

**CURTISS -
WRIGHT**

System Solutions

Products, Capabilities, Solutions



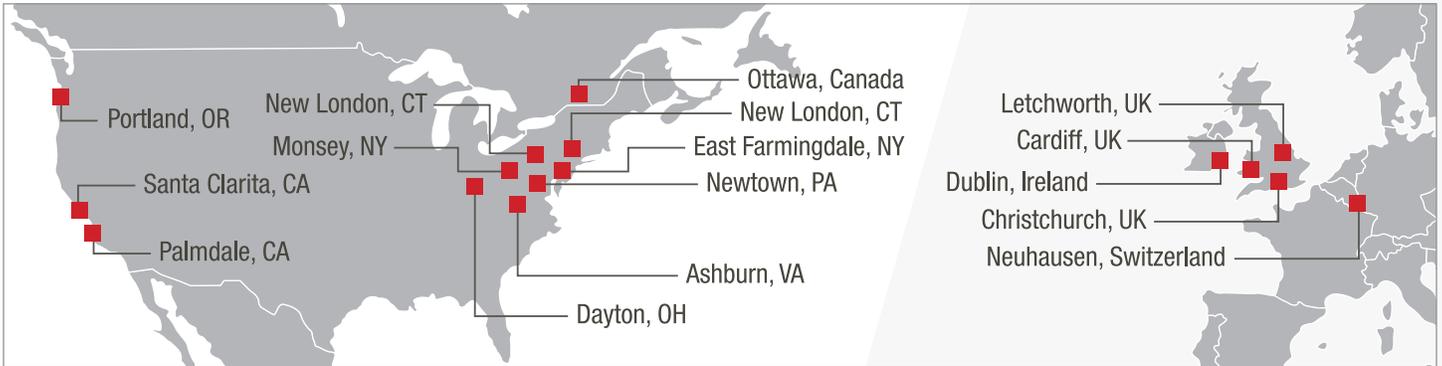
Trusted. Proven. Leader.

curtisswrightds.com

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Defense Solutions Global Footprint: 16 Facilities Worldwide



About Curtiss-Wright Defense Solutions

The Defense Solutions division, together with Curtiss-Wright's Power and Commercial/Industrial divisions, comprises an integrated and market-facing global diversified industrial company that combines a wide range of product lines, technologies, and expertise. We are proud to maintain and further our long and historic tradition of innovation that honors the legacy of the Company's founders, the Wright brothers and Glenn Curtiss. We continue to lead the way in developing and bringing to market new advanced solutions that address the rapidly evolving requirements of emerging naval, aerospace, and ground defense systems and applications.

Curtiss-Wright's modular open systems approach (MOSA) to building processing systems leverages the latest commercial off-the-shelf (COTS) technology, enabling our computing solutions to process data in real-time to support mission-critical functions. Curtiss-Wright's open architecture COTS-based rugged embedded computing solutions process data in real time to support mission-critical functions. We play a key industry role in the establishment of resources and services to ensure that our customers have access to the long lifecycle support required by aerospace and defense programs. We offer comprehensive approaches for mitigating obsolescence, blocking the use of counterfeit parts, and developing product roadmaps to ease the integration of future generations of technologies.

The Curtiss-Wright Advantage

Curtiss-Wright is a technological leader in providing COTS-based modular open system approaches to build our mission computing, signal processing, graphics, communication fabrics, system and sensing I/O, and enclosure products.

The “building block” approach to providing solutions gives our customers great benefits with respect to cost, lead time, and supportability. While providing these non-developmental items, the technology developed and the intellectual property also becomes a benefit for our customers in the ability to provide custom or point-design products when necessary.

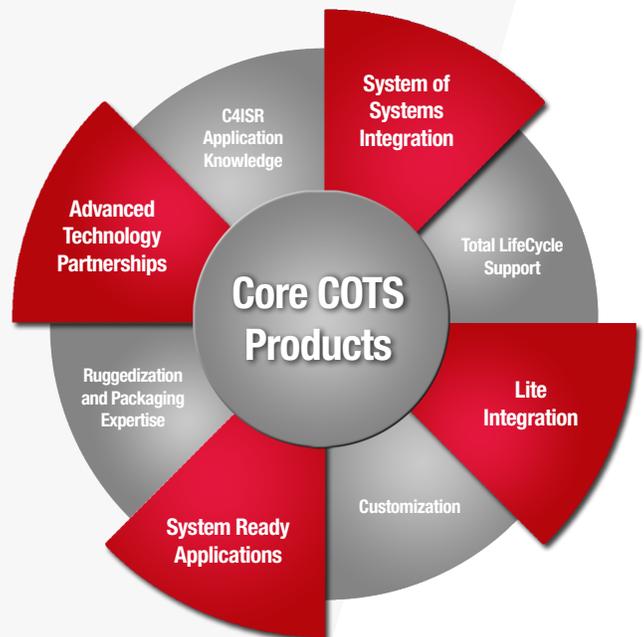
Curtiss-Wright has products on hundreds of programs and continues to provide support throughout their life cycle. This experience has taught us that long term support, obsolescence management, and security are key aspects of every program, and sometimes raises concerns of risk when applying COTS technology. To eliminate this concern, Curtiss-Wright provides product families for a volume production period of five to seven plus years. During this period, products undergo continuous improvement through software revisions, reliability enhancements and component upgrades. We realize our customers require knowledge, and often control, of these improvements. Application stability and predictability is essential for deployed mission-critical systems, which have an in-service life long past the volume production period. To meet these marketplace demands, Curtiss-Wright provides a suite of Total LifeCycle Management™ that safeguard your programs and mitigate the challenges associated with leveraging COTS technology for long-term mission-critical systems.

System of Systems

Curtiss-Wright delivers complete system of systems integration and support services that reduce interoperability risks, lowers program costs, and accelerates time to market. Each system of systems project is provided with a single Curtiss-Wright program manager and single technical point of contact.

Our single point of contact approach eliminates the supply chain overhead created by multiple purchase orders, separately negotiated terms and conditions, and different repair and warranty support sites. This frees up valuable resources to focus on your unique integrated solution.

Curtiss-Wright performs complete on-site field testing, integration support, and training for all systems to ensure the platform integration process goes smoothly. Our engineers address any on-site integration challenges, leveraging decades of experience developing rugged embedded components and systems for defense and aerospace customers worldwide. Full life-cycle and obsolescence ensures support is extended beyond integration.



40 years experience and
an installed base of over
10,000 units



ESCADU

Air Data Computers

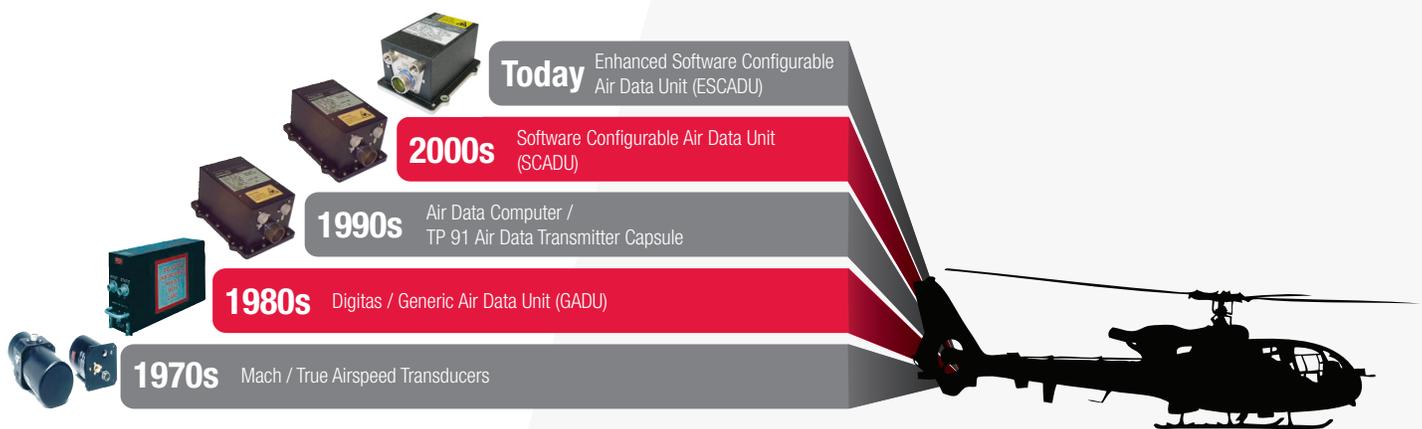
Aircraft rely heavily on air data computers (ADC) to provide airspeed and altitude parameters that are essential to safe and efficient operation. Rotorcraft experience some unique phenomena because of rotor downwash which can affect the accuracy of pressure measurements and fleets often consist of different aircraft that can create additional logistics overheads.

High accuracy, low drift sensors can be used to provide pilots and autopilots with the information they need to travel at high altitudes safer. The effects of rotor downwash can be alleviated with digital filtering that reduces the pneumatic noise in air pressure without adding weight like mechanical solutions. Multiple aircraft can be fitted with identical ADCs as long as each ADC is capable of holding multiple sets of configuration data to match the target platform.

Curtiss-Wright has developed technologies within its ADC product line to address these needs. High accuracy sensors and decades of experience provide stable data while digital filtering technology mitigate rotor downwash effects. Fully rugged design ensures reliable operation. The needs of diverse fleets are simplified with a single unit being usable on up to 15 different platforms through a simple pin-out selection. Curtiss-Wright has over 40 years' experience developing air data solutions and that knowledge helps us get you the best solution available on the market today.

Air Data History

Curtiss-Wright has been designing and manufacturing ADC products since 1976 and has an installed base of over ten thousand units. Today's highly configurable and reliable air data units are TSO-C106 and RTCA DO-178/254 DAL A certified on 30 aircraft platforms.



40 Year Air Data Pedigree



High Speed Recorder



3 Slot Data Transport System



1 Slot Data Transport System



Removable Memory Cartridge

Data Storage and Recorders

Program requirements are tough enough to meet initially, but when requirements are changed or new ones are introduced during the program, this introduces schedule, cost, and technical risk for engineers. What if you had a data recording and storage system that could adapt to new I/O, more storage, or increase encryption? Curtiss-Wright's COTS storage products offer a flexible I/O front-end, scalable storage, and a broad spectrum of encryption to help you meet those changing requirements.

Data storage solutions with rugged removable solid state and rotating media designed for use in harsh environments offer users flexibility and scalability. Supporting the reliable, secure storage of high density critical data for applications with Gigabyte and Terabyte requirements, we offer advanced encryption and sanitization capabilities. Whether your application requires direct attached storage (DAS), network attached storage (NAS) or storage area network (SAN) solutions, Curtiss-Wright delivers secure, scalable rugged solutions to meet your critical data storage requirements.

Direct Attached Storage

Curtiss-Wright DAS products enable solid state media to be incorporated in embedded computing VPX system solutions for a wide range of applications. Enabling our scalable data storage devices to attach directly to the host, some products feature encryption and sanitization capabilities allowing you to keep your information secure.

Product	Form Factor	Function	Interface	Capacity	Encryption	Support	Temperature
FSM-2	3U VPX	Removable solid state SATA	4 x SATA on VPX (JBOD), 1 x SATA on VPX (RAID), 1 x RS-232 (control)	2 TB	AES-256 bit, FIPS 140-2 validated	No drivers required	-40 to +85°C Conduction cooled
FSM	3U VPX	Removable solid state SATA	4 x SATA on VPX (JBOD), 1 x RS-232 (control)	2 TB or 1 TB	AES-256 bit, FIPS 140-2	No drivers required	-40 to +85°C Conduction cooled
RMC	0.6 x 3.3 x 5.5" 1.5 x 8.4 x 14.0 cm	Removable solid state SATA	1 x SATA	Up to 4 TB	Optional SSDs can provide AES encryption	No drivers required	Conduction cooled
VPX6-SBM	6U VPX	NVMe removable storage	x16 PCIe	32 TB or 64 TB	--	No drivers required	-40 to 85°C Air-cooled
XMC-554C	XMC	Removable solid state SATA	2 x mSATA	1 TB, 2 TB, 256 GB, 512 GB	--	No drivers required	Air and conduction cooled

Network Attached Storage

Curtiss-Wright encrypted NAS products are rugged storage subsystems utilizing solid state media for a wide range of defense and aerospace applications. Specifically designed to provide file services to clients on an Ethernet network, these systems offer users data encryption and sanitization options including AES-256 bit data encryption and an option for NSA Type 1, enabling storage of your critical data from multiple Gigabytes to Terabytes. The flexible I/O, scalable storage and advanced encryption options reduce program risk and saves money.

Product	Form Factor	Function	Interface	Capacity	Encryption	Support	Temperature
DTS1+	DZUS and L-bracket mount	Network file server, optional Ethernet packet capture recorder	2 x 1 GbE	256 GB to 8 TB x RMC storage slot	Up to two layers of encryption - hardware and software	iSCSI, NFS, CIFS, FTP, HTTP, PXE, DHCP, PCAP, MPEG2	-45 to 55°C (71°C for 120 minutes) convection cooled
DTS1X	DZUS and L-bracket mount	Network file server, optional Ethernet packet capture recorder	1 x 10 GbE, 1 x 1 GbE	256 GB to 8 TB XRM removable storage	Up to two layers of encryption - hardware and software	iSCSI, NFS, CIFS, FTP, HTTP, PXE, DHCP, SNMP, TFTP, PCAP, RTP, SSH, TELNET	-45 to +55°C (+71 for 120 min) convection cooled
DTS3	DZUS panel mount	Network file server, optional Ethernet packet capture recorder	4 x 1 GbE 1 x RS-232	3 (2 TB) x RMC storage slots, (3 TB total)	No encryption (bypass) or AES-256 bit encryption	NFS, CIFS, FTP, HTTP, and PXE, optional PCAP	-40 to +55°C (+71 for 30 min) convection cooled
CNS4	1 ATR 10 x 7.6 x 12.5" 25.4 x 19.4 x 31.8 cm	Network file server with rugged removable storage	4 x 1 GbE 1 x RS-232 10 GbE option	Up to 8 TB 4 x FSM-C	AES-256 bit Type 1 option	NFS, CIFS, FTP, HTTP, and PXE	-40°C to +55°C (+71 for 30 min) convection cooled
HSR40	Multiple mounting options	Network file server or streaming recorder with rugged removable storage	2 x 40 GbE 1 x 1 GbE (Control)	Up to 64 TB 2 x RMB	Optional AES 256-bit and/or self-encrypting drives (SED)	NFS via TCP/IP Streaming via UDP/IP	TBD
HSR10	Multiple mounting options	Network file server or streaming recorder with removable storage	2 ports x 10 GbE (optical)	Up to 16 TB removable storage	Up to two layers of encryption – hardware and software	PCAP, NFS, CIFS, FTP, TFTP, HTTP, PXE, RTP	-40 to +55°C
UNS	Rack mount	Unattended network attached storage	4 x 10 GbE 8 x 1 GbE	32 TB or 64 TB	NSA Type 1	NFS, CIFS, FTP, iSCSI, PCAP, HTTP, PXE, DHCP	-40 to +55°C

Storage Area Network

Many Intelligence, Surveillance, and Reconnaissance (ISR) programs have been deployed for a number of years, if not decades. Some of these programs from the 1990's and early 2000's employed Fibre Channel (FC) technology to reliably transport sensor data over significant distances. With millions of dollars and lots of time invested in FC-based sensors on military platforms, how can a system architect upgrade a legacy platform with modern data storage and recording, but retain the FC sensors on-board? FC emulation in modern SAN products, such as those offered by Curtiss-Wright, allows the continued use of FC-based sensors, reducing program cost and risk.

Product	Form Factor	Function	Interface	Capacity	Encryption	Support	Ruggedization
CNS4-FC	One ATR	FC target drive and NAS	2 x 4 Gbps FC and 4 x GbE, 1 x RS-232	4 x FSM-C	256-bit AES, AES-256 bit Type 1 option	FC, NFS, CIFS, FTP, HTTP, and PXE	-40°C to +55°C (+71°C intermittent operation)
CNS2-FC	1/2 ATR short	FC target drive and NAS	2 x 4 Gbps FC and 2 x GbE, 1 x RS-232	2 x FSM	AES-256 bit, FIPS 140-2 validated	FC, NFS, CIFS, FTP, HTTP, and PXE	-40 to +71°C convection cooled



PacStar 451
Small Server



PacStar Secure Mesh
Command Post (SMCP)



Parvus DuraMAR 63-33 Rugged
Ethernet Router and Switch

Networking & Communications

PacStar Communications Solutions

Combining modular networking equipment and our IQ-Core® Software for unified network communications management, our tactical communications solutions enable enhanced warfighter situational awareness. Curtiss-Wright's solutions for battlefield network management include small form factor communications systems and PacStar Commercial Solutions for Classified (CSfC) solutions.



Modular Devices

Tactical, rugged, low-SWaP networking and communications hardware, designed using a customer-centric approach.

- Snap-together design enables quick expansion with other PacStar 400-Series products and quick reconfiguration of modules and chassis
- Extensively tested to MIL-STD-810 by independent labs
- Integrated power supplies that run on tactical radio batteries, wide range DC input and worldwide AC input
- Continuous runtime with hot-swappable batteries
- Regulated 12 V DC output supports powering KG-250X/XS or other accessories
- Best-in-class SWaP, typical module weight 2.5 lbs.



Integrated Solutions

Tactical and expeditionary solutions based on PacStar 400-Series, ready to meet mission requirements.

- PacStar Integrated Solutions include a variety of Commercial Solutions for Classified (CSfC) systems
- Can be combined with IQ-Core Software and a vast array of partner technologies, as needed
- Commercial off-the-shelf (COTS)-based
- Modular, turnkey tactical, and expeditionary
- Best-in-class SWaP



IQ-Core Software

Intuitive communications management that eases system management complexity.

- Network communications management technology optimized for the unique challenges faced by tactical units
- Provides a unified "single pane of glass" view for network monitoring and diagnostics, providing operators with real-time situational awareness (SA)
- Tailorable to user level and includes role-based access control, a GUI, command line access, and advanced automation technology in a single solution, enabling users to complete tasks faster with fewer errors
- Reduces set-up time, allowing communications to adapt to rapidly-changing circumstances and improve mobility

PacStar and Parvus Rugged Switch/Router Systems

Rugged switches and routers enable mobile networks on-board vehicle and aircraft platforms to securely and affordably deploy digital network architectures for situational awareness and network centric operations. These rugged subsystems and card solutions give systems integrators capabilities for interconnecting cards, sensors, and processors through switched Ethernet links.

Optimized for the SWaP constraints of civil and military platforms, these robust IP networking solutions support advanced in-vehicle and airborne LAN switching/WAN routing requirements.

New platforms and technology refresh efforts routinely leverage these solutions to facilitate the integration of C5ISR systems, eliminate communication stovepipes, and deliver new information sharing capabilities.

From simple, plug-and play unmanaged Layer 2 switches to high-bandwidth managed Layer 3 Gigabit/10 Gigabit solutions and even ruggedized Cisco IOS technology-based options, Curtiss-Wright has a broad array of rugged COTS IP networking solutions to meet your application requirements.

- Broad array of affordable and secure rugged COTS IP networking solutions
- Capabilities for interconnecting cards, sensors and processors through switched Ethernet links
- SWaP-optimized mechanical designs MIL-STD/DO-160 pre-qualified for demanding vehicle and aircraft platforms

Product	Function	Switch Ports	Router Ports	Cisco IOS	Size & Weight
PacStar 444	Switch	10 Ethernet Ports Total		Yes	5.3" x 7.0" x 1.6" 2.5 lbs.
PacStar 446	GigE Switch	Up to 26 Ethernet Ports Total		Yes	5.3" x 7.0" x 3.4" 2.4 lbs.
PacStar 447	Router	4 Switch Ports	2 Router Ports	Yes	5.3" x 7.1" x 3.4" 2.4 lbs.
PacStar 448	10 GigE Switch	10 Ethernet Ports total		Yes	5.3" x 7.0" x 1.6" 2.5 lbs.
DuraMAR 63-33	Router and switch	2 x 10Gbe, 26 x 1 GbE	2 x GbE	Yes	6.75" x 6.25" x 5.78" 8 lbs.
DBH-670A	Switch and vetronics computer	16 x GbE	-	-	10.5" x 7.5" x 3.0" 7.5 lbs.
DuraNET 3300	Managed switch	2 x 10GbE, 24 x GbE	-	Yes	6.75" x 6.25" x 3.50" 6 lbs.
DurMAR 6300	Router	4 x GbE	2 x GbE	Yes	5.2" x 5.4" x 2.0" 2 lbs.
DuraNET 20-11	Managed switch with static routing	8 x GbE	8 x GbE (static routing)	-	10 in ³ , 0.5 lb 164 cm ³ , 0.2 kg
DuraNET 20-12	Managed switch with static routing	6 x 10/100	6 x 10/100 (static routing)	-	10 in ³ , 0.5 lb 164 cm ³ , 0.2 kg
DuraNET 20-10	Managed switch with static routing	20 x GbE	20 x GbE (static routing)	-	112 in ³ , 4.0 lb 1835 cm ³ , 1.8 kg
DuraNET 30-2020	Managed switch with static routing	17 x 10/100; 2 x GbE	17 x 10/100 + 2 x GbE (static routing)	Yes	126 in ³ , 4.4 lb 2065 cm ³ , 2.0 kg
Digital Beachhead DuraDBH-672	Managed switch with static routing, vehicle computer, A-PNT	16 x GbE	16 x GbE (static routing)	-	< 125 in ³ , < 4.0 lb < 2048 cm ³ , < 1.8 kg
Digital Beachhead DBH-670	Switch with static routing and vehicle computer, A-PNT	16 x GbE	16 x GbE (static routing)	-	236 in ³ , 6.5 lb 3867 cm ³ , 3.0 kg
SMS-652	Switch with static routing	16 x GbE	16 x GbE (static routing)	-	178 in ³ , 5 lb 2917 cm ³ , 2.2 kg



Small Form Factor
Mission Computer Server



Ultra Small Form Factor
Mission Computer



Multi-Platform
Modular Computer

Mission Computers

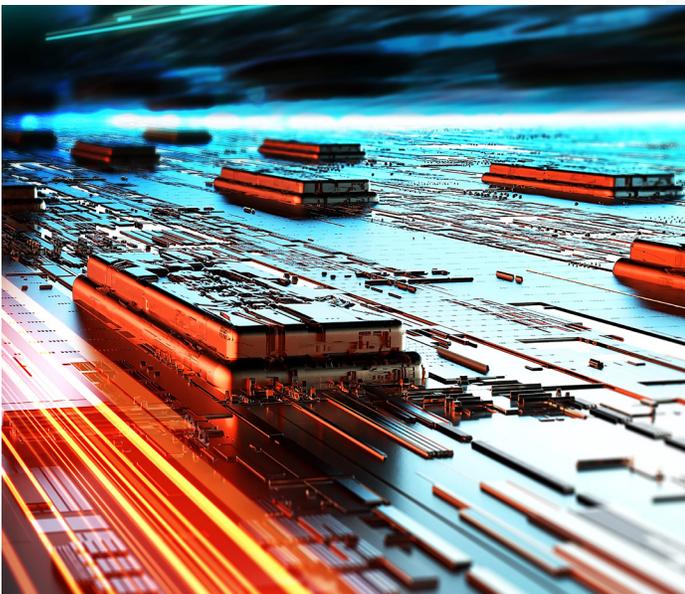
Curtiss-Wright embedded systems specialists can apply their decades of experience to address your system integration and program management requirements. This helps you maximize your COTS content or leverage an existing custom solution. You can build your own application using one of our many generic systems, or use our expertise to create specific system solutions, with tailored, optimized functionality for a specific platform or program.

Products include rugged COTS small form factor (SFF) and Ultra Small Form Factor (USFF) modular mission computer subsystems (Parvus DuraCOR) that feature expandable I/O card and data storage architectures with powerful graphics and data processing capabilities together with ultra-reliable mechanical robustness in a fanless IP67 design pre-qualified to MIL-STDs and DO-160 for extreme military and aerospace use. MPMC products are packaged COTS systems comprised of VPX or VMEbus backplanes housed in rugged chassis fully pre-configured with power supplies. MPMC systems offer the unprecedented processing power and standard interfaces required by modern mission computers.

Features

- Rugged COTS mission computer subsystems
- Environmentally-hardened subsystem tailored to specific needs
- Field-tested, MIL-STD qualified mission processors

Pre-integrated, pre-qualified subsystems tailored by the factory, results in customers dramatically reducing scheduling risk and program management overhead, while maximizing use of open architecture COTS technologies. Each unit features electrical/mechanical I/O expansion capabilities that enable rapid integration of payload-specific I/O interfaces for avionics, vetronics, situational awareness and other applications.



Ultra Small and Small Form Factor Mission Computers (Parvus DuraCOR)

Curtiss-Wright’s rugged, COTS, SFF, USFF, modular, mission computer subsystems in the Parvus DuraCOR product lines feature scalable I/O card and data storage architectures with powerful graphics and multi-core processing capabilities. Ultra-robust from the inside out they address SWaP-C optimization challenges and reduce lead time and program risk by leveraging an ecosystem of open architecture add-on I/O modules, and Curtiss-Wright’s responsive, cost-competitive application engineering services, to deliver Modified COTS (MCOTS) variants quickly and without a traditional NRE fee.

Product	Processor	Memory	Chassis	Qualification Certs	Expansion Bus	Expansion Slots	I/O	Power
DuraCOR 312	NVIDIA TX2i (Arm Cortex A-57)	4 GB	Ultra small form factor	MIL-STD-810G, 461F, 1275D, 704F, DO-160	Mini PCIe	3 Mini PCIe	GigE, USB, COM, video, audio, DIO	20W
DuraCOR 313	Intel Atom x6400E	16 GB	Ultra small form factor	MIL-STD-810G, 461F, 1275D, 704F, DO-160	Mini PCIe	3 Mini PCIe	GigE, USB, COM, video, audio, DIO	25W
DuraCOR 8044	Intel Xeon Gen 11	Up to 128 GB	Small form factor	MIL-STD-810G, 461G, 1275D, 704F, DO-160	PCIe/104, Mini PCIe	2 Mini PCIe, 5/2/0 PCIe/104	GigE, USB, COM, video, audio, GPIO	65-70W
DuraCOR AGX-Xavier	NVIDIA Jetson AGX Xavier	32 GB	Small form factor	MIL-STD-810G, 461F, 1275D, 704F, DO-160	PCIe/104, Mini PCIe	2 Mini PCIe, 1 PCIe/104	GigE, USB, COM, video, audio, GPIO, CAN	50W

Multi-Platform Mission Computers

Curtiss-Wright’s Multi-Platform Mission Computer (MPMC) product family consists of fully integrated computing subsystems ready for deployment. MPMC products are packaged COTS systems comprised of VPX or VMEbus backplanes housed, in rugged chassis, fully pre-configured with power supplies and high performance Curtiss-Wright computing boards, offering a wide range of I/O. Additionally, they offer the high processing power and standard interfaces required by modern mission computers.

MPMC systems deliver off-the-shelf system solutions to speed deployment of critical applications for constrained platforms such as combat vehicles, helicopters and UAVs. Packaged in rugged enclosures, MPMC systems are designed to meet the harsh environments of military and aerospace computing applications including temperature extremes, altitude, voltage spikes, shock, vibration, and more.

XMC/PMC-based Integrated Systems

Product	MPMC-9020
Slot Count	2 mezzanine slots
Standard	XMC or PMC
Volume/ Dimensions	150 in ³ , 2.6 x 10.5 x 5.5" 2458 cm ³ , 6.6 x 26.9 x 14.0 cm
Weight¹	3 lb (1.4 kg)
Max Power @ 55°C²	55W NC
Processing	AMD Virtex FPGA
I/O	GbE, RS-232, RS-422, USB, ARINC 429, LVTTTL, MIL-STD-1553, NTSC Video, DVI, VGA, RS-170
Built-in Features	1 x Controller/bridge 2 x Personality modules for mezzanine I/O routing
Cooling	Natural convection
Qualification	MIL-STD-810, 461, 704

Features

- COTS or Modified COTS rugged conduction-cooled systems
 - 1 to 7 slots
 - VPX or VME backplanes
 - MIL-C-38999 connectors and high density alternatives
- Power supply
 - 50W to 800W (800+ W power supplies available for larger systems)
- Processing
 - Power Architecture
 - Intel
 - Arm
- I/O
 - Graphics and video
 - CANbus
 - MIL-STD-1553
 - ARINC 429
- Removable storage option

Notes:

1. 2 x MilCAN-A with offload, 16 x ARINC-429 TX/RX selectable, dual MIL-STD-1553, Video Capture: DVI, PAL, NTSC, STANAG-3350, SDI, HD-SDI
2. CP = Cold Plate, NC = Natural Convection, Fan = Forced Convection, LC = Liquid Cooled.



6U-based Integrated Systems

Product	MPMC-961x	MPMC-962x	MPMC-965x	MPMC-9655	MPMC-967x
Slot Count	6U 1 slot	6U 2 slots	6U 5 slots	6U 5 slots	6U 7 slots
Standard	VME, VPX, OpenVPX	VME, VPX, OpenVPX	VME, VPX, OpenVPX	VME, VPX, Open VPX	VME, VPX, OpenVPX
Volume/ Dimensions	431 in ³ 7063 cm ³ 3.9 x 9.6 x 11.5" 9.9 x 24.4 x 29.2 cm	602 - 819 in ³ 9865 - 13,421 cm ³ NC:12.5 x 5.8 x 8.3" 31.8 x 14.7 x 21.1 cm FC:12.5 x 5.8 x 11.3" 31.8 x 14.7 x 28.7 cm	778 in ³ 12,749 cm ³ 12.5 x 7.5 x 8.3" 31.8 x 19.1 x 21.1 cm	680 in ³ 11,143 cm ³ 11.93 x 7.5 x 7.6" 30.3 x 19.1 x 19.3 cm	928 in ³ 15,207 cm ³ 12.5 x 9 x 8.25" 31.8 x 22.9 x 21.0 cm
Weight ¹	12 lb 5.4 kg	25-31 lb 11.3 - 14.1 kg	40 lb 18.1 kg	22 lb 10.0 kg	31 lb 14.1 kg
Max Power @ 55°C ²	70W NC	170W NC & FC	600W LC	180W	350W FC
Processing	Intel Xeon, NXP Power Architecture, AMD Virtex FPGA	Intel Xeon, NXP Power Architecture, AMD Virtex FPGA	Intel Xeon, NXP Power Architecture, AMD Virtex FPGA	Intel Xeon, NXP Power Architecture	Intel Xeon, NXP Power Architecture, AMD Virtex FPGA
I/O	GbE, SATA, RS-232, RS-422, USB, ARINC 429, LVTTTL, MIL-STD-1553, CANBus, NTSC Video, DVI, VGA, RS-170, A/D, Audio	GbE, SATA, RS-232, RS-422, USB, ARINC 429, LVTTTL, MIL-STD-1553, CANBus, NTSC Video, DVI, VGA, RS-170, A/D, Audio	GbE, SATA, RS-232, RS-422, USB, ARINC 429, LVTTTL, MIL-STD-1553, CANBus, NTSC Video, DVI, VGA, RS-170, A/D, Audio	Ethernet, RS-232, RS-422, RS-485, MIL- STD-1553, NTSC, VGA, (10) A/D, 48 80V DIO, Audio	GbE, SATA, RS-232, RS-422, USB, ARINC 429, LVTTTL, MIL-STD-1553, CANBus, NTSC Video, DVI, VGA, RS-170, A/D, Audio
Built-in Features	50 ms power hold up	2 x additional X/PMC sites, 32 GB flash, 50 ms power hold up, 8-port GbE switch	Fiber switch	Video Crossbar switch Voice/Tone Generator 28VDC 50 ms power hold	2 x additional X/PMC sites, 32 GB flash, 50 ms power hold up, 8-port GbE switch
Cooling	Natural Convection	Natural Convection	-	Forced Air from vehicle	Forced Air
Qualification	MIL-STD-810, 461, 1275, 704, DO-160	MIL-STD-810, 461, 1275, 704, DO-160	-	-	-

Notes:

1. Fully populated system weight
2. CP = Cold Plate, NC = Natural Convection, Fan = Forced Convection, LC = Liquid Cooled.

Courtesy of General Dynamics

3U-based Integrated Systems

Product	MPMC-931x	MPMC-932x	MPMC-9335	MPMC-934x	MPMC-935x
Slot Count	3U 1 slot	3U 2 slots	3U 3 slots	3U 4 slots	3U 5 slots
Standard	VPX, OpenVPX	VPX, OpenVPX	VPX, OpenVPX	VPX, OpenVPX	VPX, OpenVPX
Volume/ Dimensions	141 in ³ (2311 cm ³) 3.7 x 4.9 x 7.8" (9.4 x 12.4 x 20.0 cm)	232 in ³ (3802 cm ³) 9.1 x 5.0 x 5.1" (23.1 x 12.7 x 13.0 cm)	250 in ³ (4097 cm ³) 9.3 x 5.5 x 4.9" (23.6 x 14.0 x 12.4 cm)	602 - 819 in ³ (9865 - 13421 cm ³) NC: 12.5 x 5.8 x 8.3" (31.8 x 14.7 x 21.0 cm) FC: 12.5 x 5.8 x 11.3" (31.8 x 14.7 x 28.7 cm)	415 in ³ (6801 cm ³) 10.7 x 5.1 x 7.6" (27.0 x 13.0 x 19.3 cm)
Weight ¹	5 lb (2.3 kg)	13 lb (5.9 kg)	14.5 lb (6.6 kg)	25 - 31 lb (11.3 - 14.1 kg)	16 lb (7.3 kg)
Max Power @ 55°C ²	80W CP	105W NC	225W CP	170W NC & FC	366W FC
Processing	Intel Xeon, NXP Power Architecture, AMD Virtex FPGA	Intel Xeon, NXP Power Architecture, AMD Virtex FPGA	Intel Xeon, NVIDIA GPU	Intel Xeon, NXP Power Architecture, AMD Virtex FPGA	Intel Xeon, NXP Power Architecture, AMD Virtex FPGA
I/O	GbE, SATA, RS-232, RS-422, USB, ARINC 429, LVTTTL, MIL-STD-1553, CANBus, NTSC Video, DVI, VGA, RS-170, A/D	GbE, SATA, RS-232, RS-422, USB, ARINC 429, LVTTTL, MIL-STD-1553, CANBus, NTSC Video, DVI, VGA, RS-170, A/D	Standard fit: 4 x GbE, 2 x MilCAN, other I/O through customization	GbE, SATA, RS-232, RS-422, USB, ARINC 429, LVTTTL, MIL-STD-1553, CANBus, NTSC Video, DVI, VGA, RS-170, A/D, Audio	GbE, SATA, RS-232, RS-422, USB, ARINC 429, LVTTTL, MIL-STD-1553, CANBus, NTSC Video, DVI, VGA, RS-170, A/D, Audio
Built-in Features	2 x additional X/PMC sites, 32 GB flash, 50 ms power hold up	2 x additional X/PMC sites, 32 GB flash, 50 ms power hold up	Heater to support cold starts <40°C	2 x additional X/PMC sites, 32 GB flash, 50 ms power hold up	50 ms power hold up
Cooling	Baseplate	Natural Convection	Baseplate	Natural Convection	Forced Air
Qualification	MIL-STD-810, 461, 1275, 704, DO-160	MIL-STD-810, 461, 1275, 704, DO-160	DEF-STAN 00-35 DEF-STAN 61-5 DEF-STAN 59-411	MIL-STD-810, 461, 1275, 704, DO-160	MIL-STD-810, 461, 1275, 704, DO-160

Notes:

1. Fully populated system weight
2. CC - Conduction Cooled, CP = Cold Plate, NC = Natural Convection, Fan = Forced Convection, LC = Liquid Cooled.

3U-based Integrated Systems

Product	MPMC-9355	MPMC-9366	MPMC-9366-0002	MPMC-9336	MPMC-9365
Slot Count	3U 5 slots	3U 6 slots	3U 6 slots	3U 3 slots	3U 6 slots
Standard	VPX, OpenVPX	OpenVPX,, VPX	OpenVPX,, VPX	OpenVPX,, VPX	VPX
Volume/ Dimensions	633 in ³ (10,373 cm ³) 12.7 x 5.7 x 8.8" (32.3 x 14.5 x 22.3 cm)	974 in ³ (2473 cm ³) 9.2 x 16.3 x 6.5" (234 x 413 x 164 mm)	879 in ³ (2233 cm ³) 8.3 x 16.3 x 6.5" (212 x 413 x 164 mm)	288.12 in ³ (731.82 cm ³) 4.9" x 9.8" x 6.0" (124 x 248 x 152 mm)	606 in ³ (1539 cm ³) 5.7 x 12.5 x 8.5 (144 x 316 x 216 mm)
Weight ¹	20.5 lb (9.3 kg)	28.7 lbs (13 kg)	28.7 lbs (13 kg)	14.3 lbs (6.5 kg)	22.5 lbs (10.2 kg)
Max Power @ 55°C ²	250W FC	400W CC	400W CC	150W CP	150W CC
Processing	Intel Xeon, NXP Power Architecture, AMD Virtex-5 and Virtex-7	NXP Power Architecture, AMD Virtex-7	Intel Xeon, NXP Power Architecture	Intel Xeon, AMD Virtex-7 FPGA	Intel Xeon, AMD Virtex-7
I/O	GbE, SATA, RS-232, RS-422, USB, ARINC 429, LVTTTL, MI STD-1553, NTSC, DVI, VGA, RS-170, A/D, Audio	ADC, RS-232, RS-422, M-LVDS, DAC, GbE, Serial FPDP	RS-422, DVI Video Mirror, Discrete, RS-232, GbE, USB, DVI, ARINC 429, MIL-STD-1553	GbE, SATA, RS-422, USB, M-LVDS, DVI, ADC, DAC, Clock	GbE, USB, Custom, LVTTTL, GPIO
Built-in Features	28VDC 115VAC 400HZ single phase 115VAC 400HZ three phase 50 ms power hold up SSD option	6 g, 11 ms shock capability, Elapsed Time Indicator, removable memory (SSD) support, heater supports cold starts <-51°C, 50 ms power holdup, UK export controlled	Removable memory (SSD) support, heater supports cold starts <-51°C, 50 ms power holdup, UK export controlled	200 g 3 ms shock capability, low-phase noise clock generator support, removable memory (SSD) support, heater supports cold starts <-51°C, 50 ms power holdup, UK export controlled	50 ms power holdup, UK export controlled
Cooling	Forced Air	Conduction + Fan	Conduction + Fan	Coldplate	Conduction + Fan
Qualification	MIL-STD-810, 461, 704, DO-160	MIL-STD-810G	MIL-STD-810G	MIL-STD-810G	MIL-STD-704F

Notes:

1. Fully populated system weight

2. CC - Conduction Cooled, CP = Cold Plate, NC = Natural Convection, Fan = Forced Convection, LC = Liquid Cooled.

8-Slot CMOSS/SOSA Enclosure

8-Slot CMOSS/SOSA enclosure, user integration-ready powered enclosure provides the highest functional density available using natural convection cooling and is aligned to U.S. Army CCDC C5ISR Center's C5ISR/EW Modular Open Suite of Standards (CMOSS) and The Open Group Sensor Open Systems Architecture™ (SOSA) Technical standard.

The enclosure is designed to meet the U.S. Army PEO Ground Combat Systems (GCS) Standardized A-Kit / Vehicle Envelope (SAVE), a new standard that defines internal mounting and physical interfaces for connecting CMOSS systems and radios to platforms. These fan-free chassis are ideal for use in Ground Combat Vehicle, and Tactical Wheeled Vehicle Platforms, as well as high-performance ground or rotary-wing processing applications.

CMOSS/SOSA Starter Kit

CMOSS/SOSA starter kit is a SWaP-optimized CMOSS/SOSA development system with:

- Powerful Intel single board computer (SBC) that provides general-purpose processing for hosting battle management software (JBC-P/MMC) and other applications in a virtual environment
- Integrated Ethernet switch that provides 1GbE VICTORY network capabilities to the platform
- Standards-Based Assured-Positioning, Navigation, and Timing (A-PNT) module
- All modules are aligned to CMOSS and the SOSA Technical Standards, and packaged in a compact enclosure in alignment with CMOSS/SOSA standards



8-Slot CMOSS/SOSA Enclosure



CMOSS/SOSA Starter Kit



Digital Video Switch



Rugged Mission Display

Video Management

Curtiss-Wright has a long history of designing bespoke video management systems for aircraft, ground vehicles, and boats for both the commercial and military sectors. We supply video switching, conversion, scaling, compression, distribution, storage, and playback products and can help you design your ideal video management system from conception to installation.

Video Distribution

Products	Function
RVG-FC1	Video Format Converter
RVG-SA1	Analog Video Switch
RVG-SD1	Digital Video Switch
RVG-MS1 3G-SDI	Switch / Quads
RVG-VM1	Quad output format converter
VRDV7000	Dual channel FHD recorder

Mission Displays

Our mission display product family includes a wide range of multi-function rugged LCD displays for use with the industry's most popular sensors, including FLIR and long-range daylight video cameras. Our current display product range offers a variety of screen sizes, from 10.4" to 21.5".

All our displays feature very high brightness and high contrast for sunlight readability and are ideal for use with our fully integrated video management solutions. Various models have options that include multiple video inputs, picture-in-picture facility, video freeze, and dual-LED backlights with daylight/NVG mode. Our smart displays run a Linux operating system for which we create software capable of controlling any of our video hardware in the way our customers need.



Features

- Compatible with all major camera turrets
- Compatible with major map computers
- High brightness display for sunlight readability
- Touchscreen for map/computer control and soft buttons for VMS control including switching and recording
- Input options include four composite/S-video, two RGBHV/VGA, two HD-SDI video inputs with loop through on selected inputs
- Optically bonded glass
- High brightness display for sunlight readability
- Touchscreen as standard

Display	Size	Resolution	Input	NVIS	Smart	IP rating
SVDU1800-M-000	7"	1920 x 1080	DVI	N	N	IP65
GVDU2600-000	10.4"	1024 x 768	DVI	N	N	IP67
GVDU3000-000	12"	1024 x 768	DVI	N	N	IP67
GVDU3000-902	12"	1024 x 768	DVI	N	N	IP68
GVDU4000-000	15.6"	1920 x 1080	DVI	N	N	IP67
GVDU2610	10.4"	1024 x 768	2 x SDI	N	Y	IP67
GVDU3010	12"	1024 x 768	3 x SDI	N	Y	IP67
GVDU4010	15.6"	1920 x 1080	4 x SDI	N	Y	IP67
GVDU4310	17.3"	1920 x 1080	5 x SDI	N	Y	IP67
AVDU4315	17.3"	1920 x 1080	2 x DVI, HD-SDI, RGBHV/RGsB. 4 x Composite/S-Video.	Y	Y	IP67
AVDU5515	21.5"	1920 x 1080	2 x DVI, HD-SDI, RGBHV/RGsB. 4 x Composite/S-Video.	Y	Y	IP65

Program Specific Systems

Multi-Platform Mission Management System

Curtiss-Wright Defense Solutions' Multi-Platform Mission Management (MPMM) system was designed from the beginning with high performance computing, ruggedization and flexibility in mind. The MPMM provides the raw horsepower needed for airborne mission management applications.

At the heart of the MPMM System is the Intel Xeon D-1587 System on Chip (SoC) with 128GB of DDR4 SDRAM. The help with the processing, the MPMM can be outfitted with either another Xeon D-1587 or dual NVIDIA Pascal™ P5000 GPUs. Two NVIDIA Pascal GP107s are also included for additional GPU resources. All combined, the MPMM provides over 300 TFLOPS of performance in under thirty pounds!



Software Defined Radio and Electronic Warfare System

Using a COTS-based mission management system as a hardware starting point, a jump-start system significantly speeds and eases the development of a high performance mission processing through pre-qualification, pre-integration and pre-validation of the rugged system. The system integrator customizes the system by adding the application-specific software and/or expanding the base system with additional components required for their sensors and program needs.

Many new Software Defined Radio (SDR) and Electronic Warfare (EW) systems are being deployed on small platforms requiring sophisticated capabilities, such as GigaHertz (GHz) sampling rates and FPGA-based processing to handle the data rates. The Curtiss-Wright VPX3-530 ADC/DAC meets these requirements within a compact 3U OpenVPX form factor, enabling highly effective SDR and EW implementations.

Curtiss-Wright's mid-size SDR and EW System enables customers to select their preferred RF tuner and software applications (i.e. GNU Radio, Red Hawk or SCA). By provides up to sixteen analog inputs (12-bit up to 2 Gbps) and eight (14-bit < 2.8 Gbps output channels), the SDR and EW system is easily able to interface L-band or S-band RF frequencies. The SDR is built from COTS products. The system consists of five 3U VPX modules, one XMC module, a power supply, backplane and front panel assemblies housed in a MPMC-9354 chassis designed to operate in rugged environments.

3U VPX Ground Control System

The Curtiss-Wright Defense Solutions 3U VPX Ground Control System (GCS) provides a flexible and rugged processing system suitable for ground applications such as fire control, turret control, weapons control, and vehicle control. The 3U VPX GCS processing and networking rugged system, provides an affordable hardware and software solution, ideal for space-constrained applications. The 3U VPX Ground Control System includes:

- Control Processor
- VICTORY compliant Gigabit Ethernet Switch
- Power supply
- Dedicated XMC site for hosting VICTORY services

This rugged system is designed for inclusion of future upgrade capabilities, such as support for local/network attached data storage and PMC sites for new I/O solutions.

Sensor Management Computer (SMC)

Curtiss-Wright ground station electronics inherits legacy from our sensor management products. Both ground station electronics and our sensor management family share the same technology building blocks and operate together to provide communication between unmanned aerial vehicles and ground stations. The SMC is part of a network-centric product family and provides the data interface between the ground satellite and Mission Control Element (MCE) computer infrastructure. The SMC's modular design consists of a single/dual VPX based Power Architecture processor, high speed interface suite (Fibre Channel, Gigabit Ethernet, Fast Ethernet, SATA, Serial RapidIO) and support for legacy interfaces such as parallel ECL interface, RS-422, and RS-232. The rugged SMC system is designed to support internal SATA storage media in a 6U VPX form factor for future applications.

Advanced Mission Management Systems (AMMS)

The depth of Curtiss-Wright avionics experience can be exemplified in the Advanced Mission Management System (AMMS). The AMMS unit provides network-centric mission management, data collection, and data correlation while incorporating support for red/black separation capability. It is also a total sensor management solution for the end user. The AMMS system is one of the latest network-centric systems responsible for mission management.

AMMS is a VPX-based system that will implement internal volatile storage, new DIO sub-system and Discipline Rubidium Oscillator module, along with latest VPX-based PPC modules and Gigabit Ethernet switches.

High-Density Radar Signal Processing System

Our advanced high performance VPX compute modules and optimized software tools are ideal, cost effective building blocks for multi-mission radar systems. Curtiss-Wright's solution uses standards-based, open architecture VPX modules and software to provide a high-performance, modular, and scalable high-performance embedded computing (HPEC) solution. Additionally, they provide advanced rugged packaging with the additional cost and design advantages of an open architecture.



Video and Image Processing System

Curtiss-Wright has a solid history of providing leading technology for all stages of high performance video and image processing, satisfying the complex processing, data movement and environmental constraints for a wide variety of applications. Video and imaging sensor technology is used in a wide variety of applications ranging from aircraft to shipboard to ground based. What is consistent in all cases is that the processor for these applications must be capable of high performance. Multi-stage solutions often push the envelope on processing, data bandwidth and thermal density.

**CURTISS -
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