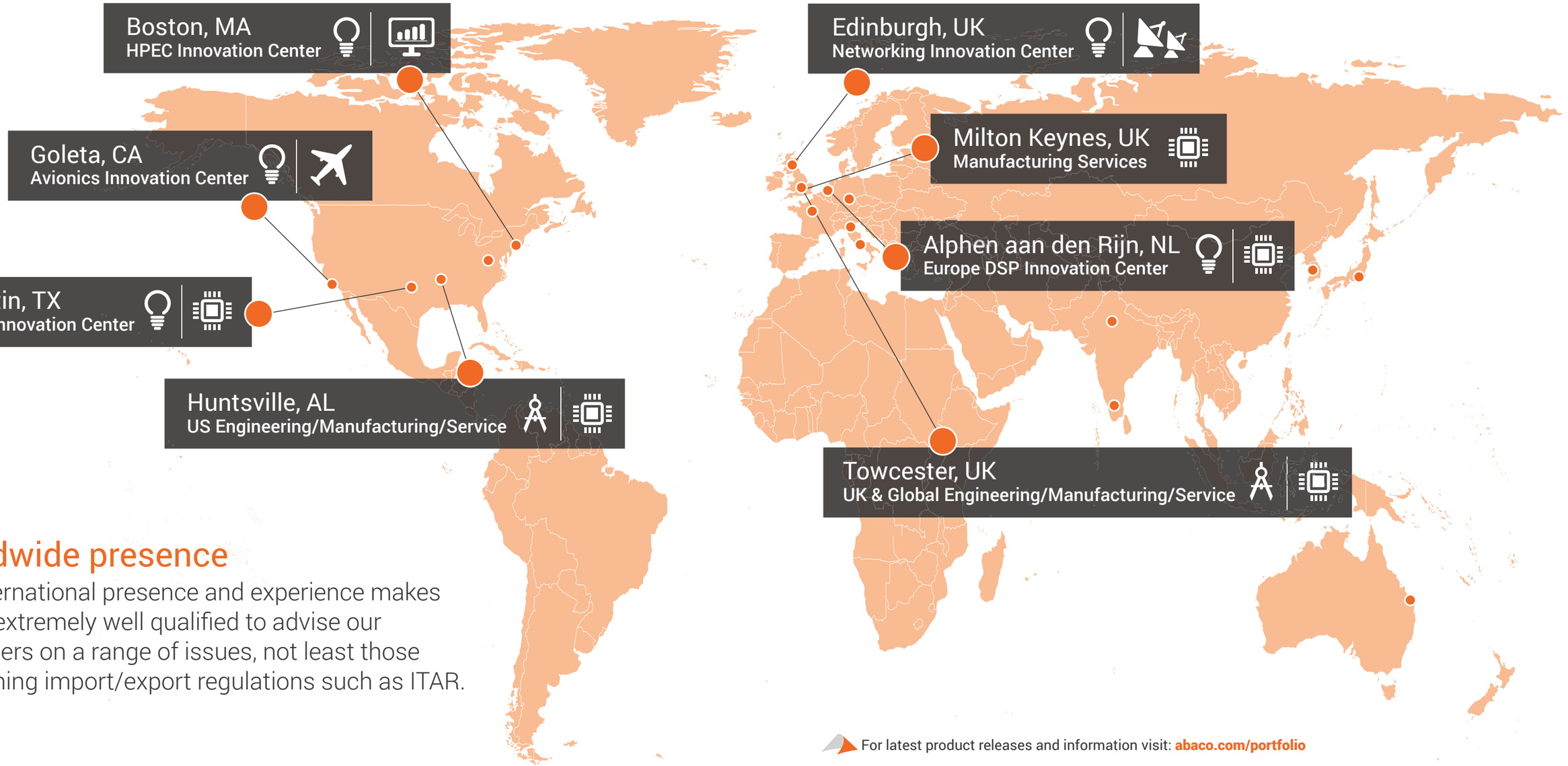
Over the past 30+ years, Abaco Systems has been privileged to be part of some of the most prestigious programs in the defense, security, commercial aviation and space industries. We are proud to call all of the major defense prime contractors our customers. Abaco Systems has a rich heritage of cooperation with industry associations and trade groups and we work closely with some of the industry's leading corporations.

Support

Through our program managers, backed by our extensive resources, our responsive, professional support for our customers extends for the entire duration of a project – from conception through development to deployment. That support goes well beyond technical help, leveraging our expertise in, for example, manufacturing, export control, compliance and much more.



GLOBAL COVERAGE



Worldwide presence

Our international presence and experience makes Abaco extremely well qualified to advise our customers on a range of issues, not least those concerning import/export regulations such as ITAR.

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