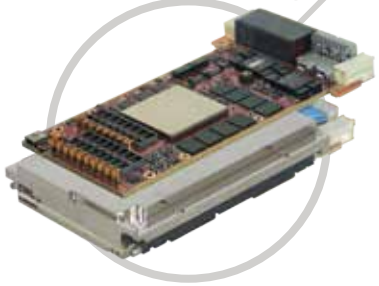
PRODUCT SELECTION GUIDE

A comprehensive overview of our innovative product range.



abaco SYSTEMS

WE INNOVATE. WE DELIVER.
YOU SUCCEED.

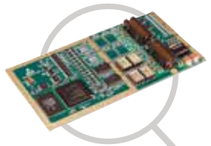
SBCs | RFSoC / FPGA | GRAPHICS | NETWORKING

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.

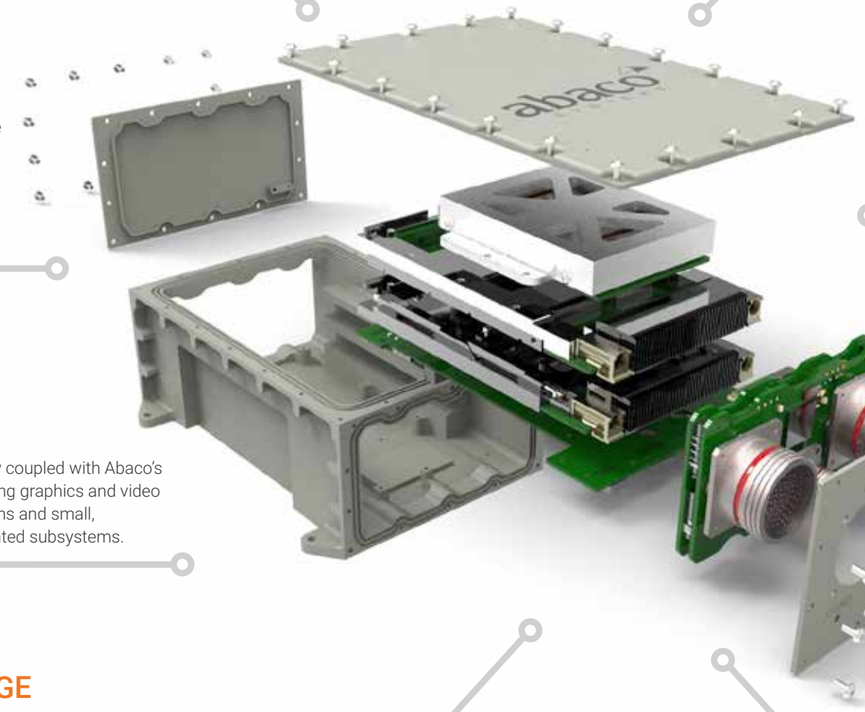
SINGLE BOARD COMPUTERS

Single board computers (SBCs) are the central computing resource of many embedded systems. Whatever your processor architecture of choice, form factor restriction, or standards requirement, Abaco has what you need, and it's backed by our long-term support and technology insertion programs to maximize return on investment.



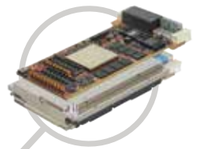
AVIONICS

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.



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.



DIGITAL SIGNAL PROCESSING

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.

GRAPHICS & 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.

INTEGRATED SYSTEMS

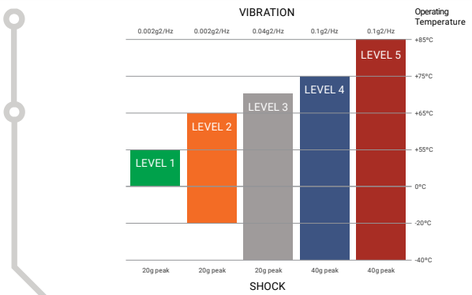
Powerful, flexible and based on commercial open standards, Abaco's Integrated Systems are pre-integrated and pre-qualified so that they're ready for immediate deployment – minimizing cost, risk and program lead time.

I/O AND STORAGE

Abaco has a broad range of I/O and storage solutions from standalone small systems like the EIU1000, to our 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.

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.



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

Single Board Computers

Single board computers (SBCs) are the central computing resource of embedded systems. Whatever your processor architecture of choice, form factor, or standards requirement, Abaco has what you need, and it's backed by our long-term support and technology insertion programs to maximize return on investment.

SBC3511

Rugged Single Board Computer aligned with CMOSS and SOSA standards

- 3U VPX SBC aligned to Snapshot 3 of the SOSA standard
- 9th Generation Intel® Core™ i7 Xeon E 2276ME 'Coffee Lake Refresh' processor (6 cores @2.8GHz)
- Features a 40 GbE data plane and 10GbE control plane
- Two channels of soldered DDR4 SDRAM with ECC up to 64 GB and up to 256 GB NAND Flash (NVMe SSD)
- Expansion via PCIe™ (x4) and XMC
- Xilinx® Zynq® UltraScale+™ MPSoC FPGA for enhanced security
- Linux, Windows, and VxWorks operating system support
- Middleware software support of AXIS Pro Suite and Health Toolkit

SBC6511

Rugged SOSA aligned 6U VPX Single Board Computer with 9th Gen Intel Xeon E CPU

- Industry's first 6U VPX SBC aligned to Snapshot 3 of the SOSA standard
- Full-feature variant available to provide a robust insertion/upgrade solution for SBC627
- 9th Generation Intel® Core™ i7 Xeon E 2276ME 'Coffee Lake Refresh' processor (6 cores @2.8GHz)
- 40 GbE data plane and dual 10GbE/1000BASE-T control planes
- Two channels soldered DDR4 SDRAM with ECC (< 64 GB) and < 256 GB NAND Flash (NVMe SSD)
- Expansion by PCIe™ Gen 3 expansion plane, multiple PCIe Gen 3 capable XMC sites
- Xilinx® Zynq® UltraScale+™ MPSoC FPGA for enhanced security
- Linux, Windows, and VxWorks operating system support
- Middleware software support of AXIS Pro Suite and Health Toolkit

PPC11A

NXP QorIQ T2081/T1042-based Single Board Computer designed specifically for harsh environments

- 6U VME QorIQ™ T2081/T1042-based SBC with eight virtual cores (<25W) or four cores (<7.5W)
- Supports the same technology insertion pin-out as previous members of the PowerXtreme family including PPC4A, PPC7A, PPC9A and PPC10A
- DDR3L with ECC (up to 8 GB); 512 MB NOR Flash; 32 GB NAND Flash solid-state drive; 512 kB non-volatile nvSRAM
- Independent XMC/PMC mezzanine sites (x2)
- I/O options, include Gigabit Ethernet, serial COM, USB 2.0, SATA, MIL-STD-1553 and GPIO
- Supported by comprehensive Deployed Test Software (BIT and BCS) and operating system support for VxWorks™ and Yocto Linux®

INTEL ARCHITECTURE SBCs

PRODUCT	FORM FACTOR	PROCESSOR	MAXIMUM MEMORY	MEZZANINE	AXIS	RUGGEDIZATION
SBC3511	VPX 3U	Intel Xeon E-2276ME	Up to 64 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
SBC6511	VPX 6U	Intel Xeon E-2276ME	Up to 64 GB DDR4 SDRAM soldered with ECC	2x XMC PCIe Gen3	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
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	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
IMP3B	cPCI 3U	QorIQ P2020 @ 1.0 GHz - Two e500v2 cores	2 GB DDR3 SDRAM with ECC	1x PMC	-	Level 1-5 Air, Conduction Cooled
DSP221	VXS 6U	T2081 NXP QorIQ @ 1.8 GHz - Eight e6500 virtual cores	8 GB DDR3 SDRAM with ECC Single Bank	2x XMC/PMC	-	Level 1-3 Air Cooled

Digital Signal Processing

Abaco's digital signal processing solutions enable the real-time digitization and managing of complex signals. We integrate the most advanced ADC, DAC and FPGA technology in 3U and 6U OpenVPX™ modules and systems designed for the most demanding, mission critical military/defense and commercial applications such as communications, sensor processing, radar, and electronic warfare just to name a few.

VP431

RFSoC Board
Direct RF Processing System - Aligned to SOSA™ Standard.

- Enables direct RF sampling which can be processed in the digital domain, bringing greater flexibility to the signal processing chain.
- One of the densest 3U OpenVPX analog FPGA processing boards available with the ability to synchronize all 16 channels and across multiple boards for even larger system applications. Earlier generations would have taken four times as many boards.
- Available with two cooling options, air or conduction, making it an ideal COTS product for early designs and capable of being deployed into operational assets.

VP831

FPGA Board
Flexible, high performance.

- Next Generation of Industry-Leading 3U VPX FPGA Board
- Modular I/O built on an FMC+ standard interface enables engineers to easily upgrade to future technology without a complete system redesign.
- Designed to Align with SOSA™ Standard
- Capable of advanced encrypted bit streams and secure boot capability, enabled by Xilinx tools.
- Streaming DSP with an FPGA and a general-purpose processor for decisions and control in a single module.

FMC172

FPGA Mezzanine Card
Wideband Low Latency FMC Module.

- ADC with LVDS interfaces, delivering up to 6.4 GSPS ADC on a single channel (or two channels @ 3.2 GSPS) and a single channel DAC at up to 6.0 GSPS making it among the fastest low-latency devices available on the market.
- Flexible control of sampling frequency, and calibration through I2C communication. The ADC has individual calibration circuits for fine-tuning of gain, offset, and phase.
- Ideal for applications where low latency high bandwidth sampling are the driving requirements such as DRFMs.

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
VP831	VPX 3U	Zynq UltraScale+ MPSoC (ZU3EG in Gen1, ZU5EG in Gen2)	1x HSPC FMC+ site (Gen2)	Aligned to SOSA Standard
VP431	VPX 3U	Zynq Ultrascale+ RFSoC Gen3 - Integrated ADC, DAC, programmable logic and processing subsystems	ADC 8-channel >5.0GSPS 14-Bit DAC 8-channel 10.0GSPS 14-Bit Flexible ADC/DAC clocking scheme	Aligned to SOSA standard
VP460	VPX 6U	Zynq Ultrascale+ RFSoC + Zynq Ultrascale+ HBM	ADC: 8-channel, 4GSPS 12-bit DAC: 8-channel, 6.4GSPS 14-bit	SOSA Backplane Option
VP430	VPX 3U	Zynq Ultrascale+ RFSoC	ADC: 8-channel, 4GSPS 12-bit DAC: 8-channel, 6.4GSPS 14-bit	-
VP889	VPX 3U	Virtex Ultrascale+, Zynq Ultrascale+ MPSoC	1x HSPC/FMC+	-
VP868	VPX 6U	2x Ultrascale Kintex or Virtex	2x HSPC FMC+	Optionally 1x Virtex and 1x Zynq
VP881	VPX 3U	VP880 variant with expanded backplane I/O options	1x HSPC/FMC+	VP880 variant with expanded backplane I/O options
VP880	VPX 3U	Ultrascale Kintex or Virtex and Zynq Ultras-cale+	1x HSPC/FMC+	-
PC821	PCIe	Ultrascale Kintex or Virtex	1x HSPC/FMC+,1x HPC	-
VP780	VPX 3U	Virtex 7	1x HPC	-
FM780	XMC	Virtex 7	Optional	FMC site takes second slot space

Graphics & 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 and AI Computer. All the processing power and connectivity you need.

- Ultra-high performance graphics, vision and AI computer featuring NVIDIA® Jetson AGX Xavier™ AI and Deep Learning enabled technology
- Ideal for data intensive applications such as 360° situational awareness, autonomous vehicles, EO/IR processing, non-cert Degraded Visual Environment (DVE), radar processing and more
- Delivers up to 11 TFLOPS for maximum performance in advanced applications
- Minimal SWaP enables deployment in constrained environments

GRA115Q

Graphics & GPGPU Output Board Optimum flexibility, technology insertion path.

- Available with NVIDIA Quadro RTX™ 5000 or Quadro RTX™ 3000 GPU which can result in a 4X performance improvement over NVIDIA Pascal™ class GPUs
- Supports new customers with latest DisplayPort ™ output technology
- Provides technology insertion path for existing GRA112D/3D, GRA112Q/3Q and GR5 customers with single link DVI ports
- Decreases system bottle necks for overall increased system performance
- Accelerates image processing and manipulation with Abaco AXIS ImageFlex

IPN254

High Performance Computing Multiprocessor SOSA™ Alignment, technology insertion.

- By combing the latest NVIDIA® Quadro RTX™ 3000 GPU with the latest 9th generation Intel® Xeon® E CPU, the IPN254 delivers maximum processing performance
- Alignment with the SOSA™ Technical Standard, an alternative version of the IPN254 provides a form/fit/function-compatible technology insertion solution for IPN252 users
- Supports new customers with the latest DisplayPort ™ output technology
- Move unprecedented amounts of data with dual 40 GbE data plane

GRAPHICS & VIDEO BOARDS

PRODUCT	FORM FACTOR	CHIP SET	I/O	COOLING	CONFORMAL COATING	EXTENDED TEMPERATURE RANGE
NVP2102A	3U, XMC	NVIDIA Pascal GPU - Quadro P2000	4x 3G-SDI inputs, 2x SL-DVI output ports, 2x CVBS (NTSC/PAL) inputs, 2x Audio inputs, 2x 3G-SDI outputs, 2x Rear DisplayPorts 1.4	Air, Conduction	NO	YES
NVP2102	3U, XMC	NVIDIA Pascal GPU - Quadro P2000	4x 3G-SDI inputs, 2x Display-Port outputs	Air, Conduction	NO	YES
NVP2000	XMC	NVIDIA Pascal GPU - Quadro P2000	3x DisplayPort 1.4 outputs	Air, Conduction	NO	YES
GRA115Q	VPX 3U	NVIDIA QuadroRTX™ 3000 GPU, NVIDIA QuadroRTX™ 5000 GPU	2x DisplayPorts 1.4a outputs, 2x SL-SVI outputs, 4x SL-DVI outputs	Air, Conduction	YES	From -40° to +85°C
GR5	VPX 3U	NVIDIA Pascal GPU - Quadro P2000	2x SL-DVI output ports, 2x DisplayPort 1.2 output ports	Air, Conduction	NO	From -40° to +85°C
GR4	VPX 3U	NVIDIA Pascal GPU – Quadro P5000/P3000	4x 3G-SDI inputs, 4x 3G-SDI outports, 1x DisplayPort output	Conduction	NO	NO
GR2	VPX 3U	NVIDIA Pascal GPU – Quadro P5000/P3000	2x DisplayPort outputs	Air, Conduction	NO	NO
IPN254	VPX 6U	NVIDIA Turing RTX3000 (TU106); 9th Genera-tion Intel Xeon E CPU (E-2276ME)	DisplayPort, DVI, GPIO, SATA, Serial, USB	Air, Conduction	NO	YES

RUGGED DISPLAY

PRODUCT	FORM FACTOR	CHIP SET	I/O	COOLING	MAXIMUM STORAGE	ENVIRONMENTAL
GVC1001	Small form fac-tor 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	40C to +71C (baseplate cooled) MIL-STD-810G IP67

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.

SWE440S

40 Gigabit Ethernet Switch
Ultimate bandwidth, low power.

- Fully managed 3U VPX 10/40GigE Ethernet switch designed to align with the SOSA™ Technical Standard, as well as a range of OpenVPX profiles
- Up to thirty-two 10GigE or eight 40GigE ports (or combination of the two) plus up to three 1GigE ports are supported
- 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

RES3000

Compact, Rugged Ethernet Switches. 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

GBX25

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 the Dual I/O variant, giving access to a total of 40 ports split between the front (16) and rear (24) I/O. The GBX25 simplifies architectures, saves space and reduces budgets
- SWaP-C3 optimization, maximizing system functionality
- Most comprehensive set of interface types supported ranging from copper (BASE-T) to fiber

ETHERNET SWITCHES AND ROUTERS

PRODUCT	PORT TYPE	MANAGEMENT TYPE	PORTS	SOFTWARE	NETWORK OPERATIONS
RES3000	1000BASE-T	Fully Managed Layer-2/3+	12	OpenWare	L2-L3 packets, including IPv6
RES3000	1000BASE-T	Fully Managed Layer-2/3+	24	OpenWare	L2-L3 packets, including IPv6
RES3000	1000BASE-T, 10GBASE-SR	Fully Managed Layer-2/3+	28	OpenWare	L2-L3 packets, including IPv6

EMBEDDED ETHERNET SWITCHES

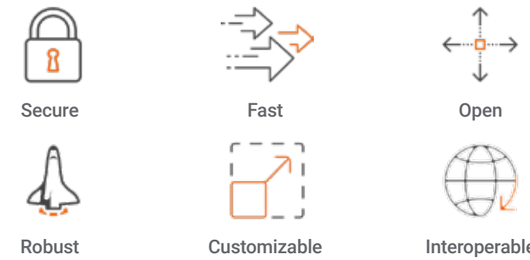
PRODUCT	FORM FACTOR	PORT TYPE	MANAGEMENT TYPE	PORTS	NETWORK OPERATIONS
SWE540A	VPX 6U	40GBASE-KR4, 10GBASE-KX4, 1000BASEKX, 10GBASE-KR	OpenWare Fully Managed Layer -2/3+	Up to 39	Wire speed switching and routing including IPv4/IPv6
SWE440A	VPX 3U	40GBASE-KR4, 10GBASE-KX4/KR, 1000BASE-T, 1000BASE-KX	OpenWare Fully Managed Layer -2/3+	Up to 33	Wire speed switching and routing including IPv4/IPv6
SWE440S	VPX 3U	1000BASET, 1000BASEKX, 10GBASE-KX4, 10GBASE-SR, 10GBASE-KR, 40GBASE-KR4, 10GBASE-LR	Fully Managed Layer-2/3+	Up to 35	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 IPv4/IPv6
NETernity GBX25	6U VME	Rear: 10/100/1000BASE-T Front SFP/SFP+: 100BASE-FX, 10/100/1000BASE-T, 1000BASE-SX, 1000BASE-LX, 10GBASE-T, 10GBASE-SR, 10GBASE-LR	Fully Managed Layer -2/3+	Up to 40 ports in total: Maximum of 24 front Maximum of 24 rear	Wire speed switching and routing including IPv4/IPv6

ETHERNET NETWORK INTERFACE CARDS

PRODUCT	FORM FACTOR	PORTS	PORT TYPE	FRONT PANEL I/O CONNECTORS	REAR PANEL I/O CONNECTORS
XMC477RC	XMC	4	1000BASE-SX, 1000BASE-LX, 1000BASE-T, 100BASE-FX	I/O Connectors: SFP/SFP+	XMC connectors

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.



Integrated Systems

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

COTS Systems

- Commercial Off the Shelf solutions for graphics, compression, video, AI, and general-purpose processing, to include remote data acquisition, sensor, and avionics interfaces.
- Integrated solutions based on Intel 9th Gen I7 processors, NVIDIA Pascal P2000, NVIDIA Jetson AGX Xavier SoM and Xilinx Zynq Ultrascale + Quad Core ARM CPU with FPGA.
- Designed and tested to meet the harsh environmental requirements our customers demand.
- Built to meet MIL-STD-810G, MIL-STD-461G, and MIL-STD-704F.
- Sealed, EMI-compliant, MIL-DTL-38999 connectors.
- Functional test completed before shipment.

CERT Systems

- Commercial Off the Shelf safety-certifiable system-level solutions backed by artifacts for DO-254 and DO-178 for DAL D to DAL A.
- Integrated solutions based on Power PC, future ARM and Zynq Ultrascale, wide range of I/O, MIL-STD-1553, RINC 429, high and low speed serial, discretes, graphics, and video capabilities.
- Designed and tested to meet the harsh environmental requirements our customers demand.
- Built to meet MIL-STD-810G, MIL-STD-461G, and MIL-STD-704F.
- Sealed, EMI-compliant, MIL-DTL-38999 connectors.
- Functional test completed before shipment.

Configurable Systems

- Configurable System solution based on the Commercial Off the Shelf modules from Abaco integrated together to form a final solution to meet customer-defined requirements. Include SDRL items, advanced testing, and specialized I/O. To include high-speed Ethernet and RF signals.
- Integrated solutions based on architectures aligned to 3U and 6U VPX and SOSA standards.
- Designed and tested to meet the harsh environmental requirements our customers demand.
- Built to meet MIL-STD-810G, MIL-STD-461G, and MIL-STD-704F.
- Sealed, EMI-compliant, MIL-DTL-38999 connectors.
- Functional test completed before shipment.
- Additional solutions may be available. Consult with your Abaco representative.

COTS SYSTEMS

PRODUCT	FORM FACTOR	PROCESSOR	COOLING	OPERATING TEMPERATURE	WEIGHT LB (KG)	DESCRIPTION
EIU1000	Small Form Factor Package	Xilinx Zynq Ultrascale+ ZU7EG MPSoC, FPGA	Conduction	-40˚C to +71˚C	<3 lbs (<1.4 kg)	Rugged high-density I/O interface unit with MPSoC ideal where interface flexibility, physical robustness, and SWaP are critical considerations
MAGIC1A	-	Intel Xeon E3-1505M v6	Baseplate- or forced-air cooling	-40°C to 65°C baseplate temperature (baseplate-cooled version) -40°C to 65 °C air at 15,000 m altitude (forced-air version)	<9 lbs (<4kg)	Display computer, based on combination of CPU and GPU technology, for the most mission computer demanding applications
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
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

CERT SYSTEMS

PRODUCT	FORM FACTOR	PROCESSOR	COOLING	OPERATING TEMPERATURE	WEIGHT LB (KG)	DESCRIPTION
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

CONFIGURABLE SYSTEMS

PRODUCT	FORM FACTOR	PROCESSOR	COOLING	OPERATING TEMPERATURE	WEIGHT LB (KG)	DESCRIPTION
CRS-D5I-3VC1 COTS Rugged Computer	VPX 3U	Intel i7	Convection	-40˚C to +50˚C	20 lbs (9kg)	Configurable with Latest 3U VPX Intel SBC modules and Supporting I/O options
VPX167	VPX 3U	Intel Quad Core i7	Conduction Cooled	-40˚C to +70˚C	40 lbs (18.1 kg)	Airborne electronic warfare

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

Multi-protocol, rugged, reliable and secure.

- Highest density XMC card with MIL-STD-1553, ARINC 429, and Discretes
- 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.

- Embedded performance in external, portable device
- Upgraded replacement for legacy ExpressCard, PCMCIA, 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 & AFDX Databus Analyzers

- 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	mPCIe or mini PCIe	MIL-STD-1553	MIL-STD-1553 1, 2 or 4	-40°C to +85°C	2+1
RAR-MPCIE	mPCIe or mini PCIe	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	Flightline, Maintenance	Conduction cooled, commercial XT temperature range
RCNIC-A2PA-TB	PMC, Thunderbolt 3	AFDX/ARINC 664	2	Flightline, Maintenance	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	Flightline, Maintenance	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	-	Flightline, Maintenance	
BT3-USB-MON	Software and USB	MIL-STD-1553 1, Scope output 1	Flightline, Maintenance	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	Flightline, Maintenance	Windows based Avionics databus GUI analyzer combined with protocol I/O hardware
BTA-USB	Software & I/O card	ARINC 16 RX, 5 TX	Flightline, Maintenance	

I/O Storage

Abaco has a broad range of I/O and storage solutions from standalone small systems like the EIU1000, to our 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.

EIU1000

Rugged I/O Interface Unit with MPSoC.

- Multifunction I/O including MIL-STD-1553, ARINC 429, Discretes, Serial, USB, 8-port Ethernet
- Compact design and flexible configuration make the EIU ideal for systems that require redundancy
- Ultra low SWaP, measuring less than 80 in^3, but the rugged design is ideal for use in harsh vibration, shock, and EMI environments

MMS

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

VME-6500

Analog/Digital Processor.

- 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

EIU- I/O SMALL SYSTEM

PRODUCT	FORM FACTOR	APPLICATION	OPERATING MODE	TEMP RANGE	1553 # CHANNELS	# ARINC CHANNELS	# DISCRETES
EIU1000	Small Form Factor Package	Rugged, Embedded	Dual/Multi-Function	Commercial XT	2	4	8

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	VME 6U	128 Output	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	VME 6U	128 Input	High-voltage outputs, 600 mA Sink, 22 mA Source	5 to 55 VDC Range

Product Lifecycle Management

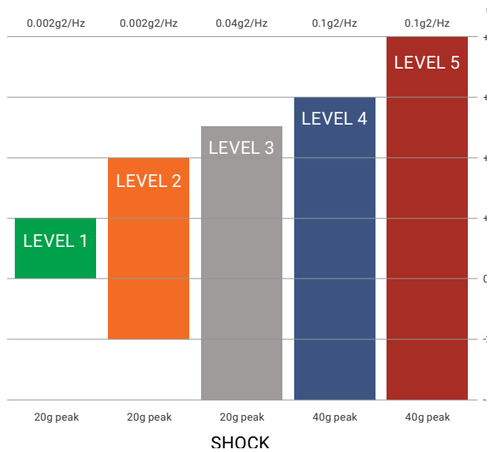
Minimizing your long term cost of ownership is a key goal at Abaco. We do this in a variety of ways – from designing-in compatibility across generations of products to a range of long term support services that minimize the potential impact of obsolescence.

Our commitment is to supporting customer programs throughout their lifecycle – even if that lifecycle is measured in decades.

It starts with designing successive generations of products to be pin-compatible with their predecessors – making technology insertion to obtain incremental performance and functionality easier and more cost-effective. An example: the PPC11A we introduced recently was form, fit and function compatible with the PPC1A we introduced in 1995.

Rugged by Design

At Abaco, we design rugged in. That means choosing screened parts. State of the art mechanical engineering. Using conductive materials. Soldered components. Advanced cooling.



Created to operate in the harshest of environments, our products now reflect our unparalleled experience and expertise in creating truly rugged solutions, with our unique combination of design evaluation and assembly and test practices through to advanced thermal management, mechanical engineering and hermetic control techniques.

We make our products rugged by upgrading or screening parts for extended temperatures, adding mechanical stiffening bars, and/or changing substrate materials for thermal conduction. An integrated stiffening frame/thermal management assembly is used to optimize the mechanical dynamic and thermal performance. A variety of conformal coatings are available for humidity and static control.

MiddleWare Software

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
- HT enhances interoperability by including well-established third party industry interfaces, such as DDS, to align with standards as FACE and SOSA

AXIS ImageFlex

Portable, low overhead, high performance, easy to use

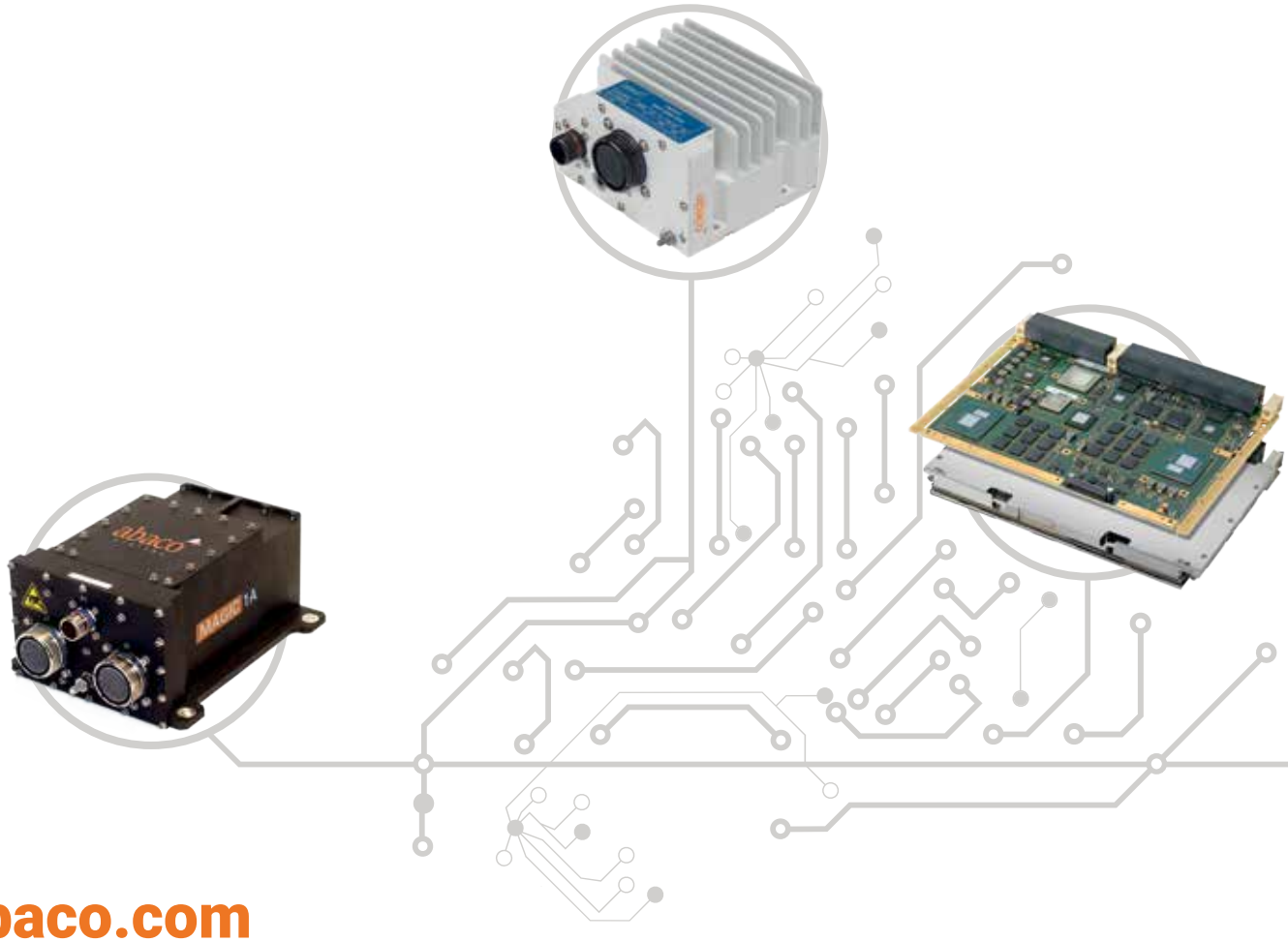
- Optimized, high quality image manipulation, fusion, stabilization and distortion correction/morphing algorithms
- Comprehensive reference applications: AI classifier and object detection with neural algorithms, target tracking, stabilization, "SkyBox" spherical situation awareness, LiDAR data viewer, 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

abaco SYSTEMS

WE INNOVATE. WE DELIVER.
YOU SUCCEED.



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