abaco
SYSTEMS

WE INNOVATE. WE DELIVER.
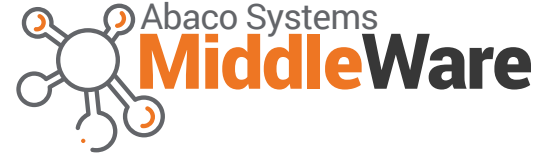YOU SUCCEED.

PRODUCT
SELECTION
GUIDE

A comprehensive overview of
our innovative product range.

abaco.com

OUR PORTFOLIO

Abaco Systems MiddleWare

MIDDLEWARE

User-friendly software/middleware tools that offer a seamless middle layer integration point for custom applications that require dedicated hardware.

SINGLE BOARD COMPUTERS

Latest generation Intel and Power Architecture compute platforms with advanced thermal capabilities to maximize performance in SWaP-constrained environments.

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.
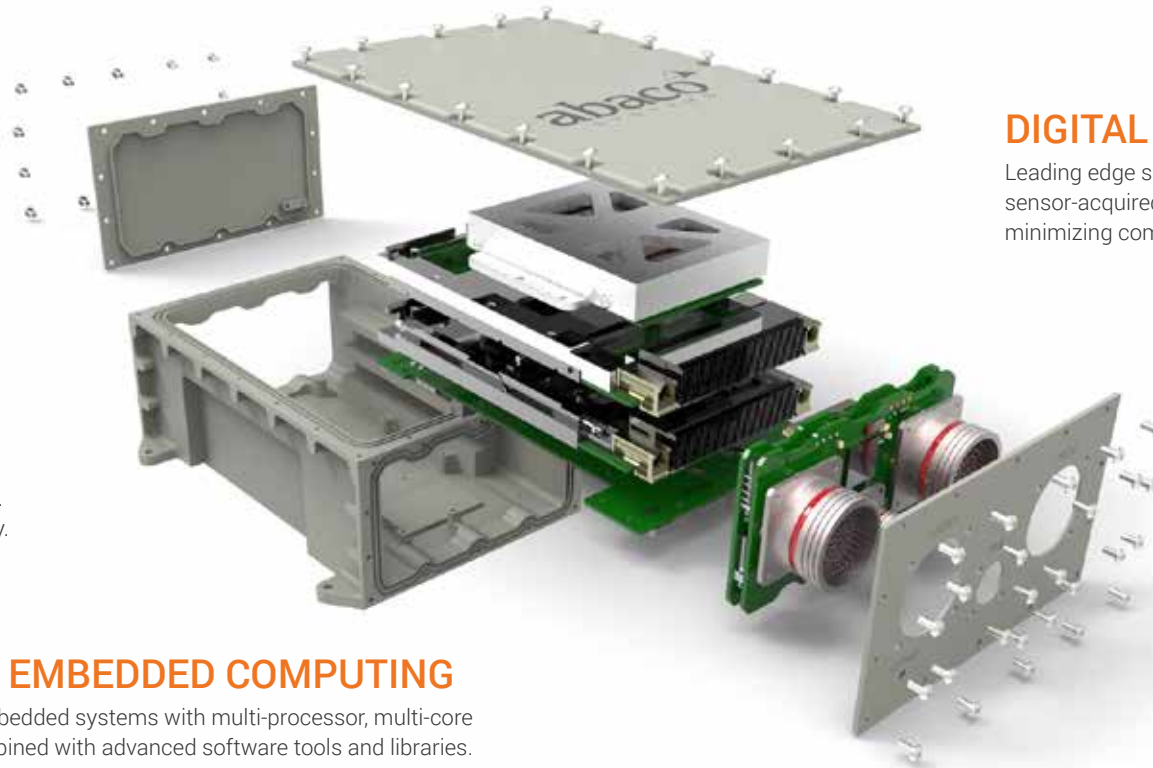
DIGITAL SIGNAL PROCESSING (DSP)

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.

MISSION READY SYSTEMS

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

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.
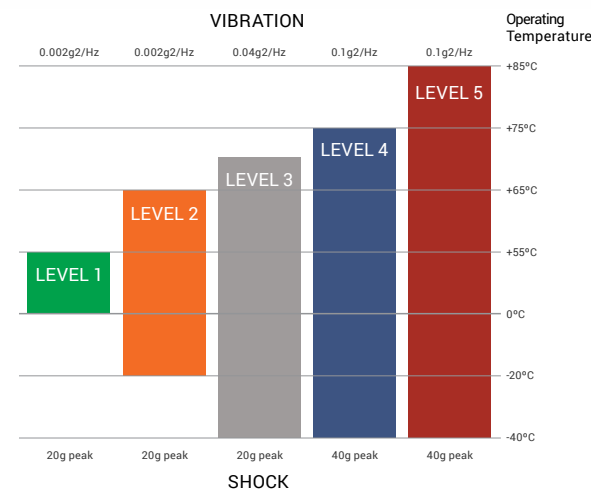
FPGA SYSTEM CARDS

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

RUGGEDIZATION LEVELS A TO E

As well as Ruggedization Levels A to E, Abaco also offers Ruggedization Levels 1 to 5. These are identical in every respect, except that for the 1-5 scale, the upper operating temperature limits are defined on a product-by-product basis for maximum performance without fixed temperature limits. Please refer to the product manual.

FULL DETAILS: abaco.com/rugged-systems

VIBRATION

	0.002g2/Hz	0.002g2/Hz	0.04g2/Hz	0.1g2/Hz	0.1g2/Hz	Operating Temperature
					LEVEL 5	+85°C
				LEVEL 4		+75°C
			LEVEL 3			+65°C
		LEVEL 2				+55°C
	LEVEL 1					0°C
						-20°C
						-40°C
	20g peak	20g peak	20g peak	40g peak	40g peak	

SHOCK

PRODUCT LIFECYCLE MANAGEMENT

For multi-year program deployments, obsolescence mitigation can be a significant challenge. In addition to designing in compatibility across generations of our products, Abaco's industry-leading Product Lifecycle Management program provides a flexible, cost-effective range of choices. Our experience enables us to advise on the most appropriate strategies.

SINGLE BOARD COMPUTERS

Commercially available 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.

Intel Architecture SBCs

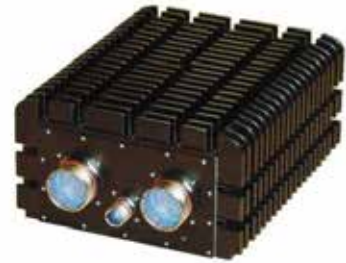| PRODUCT	FORM FACTOR	PROCESSOR	MAXIMUM MEMORY	MEZZANINE	AXIS SUPPORT	RUGGEDIZATION
SBC3511	VPX 3U	Intel Xeon E-2276ME	32 GB DDR4 SDRAM soldered with ECC	1x XMC	Yes	Level 1-5 Air, Conduction Cooled
SBC329	VPX 3U	Intel Xeon E3-1505M, E3-1505L v6	16 GB DDR4 SDRAM soldered with ECC	1x XMC	Yes	Level 1-5 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	32 GB DDR3 SDRAM	2x PMC/XMC	Yes	Level 1-5 Air, Conduction Cooled
XVR19	VME	Intel Xeon E3-1505M, E3-1505L v6	32 GB DDR4 SDRAM soldered with ECC	2x PMC/XMC	-	Level 1-3 Air Cooled
XVB603	VME	Intel Xeon E3-1505M, E3-1505L v6	16 GB DDR4 SDRAM soldered with ECC	2x PMC/XMC	-	Level 1-2 Air Cooled

Power Architecture SBCs

PRODUCT	FORM FACTOR	PROCESSOR	MAXIMUM MEMORY	MEZZANINE	AXIS SUPPORT	RUGGEDIZATION
SBC314	VPX 3U	QorIQ T2081/T1042 @ up to 1.8 GHz	4 GB DDR3L SDRAM with ECC	1x PMC/XMC	Yes	Level 1-5 Air, Conduction Cooled
PPC11A	VME	QorIQ T2081/T1042 @ up to 1.8 GHz	8 GB DDR3L SDRAM with ECC	2x PMC/XMC	-	Level 1-5 Air, Conduction Cooled
PPC10A	VME	QorIQ P4080 @ 1.5 GHz	8 GB DDR3 SDRAM with ECC	2x PMC/XMC	-	Level 1-5 Air, Conduction Cooled
PPC9B	VME	QorIQ P2020 @ 1.2 GHz	4 GB DDR3 SDRAM with ECC	2x PMC/1x XMC	-	Level 1-5 Air, Conduction Cooled
IMP3A	cPCI 3U	QorIQ P2020 @ 1.2 GHz	4 GB DDR3 SDRAM with ECC	1x PMC	-	Level 1-5 Air, Conduction Cooled

SBC3511 3U VPX Single Board Computer

Big performance in small spaces

> Leverages greater performance of Intel Xeon E 'Coffee Lake Refresh' processors
> Features a 40 Gigabit Ethernet data plane, delivering not only a high speed interconnect but also alignment with the SOSA technical standard
> Designed to assist with user-defined Anti-Tamper and Information Assurance strategies, the Xilinx® Zynq® UltraScale+™ MPSoC's built-in security capabilities include a physical unclonable function, user-accessible hardened cryptographic blocks, asymmetric authentication, and side channel attack protection

SBC314 3U OpenVPX Single Board Computer

Integrated, secure, tailored solution

> 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, 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

MISSION READY SYSTEMS

Powerful, flexible and based on commercial 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.

Mission Ready Systems

PRODUCT	FORM FACTOR	PROCESSOR	COOLING	OPERATING TEMPERATURE	WEIGHT LB (KG)	DESCRIPTION
GVC2000	VPX 3U	Intel Xeon D-1559, NVIDIA GM107 GPU	Base Plate	-40˚C to +71˚C	11.5 lbs (5.22 kg)	Ideal for applications where top end data- or display processing and I/O flexibility is required
MCS1000	VPX 3U	Intel Xeon E3-1505M, CoreAVI or AMD E8860 GPU	Base Plate	-40˚C to +71˚C	11.5 lbs (5.22 kg)	Ideal for I/O-rich avionics and graphics processing applications where I/O flexibility and processing capability are a must
FORCE2C	VPX 3U	QorIQ T2081 @ 1.8 GHz / T1042 @ 1.4 GHz	Base Plate	-40˚C to +70˚C	7.0 lbs (3.2kg)	Flight certifiable mission computer
RES3000	-	-	Base Plate/ Natural Conduction / Convection Cooled	-40˚C to +71˚C	3.5 - 6.9 lbs (1.6 - 3.1 kg)	Compact, rugged, fully managed Ethernet switch
CRS-D8I-3VF1	VPX 3U	3rd Gen. Intel Core i7	Conduction Cooled (Forced Air)	-40˚C to +55˚C	22 lbs (9.98 kg)	COTS, half ATR application-ready data processing system
CRS 48.5	VPX 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 COTS rugged system
VPX167	VPX 3U	Intel Quad Core i7	Conduction Cooled	-40˚C to +70˚C	40 lbs (18.1 kg)	Airborne electronic warfare
MAGIC1	VPX 3U, Boxed	Intel i7-47000EQ, NVIDIA GPU	Base Plate	-40˚C to +70˚C	9 lbs (4 kg)	Display computer, based on combination of CPU and GPU technology, for the most demanding applications

MAGIC1 Rugged Display Computer

Compact, high performance

> Combines state of the art CPU and GPU technology to enable high performance conversion of sensor-acquired data into rich, graphical intelligence in harsh, constrained environments
> CUDA, OpenCL and MATLAB support eases and speeds development of sophisticated graphics and parallel processing applications
> Flexible options enable wide-area persistent surveillance, hyperspectral sensor fusion, IED detection, synthetic aperture radar processing, embedded training, digital mapping and more

FORCE2C Mission 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 mission and flight computing, together with minimal SWaP, provide optimal flexibility for a broad range of applications
> DO-160G, MIL-STD-704F, MIL-STD-461G and MIL-STD-810G qualification increases confidence, reduces risk, minimizes NRE
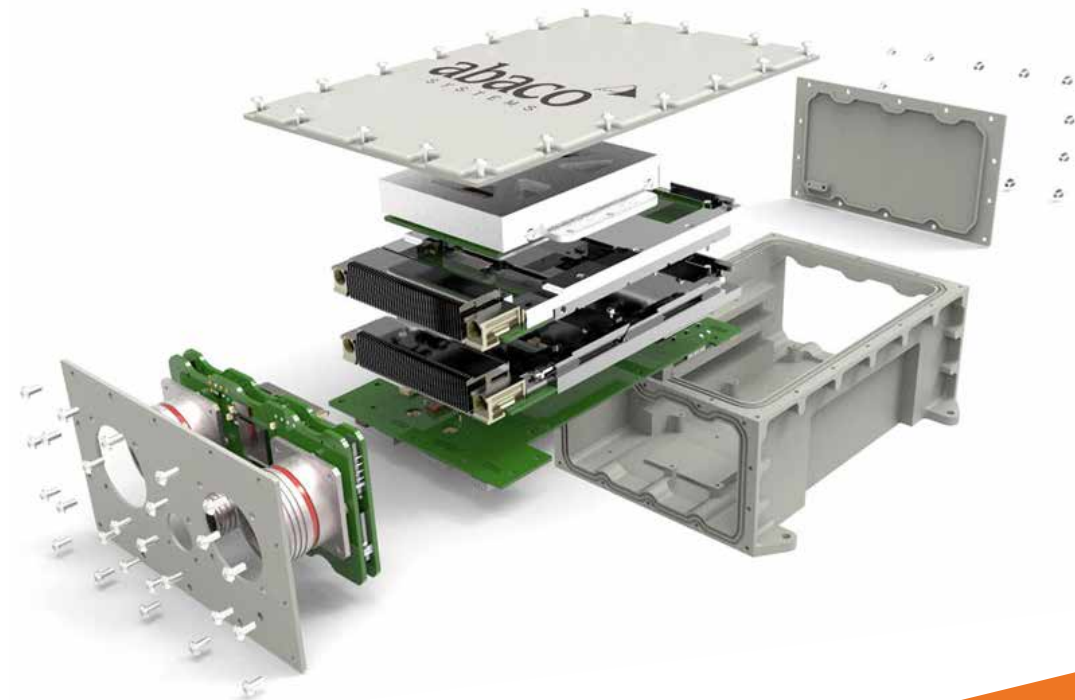
Custom Systems

Designed by you, built by us

> 30+ years of experience at your service
> Choice of packaged systems appropriate for range of applications
> Pre-integrated, pre-validated for minimal NRE, risk, time-to-market
> Custom design/build available for application-specific requirements

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.

GVC1001 Graphics / Vision / AI Computing

All the processing power and connectivity you need

> Powerful graphics, vision, AI and image processing evaluation platform featuring NVIDIA Jetson AGX Xavier SoM.
> Delivers up to 10 TFLOPS for maximum performance in advanced applications
> Minimal SWaP enables deployment in constrained environments. Wide range of I/O provides maximum flexibility

GR5 Graphics & GPGPU Output Board

Optimum flexibility, technology insertion path

> Features most recent NVIDIA chip-down Pascal P2000 technology: do more with less
> Supports new customers with latest DisplayPort output technology
> Provides technology insertion path for existing GRA112D/3D customers with single link DVI ports
> Decreases system bottle necks for overall increased system performance
> Accelerates image processing and manipulation with Abaco AXIS ImageFlex

NVP2102 Graphics and Video Capture XMC

Ultra-High Performance, optimum flexibility

> Direct video capture to GPU memory and output to lower system latency
> Significant video ingress and egress capability
> Lower SWaP COTS video ingest and graphics solution

Graphics & Video Boards

PRODUCT	FORM FACTOR	CHIP SET	I/O	COOLING	CONFORMAL COATING	EXTENDED TEMPERATURE RANGE
NVP2000	3U XMC	NVIDIA Pascal GPU - Quadro P2000	3x DisplayPort 1.4 outputs	Air, Conduction	No	Yes
NVP2102	3U XMC	NVIDIA Pascal GPU - Quadro P2000	4x 3G-SDI inputs, 3x DisplayPort outputs	Air, Conduction	No	Yes
GR2	VPX 3U	NVIDIA Pascal GPU - Quadro P5000/ P3000	2x DisplayPort Outputs	Air, Conduction Cooled	No	No
GR4	VPX 3U	NVIDIA Pascal GPU - Quadro P5000/ P3000	4x 3G-SDI inputs, 4x SDI-outputs, 1x Display-Port output	Conduction Cooled	No	No
GR5	3U XMC	NVIDIA Pascal GPU - Quadro P2000	2x SL-DVI output ports, 2x DP 1.2 output ports	Air, Conduction	No	Yes
GRA113	VPX 3U, VPX REDI	NVIDIA GM107 GPU	Up to 4x DVI	Air, Conduction	Option	Yes
XMCGA8	XMC	AMD/CoreAVI E8860 GPU	4x DVI, 2x VGA	Air, Conduction	-	Yes
ICS-8580	XMC	TI TMS320DM6467 DSP	Analog Video, Digital Video, PCIe, Ethernet	Air, Conduction, Spray	Option	Yes

Rugged Display

PRODUCT	FORM FACTOR	PROCESSOR	I/O	COOLING	MAXIMUM STORAGE	ENVIRONMENTAL
GVC1001	Small form factor package	NVIDIA Jetson AGX Xavier	DisplayPort, 10 Gigabit Ethernet, 1 Gigabit Ethernet, CANBus, USB, UARTs, Audio I/O and GPIO	Base-Plate	256 GB NMEe SSD	Lab grade operating environment
MAGIC1	3U Boxed, VPX 3U	Intel i7-4700EQ, NVIDIA GPU	Audio, DVI, Gigabit Ethernet, Keyboard and Mouse, Serial, SSD, USB, VGA	Base Plate	Up to 256 GBytes	Level 1-5 Air, Conduction Cooled
daq8580	Standalone	Dual ARM 9	Analog Video, Digital Video, Ethernet, RS-422, Cameralink	-	-	MIL-STD-704F, MIL-STD-1275B

DIGITAL SIGNAL PROCESSING (DSP)

Abaco's commercial off-the-shelf solutions have 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.

VP430 Direct RF Processing System

High channel density, high performance RFSoC

> Reduce RF signal chain complexity - direct RF sampling implemented in the digital domain means more flexibility and less DUC/DDC
> Maximize input/output channel density. With 8-channels in and 8-channels out, existing solutions would take four times as many slots for comparable performance
> Offload data more efficiently with up to 12 GB/s transfer via FireFly optical backplane

VP889 FPGA Board

Flexible, high performance

> Our modular approach is your lower cost of ownership. Why upgrade a whole system when Abaco lets you upgrade only the elements you need?
> State of the art FPGA technology for rapidly changing applications
> The flexibility you need for the system you want. Choose your FPGA. Choose your I/O. Configure to your requirements.

FMC134 Direct RF Conversion Mezzanine Card

High bandwidth. High resolution. High channel count.

> Four 12-bit ADC channels up to 3.2GSPS or two ADC channels up to 6.4GSPS make the FMC134 ideal for multi-channel radar applications
> FMC stacking enabled for increased I/O density
> Multi-function capability makes it applicable to a wide range of applications

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
FMC150	ADC DAC	2 2	250 800	14 16	LPC	LVDS	AC
FMC170	ADC DAC	1 1	5000 5000	10 10	HPC	LVDS	AC
FMC172	ADC DAC	1	6000	10	FMC	LVDS	AC
FMC163	ADC DAC	1,2 2	4000, 2000 2850	12 14	HPC	LVDS	AC
FMC104	ADC	4	250	14	LPC	LVDS/LVCMOS	AC/DC
FMC116	ADC	16	125	14	HPC	LVDS	DC
FMC216	DAC	4, 8, 16	1250, 625, 312.5	16	HPC	JESD204B	DC
FMC424	Digital Communications	2	40000	-	HPC	GBT	-
FMC134	ADC	2,4	6400, 3200	12	FMC+	JESD204B	AC
FMC230	DAC	2	2850	14	HPC	LVDS	AC
FMC407	Clock Distribution	2	40000	-	HPC	GBT	-
FMC422	CameraLink	2	-	-	LPC	LVDS	-

FPGA and SOC Boards

PRODUCT	FORM FACTOR	FPGA/SOC TYPE	FMC/ADC AND DAC	COMMENTS
VP460	6U VPX	Zynq Ultrascale+ RFSoC + Zynq Ultrascale+ HBM	ADC: 8-channel, 4GSPS 12-bit DAC: 8-channel, 6.4GSPS 14-bit	SOSA Backplane Option
VP430	3U VPX	Zynq Ultrascale+ RFSoC	ADC: 8-channel, 4GSPS 12-bit DAC: 8-channel, 6.4GSPS 14-bit	-
VP889	3U VPX	Virtex Ultrascale+, Zynq Ultrascale+ MPSoC	1x HSPC/FMC+	-
VP868	6U VPX	2x Ultrascale Kintex or Virtex	2x HSPC FMC+	Optionally 1x Virtex and 1x Zynq
VP881	3U VPX	VP880 variant with expanded backplane I/O options	1x HSPC/FMC+	VP880 variant with expanded backplane I/O options
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

HIGH PERFORMANCE EMBEDDED COMPUTING

Our COTS solutions 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 exceptional 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
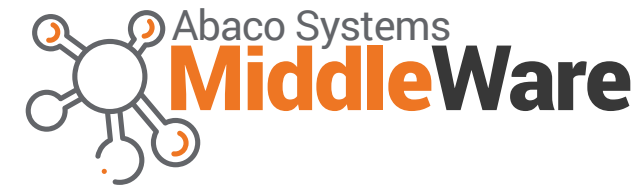
SBC627 6U VPX Single Board Computer
Do more with less, and do it securely

> Powered by an Intel 5th Gen Core i7 processor with AVX engine, it delivers higher performance and greater functionality then previous 6U VPX boards yet maintains the same power envelope
> Being form-, fit-, and function compatible with earlier models, the SBC627 provides a straightforward, cost-effective technology insertion opportunity
> Multiple PCIe® Data Plane Fabric Configurations, 2x 10/40 Gigabit Ethernet

DSP & Multiprocessing

PRODUCT	FORM FACTOR	MAXIMUM MEMORY	MEZZANINE	AXIS SUPPORT	RUGGEDIZATION	OTHER
SWE440A	VPX 3U	-	-	Yes	Level 1-5 Air, Conduction Cooled	Fully managed 10/40 GbE Ethernet switch
SWE540A	VPX 6U	-	-	Yes	Level 1-5 Air, Conduction Cooled	Fully managed 10/40 GbE Ethernet switch
DSP282A	VPX 6U	16 GB DDR3 SDRAM per node	-	Yes	Level 1-3 Air Cooled	10/40 GbE, multi-core, multiprocessor
SBC627	VPX 6U	32 GB DDR3 SDRAM	2x PMC/XMC	Yes	Level 1-5 Air, Conduction Cooled	10/40 GbE single board computer

Abaco Systems MiddleWare

Abaco Systems MiddleWare comprises user-friendly software/middleware tools that offer a seamless middle layer integration point for custom applications that require dedicated hardware. MiddleWare's three major components are the AXIS Software Development Tool Suite; OpenWare Network Management Software; and the Health Toolkit health monitoring software framework for mission readiness.

Health Toolkit
Unique, innovative, reliable

> Software/middleware tool designed to maximize system reliability and mission success in critical environments such as electronic warfare, digital radar and flight control
> A solution that operates between the underlying hardware and the application software; interrogates all aspects of the hardware's performance
> Non-proprietary as its built on the Data Distribution System (DDS) open standard middleware layer that's used in many industries and aligns with standards as FACE and SOSA

AXIS ImageFlex
Portable, low overhead, high performance, easy to use

> Optimized, high quality image manipulation, fusion, stabilization and distortion correction/morphing algorithms
> Comprehensive reference applications: AI classifier and object detection with neural algorthms, target tracking, stabilization, "SkyBox" spherical situation awareness, LiDAR data viewer, autonomous visualizer
> DO-160G, MIL-STD-704F, MIL-STD-461G and MIL-STD-810G qualification increases confidence, reduces risk, minimizes NRE
> Utilities: AI annotator and Caffe to TensorRT converter, SkyBox configurator, image fusion and morph grid configurators

MiddleWare

PRODUCT	SHORT DESCRIPTION
AXIS ImageFlex	High performance image processing, visualization and graphics toolkit
AXIS Pro	HPEC application development tool; greatly improving application efficiency; reducing development time
AXISLib-AVX 2.6 DSP and Math Libraries	Supports 5th generation Intel Core i7 and Xeon-D architecture processors
AXISLib-PPC	AXISLib-PPC 2.6 DSP and math libraries deliver e600 and e6500 core support for Power architecture processors
AXIS DataView Toolkit	Facilitates fast development of GPUs
AXIS EventView	Detailed, visual performance analysis
AXIS MPI	Industry standard API provides compatibility, interoperability
Health Toolkit	Software/middleware toolkit designed to maximize system-wide reliability and mission success
OpenWare	Industry's most flexible, customizable, secure Ethernet switch management software

NETWORK COMMUNICATIONS

Abaco's unique OpenWare COTS 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.

Ethernet Switches and Routers

PRODUCT	PORT TYPE	MANAGEMENT TYPE	PORTS	SOFTWARE	NETWORK OPERATIONS
RES3120	1000BASE-T, 10GBASE-SR	Fully Managed Layer-2/3+	12	OpenWare	L2-L3 packets, including IPv6
RES3240	1000BASE-T, 10GBASE-SR	Fully Managed Layer-2/3+	24	OpenWare	L2-L3 packets, including IPv6
RES3244	1000BASE-T, 10GBASE-SR	Fully Managed Layer-2/3+	28	OpenWare	L2-L3 packets, including IPv6

SWE440A 40 Gigabit 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
> With 33 ports, a link can be built between legacy 1000BaseT systems and 40G capability

Embedded Ethernet Switches

PRODUCT	FORM FACTOR	PORT TYPE	MANAGEMENT TYPE	PORTS	NETWORK OPERATIONS
SWE540A	VPX 6U	40GBase-KR4, 10GBase-KX4, 1000BaseKX, 10GBASE-KR	OpenWare Fully Managed Layer -2/3+	Up to 39	Wire speed switching and routing including IPv6
SWE440A	VPX 3U	40GBASE-KR4, 10GBASE-KX4/KR, 1000BASE-T, 1000BASE-KX	OpenWare Fully Managed Layer -2/3+	Up to 33	Wire speed switching and routing including IPv4/IPv6
NETernity™ GBX411	VPX 3U	10GBASE-SR/LR, 1000BaseT, 1000BaseKX, 10GBASE-KX4	OpenWare Fully Managed Layer -2/3+	Up to 28	Wire speed switching and routing including IPv6
NETernity™ RM921NB	VME 6U	10/100/1000BaseT, 1000BaseLX, 1000BaseSX, 100BaseFX	OpenWare Fully Managed Layer -2/3+	12, 24	Wire speed switching and routing including IPv6
NETernity™ RM980RC	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 CP980RC	cPCI 6U	10/100/1000BaseT	Unmanaged Layer 2	24	L2 switching at wire-speed
NETernity GBX25	6U VME	10/100/1000Base-T, 100BaseFX, 10GBase-T, SFP/SFP+, 10GBase-SR, 10GBase-LR, 1000Base0SX	Fully Managed Layer -2/3+	Up to 40 (24 rear VME ports and 15 front panel ports)	Opportunity to replace a rear I/O switch and a separate front I/O switch with one GBX25

RES3000 Gigabit Ethernet Switch

Flexible, secure, powerful and tiny

> At just 148 x 131 x 86mm, and weighing just 1.2Kg, 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 four 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

Ethernet Network Interface Cards

PRODUCT	FORM FACTOR	PORTS	PORT TYPE	FRONT PANEL I/O CONNECTORS	REAR PANEL I/O CONNECTORS
NIC10GBT, NIC1GBT	XMC	2 or 4	10GBase-T, 1GigE	-	10GBase-T, 10/100/1000BaseT
NIC10G, NIC10GFT, NIC1GFT	XMC	2 or 4	10GigE, 10GBase-T, 1GigE	SFP+, RJ-45	10GBase-KX4 & 10GBase-CX4
XMC477RC	XMC	4	1000Base-SX, 1000Base-LX, 1000Base-T	/O Connectors: SFP/SFP+	/O Connectors

NETernity GBX25 Ethernet Switch

Flexible, reconfigurable and SWaP-C3 optimized

> Reconfigurable and flexible to help reduce design timescales and costs
> 10G SFP+ support and flexible port configuration for up-linking and connecting to other systems
> Slot reduction with dual I/O
> SWaP-C3 optimization, maximizing system functionality
> Most comprehensive set of interface types supported (100Base-through to 10GBASE-LR)

OpenWare™

The industry's most flexible network management software. OpenWare is a GNU/Linux-based firmware, bringing together the best of open source and in-house developed switch control, routing and protocol standards, providing users with an Ethernet switch that can be easily configured for any network requirement.

> Open, scalable
> Multi-level security
> Customizable
> Multi-Fabric Support

AVIONICS

Our commercially available avionics interfaces product portfolio and expertise span the entire aircraft lifecycle from development, through test and simulation to embedded deployment – even in the lab and on the flightline for maintenance and troubleshooting.

RAR15X Embedded Avionics I/O

Multi-protocol, rugged, reliable and secure

> 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

Thunderbolt™ 3 Family of Portable Devices

High speed, low latency, and portable

> Provides powerful alternative to devices based on ExpressCard, PCMCIA, Ethernet or USB connections
> Leverages high speed 40Gbps interface for minimum latency, maximum channel density
> Supports ARINC 429, ARINC 664/AFDX, and MIL-STD-1553 protocols

1553, ARINC and AFDX Databus Analyzers

Easy to use, low cost, portable and rugged

> Suite of software and hardware bundles with a range of features and pricepoints enabling you to choose the right analyzer for your needs
> Easy to use, powerful GUI tool provides instant visibility, enabling faster resolution of user interface issues
> 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
RAR15X	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	XMC	MIL-STD-1553	MIL-STD-1553 1 or 2	-40°C to +85°C	0, 8 or 12
RAR-XMC	XMC	ARINC 429, 573, 575, 582 2-wire, 717	ARINC 2 To 32	-40°C to +85°C	0 or 2
RCEI-830A	PMC	ARINC 429, 573, 575, 582 2-wire, 717	ARINC 2 to 16	-40°C to +85°C	0 or 2
R15-MPCIE	Mini PCI Express	MIL-STD-1553	MIL-STD-1553 1, 2 or 4	-40°C to +85°C	2+1
RAR-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

Thunderbolt 3 Portable Devices

PRODUCT	FORM FACTOR	PROTOCOL	# CHANNELS	APPLICATION	OTHER
QPM-1553-TB	PMC, Thunderbolt 3	MIL-STD-1553	1, 2, or 4	Lab, Simulation, Test, Portable	IRIG, 18 Discretes, Single/Dual/Multi-function operating mode
RCEI-830A-TB	PMC, Thunderbolt 3	429, 573, 575, 582 2-wire	Up to 16 Rx and 16 Tx		Conduction cooled, commercial XT temperature range
RCNIC-A2PA-TB	PMC, Thunderbolt 3	AFDX/ARINC 664	2		IRIG, AFDX/ARINC 664 Part 7 stack
RAR15XF	XMC, Thunderbolt 3	MIL-STD-1553, ARINC 429	ARINC 10RX 8TX, MIL-STD-1553 2 or 4		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-USB-MON	Software and USB	MIL-STD-1553 1, Scope output 1		Windows based Avionics databus GUI analyzer combined with bus monitoring hardware with a built in scope output
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		

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.
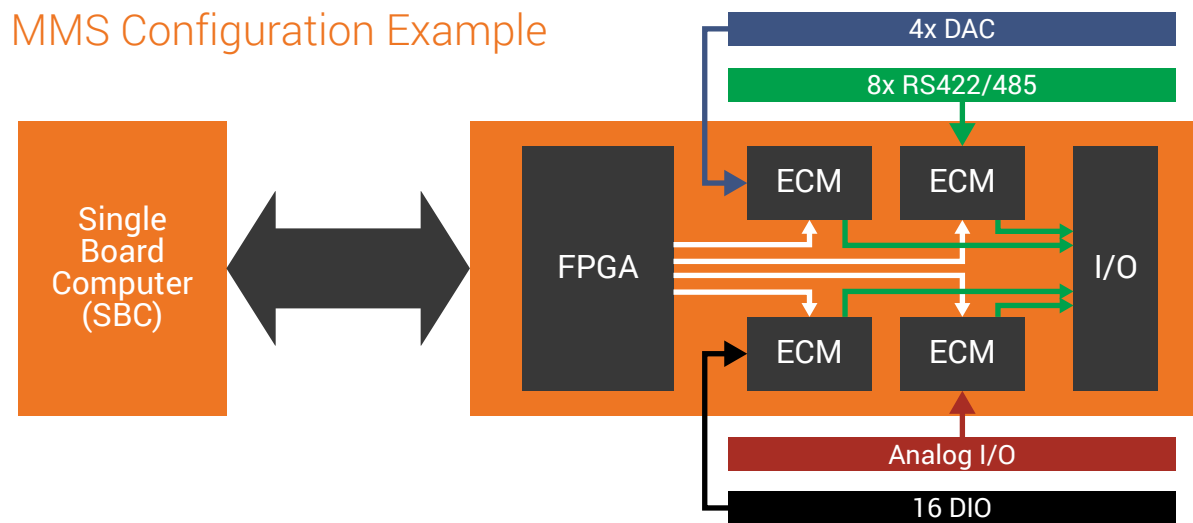
Micro Mezzanine System

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

MMS Configuration Example

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

MMS Carrier Cards

PRODUCT	FORM FACTOR	FPGA	ECM I/O SITES	DESCRIPTION
MMS8010	3U VPX	Altera Cyclone V	6	6 backplane user I/O to P1 and P2
MMS6245	XMC	Altera Cyclone V	4	4 front panel user I/O

MMS ECM Tiles

PRODUCT	CATEGORY	FUNCTION	TECHNICAL PARAMETERS	FEATURES
5081	Analog Conversion	DAC	4-channel, 12-bit, 100KHz	Software selectable output voltage ranges
3564	Analog Interface	Cross point switch	250MHz BW -3.75 to 3.75 V range	8 inputs can be connected up to 8 outputs in any configuration
5158	Serial Interface	RS-232 Async converter	4 inputs, 4 outputs	-
5235	Digital I/O	16-bit single ended DIO	3.0V to 5.0V operation	I/O FET buffered
3556	Storage and I/O	Dual microSD memory	14-bit DIO at 5V or 3.3V	-
5174	Clock	Programmable, precision clock	0 to 45HMz, 0.028 Hz	Onboard 20MHz VCO

Multifunction I/O

PRODUCT	FORM FACTOR	SPECIAL CHANNELS	STANDARD CHANNELS	OTHER
VME-6500 6U VME	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-1129	VME 6U	128 Input	3 ms input noise suppression filter	Onboard Built-in-Test logic for fault detection and isolation
VME-2128 Digital Output Board	VME 6U	128 Input	High-voltage outputs, 600 mA Sink, 22 mA Source	5 to 55 VDC Range