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CURTISS WRIGHT Controls
Embedded Computing

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CURTISS WRIGHT Controls
Embedded Computing

EMBEDDED COMPUTING



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SOLUTIONS

CURTISS-WRIGHT CONTROLS EMBEDDED COMPUTING

The Curtiss-Wright Controls company has established a premier embedded computing organization, serving aerospace and defense markets. Curtiss-Wright Controls Embedded Computing brings well over 100 years of experience at delivering leading-edge technology products for a variety of embedded computing applications. Curtiss-Wright provides system integrators with a single end-to-end supplier, offering commercial and rugged COTS computing solutions that span the full range of embedded system technology, from board-level products to fully integrated subsystems. This comprehensive array of products is supported by a program of value-added services to enhance the standard product offerings and maximize your technology investment.

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A STRONG PARTNER

With the combined capabilities of Curtiss-Wright Controls Embedded Computing, customers now have a single source for a much wider range of products and services. Curtiss-Wright has the products and expertise to support customers through all phases of their system development program, from providing board level products to consulting, custom engineering and subsystem integration. Our mission is to supply a growing range of interoperable solutions. Integrated board solutions and subsystems from Curtiss-Wright come with our commitment to guarantee and support the interoperability of the individual components. This commitment and our focus on customer support make Curtiss-Wright your strongest partner in the industry.

BROAD PRODUCT RANGES

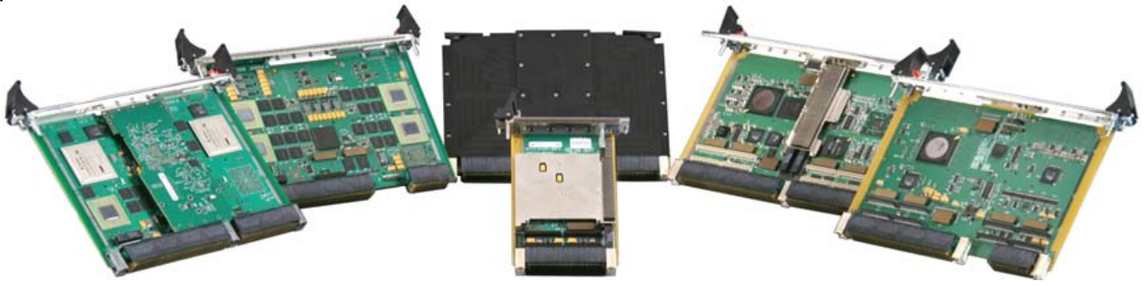
The Embedded Computing group offers a wide range of open-architecture embedded computing products and services. These include rugged board level products, support software, enclosures and subsystem integration for military and aerospace applications, high-performance data communications for military, industrial and medical electronics, and commercial/industrial embedded graphics.

RUGGEDIZATION LEVELS

Curtiss-Wright specializes in providing products for deployment in harsh environments typical of military and aerospace applications. In this rugged domain, the combined experience of the companies in the Embedded Computing group is unmatched by any COTS provider.

The products outlined here are characterized by levels of ruggedization to provide an "at a glance" assessment of their capabilities. The summary table of environmental specifications below defines these ruggedization levels. Note that these specifications express the minimum capability of the products. Curtiss-Wright follows a conservative practice of specifying for worst-case thermal scenarios. Consult individual product specifications or a Curtiss-Wright representative for expert guidance and additional detailed information.

The Ruggedization Levels Table provided below defines, for each ruggedization level, the environmental conditions that our products are specified to withstand. It should be noted that these levels of ruggedization are provided as a guideline, and that individual products might have a slight variation in each range. Also note that not all products support all levels. Please refer to each product's data sheet for availability.



Ruggedization Levels Table

Environmental Condition	Air-cooled Level 0	Air-cooled Level 50	Air-cooled Level 100	Air-cooled Level 200	Conduction-cooled Level 100	Conduction-cooled Level 200	Conduction-cooled Level 300 (Note 5)
Operating Temperature	0°C to 50°C (Note 6)	-20°C to 65°C (Note 6)	-40°C to 71°C (Note 6)	-40°C to 85°C (Note 6)	-40°C to 71°C (Note 7)	-40°C to 85°C (Note 7)	-40°C to 85°C (Note 7)
Non-Operating Temperature (Storage)	-40°C to 85°C	-40°C to 85°C	-55°C to 125°C	-55°C to 125°C	-55°C to 125°C	-55°C to 125°C	-55°C to 125°C
Operating Humidity	0 to 95% non-condensing	0 to 100% non-condensing	0 to 100% non-condensing	0 to 100% non-condensing	0 to 100% non-condensing	0 to 100% non-condensing	0 to 100% condensing
Non-Operating Humidity (Storage)	0 to 95% condensing	0 to 100% condensing	0 to 100% condensing	0 to 100% condensing	0 to 100% condensing	0 to 100% condensing	0 to 100% condensing
Vibration Sine (Note 1)	2 g peak 15-2k Hz	2 g peak 15-2k Hz	10 g peak 15-2k Hz	10 g peak 15-2k Hz	10 g peak 15-2k Hz	10 g peak 15-2k Hz	10 g peak 15-2k Hz
Vibration Random (Note 2)	0.01 g^2/Hz 15-2k Hz	0.02 g^2/Hz 15-2k Hz	0.04 g^2/Hz 15-2k Hz	0.04 g^2/Hz 15-2k Hz	0.1 g^2/Hz 15-2k Hz	0.1 g^2/Hz 15-2k Hz	0.1 g^2/Hz 15-2k Hz
Shock (Note 3)	20 g peak	20 g peak	30 g peak	30 g peak	40 g peak	40 g peak	40 g peak
Conformal Coat (Note 4)	No	Consult Factory	Yes	Yes	Yes	Yes	Yes
2 Level Maintenance Ready	-	-	-	-	No	No	Yes

Notes

1. Sine vibration based on a sine sweep duration of 10 minutes per axis in each of three mutually perpendicular axes. May be displacement limited from 15 to 44 Hz, depending on specific test equipment.
2. Random vibration 60 minutes per axis, in each of three mutually perpendicular axes.
3. Three hits in each axis, both directions, 1/2 sine and saw tooth. Total 36 hits.
4. Conformal coating type is manufacturing site specific. Consult the factory for details.
5. This is a non-standard product. Consult factory for availability.
6. Standard air-flow is 8 cfm at sea level. Some higher-powered products may require additional airflow. Consult the factory for details.
7. Temperature is measured at the card edge.
8. Not all products support all levels. Please refer to each product's data sheet for availability.

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THE EVOLUTION OF COTS

COTS Continuum is a new product architecture from Curtiss-Wright Controls Embedded Computing designed to make customers more productive and able to leverage new technologies more quickly and with less risk. The architecture standardizes I/O routing and pin-outs, electrical interfaces, and provides a common software API to hardware and user documentation across our products. This results in a common out-of-box experience between product families and next generation products benefiting all users by easing their technology insertions.

continuum

How Will You Benefit?

- Increased software engineer productivity, requiring them to learn only one API for multiple products.
- Cost reduction of software development through frequent reuse of your application code.
- Improved competitiveness as forward and backward compatibility of software and hardware interfaces provides more options for cost-effective insertion into your future systems.
- Reduced risk when integrating products from Embedded Computing partners participating in the Continuum Alliance Program who will also participate in the COTS Continuum program.

SUBSYSTEMS DESIGN

For customers who prefer to focus their efforts on the end application rather than the intricacies of integrating low-level hardware and software components, Curtiss-Wright designs and manufactures leading edge, VPX, VME and cPCI based tactical subsystems for military and aerospace markets.

Curtiss-Wright specializes in a wide range of systems designed for all application requirements; our systems expertise extends from mission computers, motion control, flight control, fire control, network centric computers, navigation subsystems and more. Not only do we offer reliable COTS systems, but we also provide industry-leading prototyping for unique system requirements.

For customers simply seeking a fast and trouble-free start to their software development program, we offer a rapid prototyping service, where we will provide a system of cards, installed and cabled into an enclosure. Our proficiency at working with low level hardware and device drivers can save a customer from unplanned delays in their projects.

Curtiss-Wright is experienced at engineering and producing deployment-quality systems. We have the expertise to design custom enclosures, perform full environmental qualification and manage complex programs with many logistics and deliverable data items.

CONTINUUM SERVICES

Curtiss-Wright offers a suite of value-added services to complement and enhance our standard product offerings. During their lifetime, products undergo continuous improvement with software revisions and component upgrades. The intent of these services is to minimize customer's total cost of ownership as well as provide cost predictability with support from the development phase through to deployment, reduced risk of impact from component obsolescence, and extended availability programs.

Technical support by phone, fax, e-mail or in-person/on-site is available throughout the planned life of the products. This support can also take the form of a training program or targeted consulting services. Likewise, Curtiss-Wright repairs what it sells until age and component obsolescence prevent a continued repair service.

Curtiss-Wright regularly updates the software for its products whether to take advantage of new features of middleware, to enhance existing features or to improve functionality. Customers who subscribe to the software upgrade program can keep abreast of the latest developments as well as access useful tools, utilities, and patches via our web-based Continuum Support Center.

During a product's life, Curtiss-Wright takes steps to combat obsolescence with a view to meeting a target year for final production and repairs. Curtiss-Wright can provide visibility into this information with customers such that they can influence how their own designs can overcome obsolescence. This information can be used to establish customer-owned inventories to extend the final build and/or repair dates.

For programs and customers that require notification and/or approval of changes, or design freezes, Curtiss-Wright offers a corresponding control service up to and including total change control – Curtiss-Wright will communicate suggested modifications and the customer retains approval authority. Visibility and Control services are also delivered via our web-based Continuum Support Center.

When Curtiss-Wright discontinues manufacture of standard products, those subscribed to the longevity of supply service along with their specific inventory of parts can continue to order their cards – Curtiss-Wright will maintain tools, test equipment, and expertise to support builds of the longevity customer's products. Likewise, a parts inventory and a longevity of repair service ensures continued repairs of select products.





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SINGLE BOARD COMPUTERS

Curtiss-Wright Controls Embedded Computing offers a variety of PowerPC-based single board computers to fit any application. We support the long life cycle of military programs by offering most new generation SBCs with pin-compatibility with older products, allowing easy system upgrades to new technologies.



6U PowerPC Single Board Computers

Product	Form-Factor	Processor(s)	SDRAM/ DDR	Flash	NVRAM	PMC Sites	Serial I/O	USB	Ethernet	Rugged-ization	O/S	Other
VPX6-185	6U VPX / VPX-REDI	Single/ Dual core MPC8640/ MPC8641, 1.0/1.2/1.33 GHz	2 GB DDR II	512 MB	128 KB	1x 64-bit/ 100 MHz or 8-lane PCIe, 1x 64-bit/ 66 MHz or 4-lane PCIe	4x EIA-232, 4x EIA-232/ 422/485	2x USB 2.0	4x GbE	AC 0, 100, CC 200, 300 CC VITA 48.2 Type I	VxWorks, Linux, INTEGRITY, LynxOS	SRIO and PCIe backplane fabric, 2x 1553B, dual SATA option, 5V-only, DIO & DIFF DIO
SVME/ DMV-184	6U VME	Single/ Dual core MPC8640/ MPC8641, 1.0/1.2 GHz	2 GB DDR II	512 MB	128 KB	1x 64-bit/ 100 MHz or 8-lane PCIe, 1x 64-bit/ 66 MHz	2x EIA-232, 4x EIA-232 422/485	2x USB 2.0	3x GbE	AC 0, 100 CC 100, 200	VxWorks, Linux, INTEGRITY, LynxOS	Dual 1553B option, Dual SATA option, SCSI option, 5V-only, DIO & DIFF DIO
SVME/ DMV-183	6U VME	Single/Dual MPC7447A/ MPC7448 1.0/1.2/1.4 GHz	2 GB DDR	512 MB	128 KB	1x 64-bit/ 100 MHz 1x 64-bit/ 66 MHz	2x EIA-232 4x EIA-422/ 485	2x USB 2.0	2x GbE 1 x 10/100 Mbps	AC 0, 100 CC 100, 200	VxWorks, Linux, INTEGRITY, LynxOS	Dual 1553B option, Dual SATA option, SCSI option, 5V-only, DIO & DIFF DIO
MANTA DX3	6U VME320	Single/Dual MPC7457 733 MHz to 1.3 GHz	2 GB DDR	64 MB (NOR) 1 GB (NAND)	128 KB	1x 64-bit/ 33 MHz 1x 64-bit/ 133 MHz	4x EIA-232/ 422/485	-	2x GbE	AC 0, 50, 100	VxWorks, Linux, INTEGRITY	2x StarFabric links, 2x Serial ATA option
SVME/ DMV-182	6U VME	Single/Dual MPC7457 1.0 GHz	1 GB DDR	128 MB	128 KB	1x 64-bit/ 100 MHz	2x EIA-232 4x EIA-422/ 485	2x USB 2.0	2x GbE	AC 0, 100 CC 100, 200	VxWorks, Linux, INTEGRITY	Dual 1553B option, SCSI option, 5V-only, DIO & DIFF DIO
RAPTOR DX2	6U VME	Single/Dual MPC7457 733 MHz to 1.3 GHz	1 GB	128 MB	128 KB	2x 64-bit/ 33/66 MHz	4x EIA-232/ 422/423	-	3x 10/100 Mbps	AC 0, 50, 100	VxWorks, Linux, INTEGRITY	2x StarFabric links 2x FireWire
RHINO DX	6U VME	Single/Dual MPC7457 733 MHz to 1.3 GHz	1 GB	64 MB (NOR) 1 GB (NAND)	128 KB	2x 64-bit/ 66 MHz	4x EIA-232/ 422/423	-	2x 10/100 Mbps	CC 100, 200	VxWorks, Linux, INTEGRITY	2x FireWire
RAPTOR MX	6U VME	Single/Dual MPC7457 733 MHz to 1.3 GHz	1 GB	64 MB (NOR) 512 MB (NAND)	128 KB	1x 64-bit/ 66 MHz 1x 64-bit/ 33 MHz	4x EIA-232/ 422/485	2x USB 2.0	3x 10/100 Mbps	AC 0, 50, 100	VxWorks, Linux, INTEGRITY	2x MIL-STD-1553B 2x FireWire
RHINO MX	6U VME	Single/Dual MPC7457 733 MHz to 1.3 GHz	1 GB	64 MB (NOR) 512 MB (NAND)	128 KB	1x 64-bit/ 66 MHz 1x 64-bit/ 33 MHz	6x EIA-232/ 422/485	2x USB 2.0	2x 10/100 Mbps	CC 100, 200	VxWorks, Linux, INTEGRITY	2x MIL-STD-1553B 2x FireWire
SVME/ DMV-181	6U VME	MPC7410 500 MHz	1 GB	128 MB	32 KB	1x 64-bit/ 66 MHz 1x 64-bit/ 33 MHz	2x EIA-232 4x EIA-422/ 485	2x USB 1.1	2x 10/100 Mbps	AC 0, 100 CC 100, 200	VxWorks, Linux, INTEGRITY, LynxOS	SCSI option, 5V-only, DIO & DIFF DIO
M6000	6U VXS/ VME	AMCC PowerPC 440SP 667MHz	512 MB DDR2	32 MB	-	2x XMC or PMC	1x EIA-232	-	2x GbE	AC 0 CC contact factory	VxWorks, Linux	2x 4 Gbps Fibre Channel, Xilinx Virtex-4 FX, Two x4 RocketIO
M5000 C5000	6U VME 6U cPCI	PPC440GX 667 MHz 800 MHz	256 MB 1 GB DDR	32 MB	-	2x 64-bit/ 133 MHz	2x EIA-232 or 1x EIA-232 & 1x EIA-422	-	2x 10/100/ 1000 Mbps 1x 10/100 Mbps	AC 0	VxWorks, Linux	Dual 2 Gbps Optical Fibre Channel

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6U Intel Processor Based Single Board Computers

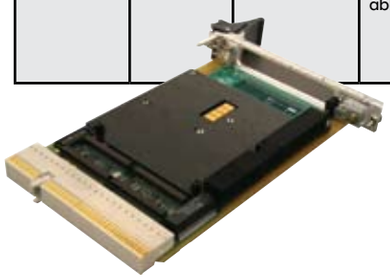
Curtiss-Wright Controls Embedded Computing also offers single board computers based on Intel Core Architecture processors for specialized applications, especially those requiring very low power consumption. These are also available in multiple ruggedization levels to adapt to specific operating environments.

Product	Form-Factor	Processor(s)	SDRAM/ DDR	Flash	NVRAM	PMC Sites	Serial I/O	USB	Ethernet	Rugged-ization	Operating System Support	Other
VPX6-1952	6U VPX/ VPX-REDI	Intel Core2 Duo Penryn @ 2.5 GHz	8 GB DDR3	8 GB SATA NAND	2 MB Firmware hub	1x 4xPCIe XMC	1x EIA-232, 2x EIA-422	10x USB 2.0	2x SERDES Ethernet	AC 0 CC 300	Wind River GPP Linux	2x SATA, 8x GPIO, 8x GPI, 1x RGB, 2x Single Link DVI
SVME/ DMV-1901	6U VME	Intel Core2 Duo @ 1.5 GHz	1 GB, 2 GB, or 4 GB DDR2 RAM	2 GB USB NAND	-	2x 64-bit/ 100-133 MHz PMC or 1x 64-bit/ 100-133 PMC + 1x 4xPCIe XMC	2x EIA-232, 4x EIA-422	3x USB 2.0	2x GbE	AC 0, 100 CC 100, 200	VxWorks, Linux, Solaris, Windows	2x SATA, 2x SCSI 320/160, 1x VGA Graphics, 1x AC97 Audio

Small Form-Factor Single Board Computers

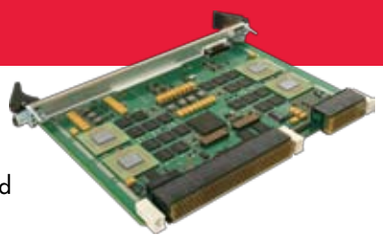
Curtiss-Wright offers a family of small form-factor embedded computing solutions with products offered in 3U CompactPCI (cPCI) and Processor PMC (PrPMC) form-factors. These small form-factor products allow systems developers to employ COTS solutions for space and weight constrained applications that cannot accommodate the 6U standard.

Product	Form-Factor	Processor	SDRAM/ DDR	Flash	NVRAM	X/PMC Sites	Serial I/O	USB	Ethernet	Rugged-ization	Operating System Support	Other
VPX3-1100 ATOMIC	3U VPX	1.1GHz Intel Atom	512 MB	1 GB NAND	-	1 XMC x1 PCIe	2x EIA-232	2x	2x GbE	AC 0, 100 CC 200, 300, 400	VxWorks, Linux, Windows	Additional I/O including: 8xGPIO, Audio, VGA + Wireless 802.11n/a/b/g, 802.15 and GPS support
VPX3-127	3U VPX	MPC8640 @ 1.2 GHz, MPC8640D @ 1.0 GHz	2 GB DDR2 SDRAM	256 MB NOR, 1 GB NAND	512 KB FRAM	1x 64bit, 100 MHz or 1 XMC x8 PCIe	2x EIA-232 2x EIA-422	2x USB 2.0	2x GbE or 2x 1000x	AC 0, 100 CC 100, 200	VxWorks, Linux	Pinout as per VITA 46.9. DIO, DIFFIO, 2x 4 PCIe or 1x4 PCIe & 1x4 SRIO
SCP/DCP-1201	3U cPCI	Intel Core2 Duo @ 1.5 GHz	1 GB DDR2 SDRAM	1 GB USB NAND	-	1x 64-bit/ 66 MHz	2x EIA-232 4x EIA-422	3x USB 2.0	2x GbE	AC 0, 100 CC 100, 200	VxWorks, Linux, Solaris, Windows	System & Peripheral Controller, 1x Serial ATA
SCP/DCP-124	3U cPCI	MPC7447A @ 1.0 MHz or MPC7448 @ up to 1.4 GHz	1 GB DDR SDRAM	256 MB	128 KB	1x 64-bit/ 100 MHz	2x EIA-232 2x EIA-422/ 485	1 x USB 2.0	2x GbE	AC 0, 100 CC 200	VxWorks, Linux, INTEGRITY	System & Peripheral controller, DIO and DIFFIO Available, Sync Capable EIA-422
SCP/DCP-124P	3U cPCI	MPC7448 @ up to 1.4 GHz	1 GB DDR SDRAM	256 MB	128 KB	1x 64-bit/ 100 MHz	2x EIA-232 2x EIA-422/ 485	1 x USB 2.0	2x GbE	AC 0, 100 CC 200	VxWorks, Linux, INTEGRITY	Peripheral Only, DIO and DIFFIO Available, Sync Capable EIA-422
SCP/DCP-122	3U cPCI	750FX 800 MHz	256 MB	64 MB	32 KB	1x 64-bit/ 66 MHz	1x EIA-232 2x EIA-422	1 x USB 1.1	1x 10/100 Mbps	AC 0, 100 CC 100, 200	IVxWorks, Linux, INTEGRITY	System & Peripheral controller
PMC-106	PPMC	MPC7447A 500 MHz	256/ 512 MB DDR	64 MB	8 KB	1x 64-bit/ 66 MHz	2x EIA-232/ 422	-	1x GbE	AC 0, 100 CC 100, 200	VxWorks, Linux	PCI-X 133 MHz interface
PMC-110 CryptoNet	PMC	8555e 667 MHz	64 MB DDR (expand-able)	16 MB	2 Mb	-	1x EIA232	-	2x GbE	AC 0, 100 CC 100, 200	VxWorks, Linux	Contact Factory: 64-bit 133 MHz PCI-X Interface, Crypto Engine (AES, 3DES, MD5, SHA), Firewall, VPN, NAT, IPSec, IPv4/ v6, Random number generators, SNTP, Real-Time Clock



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DIGITAL SIGNAL PROCESSING



Radar, sonar, signal intelligence and image processing systems demand an efficient and easy-to-program multi-processor solution. Our family of digital signal processing products offers developers a complete solution with PowerPC and FPGA-based processing nodes, a high-performance switch fabric interconnect with a complementary inter-processor communications driver, signal processing libraries and the unique technology to distribute PMC I/O across a switched fabric network.

6U PowerPC-based Digital Signal Processors

Product	Form-Factor	Processor(s)	Memory	Flash (Max)	NVRAM	Mezzanine Sites	Ethernet	Rugged-ization	O/S	EIA-232 Ports	EIA-422/ 485 Ports	Discrete I/O	Other Features
CHAMP-AV6	6U VPX-REDI	Quad MPC8640/D 1 GHz	4 GB DDR2 (ECC)	256 MB	128 KB	1x XMC (PCIe)	4x GbE via switch	AC 0, 100 CC 100, 200	VxWorks, Linux, Gedae	4	2	16-bits	SRIO fabric, PCIe I/O port
CHAMP-AV IV	6U VME	Quad MPC7447/ MPC7448 1 GHz/1.25 GHz	2 GB DDR (ECC)	256 MB	128 KB	2x 64-bit/ 100 MHz	4x GbE via switch	AC 0, 100 CC 100, 200	VxWorks, Linux, Gedae	4	-	8-bits	On-board Gigabit Ethernet Switch
Manta QX3	6U VME	Quad MPC7457 733MHz/1GHz	2 GB DDR	64 MB NOR 1 GB NAND	128 KB	1x 64-bit/ 66 MHz	2x GbE	AC 0, 50	VxWorks, Linux, INTEGRITY	4	2	12-bits	2 x StarFabric, 2x FireWire

3U and 6U FPGA-based Digital Signal Processors

Product	Form-Factor	Processor(s)	Memory	Flash (Max)	NVRAM	Mezzanine Sites	Ethernet	Rugged-ization	O/S	EIA-232 Ports	EIA-422/ 485 Ports	Discrete I/O	Other Features
VPX3-450	3U VPX/ VPX-REDI	One MPC8640D 1 GHz. One Xilinx Virtex-5 FPGA, LX155T/SX95T.	(Note 1)	256 MB	-	1x XMC 4-lane PCIe	2x GbE	AC 0, 100 CC 100, 200, 300	VxWorks, Linux, Continuum FXtools	2	-	8 LVTTL to the 8640D, 18 pairs of LVDS to the FPGA	PCIe switch
FPE320	3U VPX/ VPX-REDI	One Xilinx Virtex-5 FPGA, SX240T/ LX155/220/330T FX130/200T	2x 9 MB QDR2, 2x 256 MB DDR2	12 MB	-	1x FMC / VITA 57	1x GbE	AC 0, 100 CC 100, 200, 300	VxWorks, Linux	2	-	72 single ended I/O	PCIe x4/x8 and two x4 RocketIO ports to backplane
CHAMP-FX2	6U VPX-REDI	Dual Xilinx Virtex-5 FPGAs, LX110T/LX220T/ FX130T. One MPC8641D	(Note 2)	512 MB	128 KB	1x XMC (PCIe)	10/100/ 1000 Mbps	AC 0, 100 CC 100, 200	VxWorks	2	2	16-bits of LVTTL, 18 pairs of LVDS from each FPGA	SRIO Fabric (four x4 ports offboard), one or two x4 RocketIO ports to the backplane
FPE650	6U VPX-REDI	Quad Xilinx Virtex-5 FPGAs, SX95T/LX155T/ FX100T	(Note 3)	128 MB	-	2x FMC / VITA 57	FMC site or 4x backplane SERDES	AC 0, rugged CC (Note 4)	VxWorks & Linux remote host support	-	-	20 pairs of LVDS from 2 FPGAs	Ten x4 RocketIO ports to back-plane
HPE720	6U VPX-REDI	Dual Xilinx Virtex-5 FPGAs, LX155/220/330T /SX240T/FX200T. One MPC8640/ MPC8641D 1/1.25/1.33GHz	2 GB DDR2, 4x 9 MB QDR2, 2x 512 MD DDR2	128 MB	128 KB	2x FMC or 1x FMC and 1x XMC/ PMC	2x GbE	AC 0, 100	VxWorks, Linux	2	2	21 Differential pairs, 38 Single Ended I/O	SRIO fabric, PCIe, Four x4 back-plane RocketIOs, System Control Node, 6.25GHz signalling
VPF2	6U VXS/ VME	Dual Xilinx Virtex-5 FPGA, LX110T/SX95T. One MPC8641D.	(Note 5)	128 MB	-	1x PMC or XMC	2x GbE or 1x GbE & 1x GbE optical	AC 0, rugged CC (Note 4)	VxWorks, Linux	2	-	-	Two x4 RocketIO
VPF1	6U VXS/ VME	Dual Xilinx Virtex-II Pro FPGA. Dual MPC7447A/ 7448.	(Note 6)	64 MB	-	1x PMC	2x GbE	AC 0, rugged CC (Note 4)	VxWorks, Linux	1	1	-	Two x8 RocketIO

Notes

1. 2 banks of DDR2 SDRAM for the MPC8640D, 1 GB total. 2 banks of QDR2+ SRAM (18 MB total) and 1 bank of DDR2 SDRAM (512 MB total) for the FPGA.
2. 512 MB DDR2 SDRAM, 36 MB QDR2 SRAM per FPGA, 1 GB DDR2 SDRAM for the PowerPC.
3. 2 banks of 4M x 18-bit QDR2 SRAM, 2 banks of 128M x 16-bit and 2 banks of 128M x 24-bit DDR2 SDRAM for FPGAs 1 and 3. 4 banks of 4M x 18-bit QDR2 SRAM for FPGAs 0 and 2.
4. Contact factory for rugged and conduction-cooled options.
5. 2 GB DDR2 SDRAM for the MPC8641D, 4 banks of 9 MB QDR2 SRAM and 2 banks of 128 MB DDR2 SDRAM per FPGA.
6. 256 MB SDRAM per MPC744x, 2 banks of 64 MB DDR SDRAM and 4 banks of 4 MB QDR SRAM per FPGA.



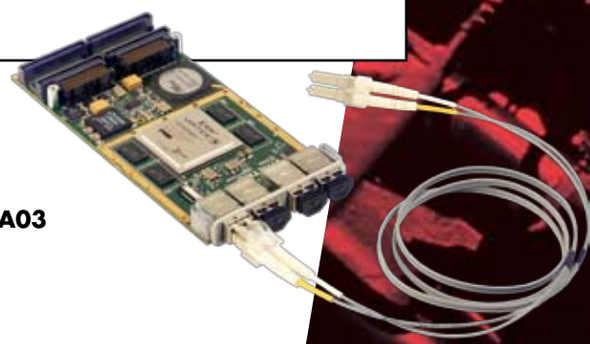
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FPGA-based Mezzanines

Product	Form-Factor	FPGA	Memory	Ruggedization	O/S	Interface	Other Features
XMC-FPGA05F	XMC/PMC	Xilinx Virtex-5 LX155T/SX95T/FX100T	512 MB DDR2 SDRAM (4 banks of 64M x 16-bit)	AC 0, rugged CC (Note 2)	VxWorks, Linux, Windows	4x Fiber-optic PCIe or RocketIO	FPGA Development Kit
XMC-FPGA05D	XMC/PMC	Xilinx Virtex-5 LX155T/SX95T/FX100T	18 MB QDR2 SDRAM (2 banks of 9M x 18-bit) 256 MB DDR2 SDRAM (2 banks of 128M x 16-bit)	AC 0, rugged CC (Note 2)	VxWorks, Linux, Windows	I/O Personality module, 64-bit 133 MHz PCI-X, RocketIO	(Note 1) FPGA development kit
XMC-442	XMC	Xilinx Virtex-5 SX50T/SX95T	256 MB DDR2 SDRAM, 18 MB QDR2 SRAM	AC 0, 100 CC 100, 200	VxWorks	Personality module, PCIe, RocketIO	FPGA design kit
PMC-FPGA05	PMC/PCI	Xilinx Virtex-5 LX110	256 MB DDR2 SDRAM (2 banks of 64M x 16-bit) 18 MB QDR2 SRAM (3 banks of 4M x 18-bit)	AC 0	VxWorks, Linux, Windows	I/O Personality module, 64-bit 133 MHz PCI-X	(Note 1) FPGA development kit
SPMC/DPMC-440	PMC	Xilinx Virtex-II Pro VP20/VP40	256 MB SDRAM	AC 0, 100 CC 100, 200	VxWorks	64-bit 66MHz PCI	FPGA design kit
MM-7105	PMC	Xilinx Virtex-4 LX200	512 MB DDR2 SDRAM	AC 100 CC 100	VxWorks, Linux	64-bit 133MHz PCI-X	FPGA development kit
MM-7110	PMC	Xilinx Virtex-4 LX200 and SX55	512 MB DDR2 SDRAM	AC 100 CC 100	VxWorks, Linux	64-bit 133MHz PCI-X	FPGA development kit
MM-7115	PMC	Xilinx Virtex-4 LX200 and LX160	512 MB DDR2 SDRAM	AC 100 CC 100	VxWorks, Linux	64-bit 133MHz PCI-X	FPGA development kit
PMC-FPGA03	PMC	Xilinx Virtex-II Pro VP50	128 MB DDR SDRAM 9 MB QDR SRAM	AC 0, rugged CC (Note 2)	VxWorks, Linux, Windows	64-bit 66MHz PCI	(Note 1) FPGA development kit
PMC-FPGA02	PMC	Xilinx Virtex-II XCV3000/6000	128 MB SDRAM 12 MB QDR SRAM	AC 0	VxWorks, Windows	I/O Personality module, 64-bit 66MHz PCI	(Note 1) FPGA development kit

Notes

1. Custom I/O personality modules can be easily developed or Curtiss-Wright offers a variety of modules including analog input, analog output, LVDS, EIA-485/422 and Camera Link.
2. Contact factory for rugged and conduction-cooled options.



I/O Personality Modules for XMC-FPGA05D, PMC-FPGA05 and PMC-FPGA03

Module	Function	Notes
LVDS-MOD3	32 LVDS pairs	68-way SCSI-3 style front panel connector
LVDS-MOD4	64 LVDS pairs	152-way high-density front panel connector
LVDS-MOD5	2x 26 LVDS pairs	Two 80-way front panel connectors
ADC-MOD2	Dual 125 MSPS 14-bit ADC	AC coupled, font panel MMCX connector
DAC-MOD1	Dual 210 MSPS 14-bit DAC	AC coupled, front panel MMCX connector
RS485-MOD2	33x EIA-485/422/422B channels	VHDCI - SCSI-5 style front panel connector
CAML-MOD3	Camera Link	Supports Base, Medium and Full mode







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Continuum Firmware and BSP: Operating Systems for DSP Applications

The Advanced Multi-Computing Group of Curtiss-Wright Controls Embedded Computing offers customers with several choices of real-time operating systems for use on its CHAMP multi-processor boards. Developers of high-end multi-processor signal processing systems can enjoy the benefits of using standard, non-proprietary operating systems and tool-chains which are common to those used with single board computers. Currently available operating system choices for use with the CHAMP product lines include: VxWorks by Wind River, Linux and the Gedae graphical development environment from Gedae.



Continuum Vector: Digital Signal Processing Libraries

The Advanced Multi-Computing products derive their floating-point performance from the AltiVec vector processing engines within Freescale processors. To harness these complex instruction units, Curtiss-Wright offers the Continuum Vector DSP function library. Continuum Vector provides over 200 functions, providing the foundation for most signal processing applications. Continuum Vector provides the user with a choice of APIs with support for the Vector Signal Image Processing library (VSIPl, Core lite) standard and the popular API established by Floating Point Systems Inc.

Continuum IPC Inter-Processor Communications

Military DSP applications employ multiple processors operating in a pipeline or in parallel. In either case, data must be transferred quickly and efficiently between the processors. The Embedded Computing group offers the Inter-Processor Communications (IPC) library to provide messaging and bulk data transfers in a multi-processor system. IPC provides a hardware-neutral interface for task-to-task communications. IPC will run with the same API on VME boards with StarFabric interconnect and VPX-based systems with SRIO switched fabric technology and both processor and FPGA endpoints.

Continuum FXtools: FPGA-based Processing Development

A move to reconfigurable FPGA-based computing is taking place for applications demanding the highest performance in space and power-constrained applications. FPGA development is well known to be complex with attendant schedule risks. Curtiss-Wright offers FPGA design kits that provide a full infrastructure with optimized, temperature-qualified controller designs, simulation models, test benches and test scripting support. With a team of dedicated FPGA design professionals available for training and support, selecting Curtiss-Wright as your FPGA solution partner will ensure a successful outcome to your next FPGA-based project.



Continuum Insights: MultiProcessor Development Tools

Developing applications spanning multiple processors presents challenges not typically addressed by traditional software development tools. Continuum Insights provides developers of multi-processor systems with a suite of tools that include a multi-processor debugger, a multi-processor real-time event analyzer, a system monitoring tool, and tools to manage loading, running, and Flash installation of software across an entire system.

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SIGNAL ACQUISITION AND SYNTHESIS

The first stage of any radar, sonar, signal intelligence or software radio system is the acquisition or synthesis of analog signals. Curtiss-Wright Controls Embedded Computing offers a growing range of products in a variety of form factors including VME, PMC, XMC and FMC, to meet the challenges of these demanding embedded systems from the KHz range to the GHz range.



In addition to products translating between the analog and digital domain, Curtiss-Wright also offers a number of other specialized I/O products including synchro-resolvers, multi-channel digital I/O, and time counters.

Product	Function	Form-Factor	Input Channels	Output Channels	Rugged-ization	O/S	Other
ADC510	MSPS Signal acquisition	FMC	2 channels, 12-bit, up to 500 MSPS/channel	-	AC 0, rugged CC contact factory	Development kit hosted on FPGA processor board	Onboard clock option
ADC511	MSPS Signal acquisition	FMC	2 channels, 14-bit, up to 400 MSPS/channel	-	AC 0, rugged CC contact factory	Development kit hosted on FPGA processor board	Onboard clock option
ADC512	GSPS Signal acquisition	FMC	2 channels, 8-bit, up to 3 GSPS/channel	-	AC 0, rugged CC contact factory	Development kit hosted on FPGA processor board	
ADC513	GSPS Signal acquisition	FMC	4 channels, 8-bit, up to 1.5 GSPS/channel	-	AC 0, rugged CC contact factory	Development kit hosted on FPGA processor board	
AD3000	GSPS Signal acquisition	XMC PMC	1 channel, 8-bit, up to 3 GSPS	-	AC 0, rugged CC contact factory	VxWorks, Linux, FPGA Development Kit	Xilinx Virtex-5 LX110T/ SX95T FPGA
AD1520	GSPS Signal acquisition	XMC PMC	2 channels, 8-bit, up to 1.5 GSPS/channel	-	AC 0, rugged CC contact factory	VxWorks, Linux, FPGA Development Kit	Xilinx Virtex-5 LX110T/ SX95T FPGA
XCLK1	Multi-channel clock generator	XMC PMC	-	Up to 6 phase matched outputs	AC 0, rugged CC contact factory		Internal or external 10 MHz reference, clock sources up to 2 GHz
XMC/PMC-E2201	MSPS Signal acquisition and digital receiver	XMC PMC	2 channels, 16-bit, up to 180 MSPS/channel	-	AC 0, 100 CC 100, 200	VxWorks 6.x, Linux drivers, FPGA Development Kit	-
XMC/PMC-E2202	MSPS Signal acquisition and digital receiver	XMC PMC	4 channels, 16-bit, up to 180 MSPS/channel	-	AC 0, 100 CC 100, 200	VxWorks 6.x, Linux drivers, FPGA Development Kit	-
PMC-E2000	Analog input/ analog output	PMC	8 channels, 200 kSPS/ Channel, 16-bit resolution	4 channels, 300 kSPS, 16-bit resolution	AC 0	-	-
PMC-E2001	Delta-Sigma Analog input/analog output	PMC	4 differential channels, 16-bits, up to 96 kHz	16 single-ended or 8 pseudo-differential channels, 16-bits, up to 108 kSPS	AC 0	VxWorks 6.x driver, Linux driver	-
PMC-E2200	MSPS Signal acquisition and digital receiver	PMC	2 channels, 14-bit, up to 105 MSPS/channel	-	AC 0, 100 CC 100	VxWorks 6.x driver, Linux driver, Firmware developer kit	Virtex II XC2V3000
PMC-E2600	MSPS digital transmitter	PMC	-	2 channels, 14-bit, up to 200 MHz	AC 0, 100 CC 100	VxWorks 6.x driver, Firmware developer kit	Virtex II XC2V3000
SVME-E2100	Resolver to digital converter	VME	-	2 or 4 channels	AC 0	-	-
SVME-E2101	Synchro to digital converter	VME	-	2 or 4 channels	AC 0	-	-
SVME-E2102	Programmable multi-channel digital I/O	VME	32 opto-isolated channels	32 or 16 opto-isolated. Mechanical or solid-state relays	AC 0	-	-
SVME-E2103	I/O Engine	VME	32 single-ended/16 differential, 12 bits, 320 kSPS	8 analog output channels	AC 0	-	-
SVME-E2104	Multi-channel Analog I/O	VME	32 single-ended or 16 differential, 16-bits	4 single-ended, 16 bits	AC 0	-	-
SVME-E2105	Multi-channel Analog Output	VME	-	16 channels, 12-bits	AC 0	-	-
SVME-E2106	Multi-channel Analog Output	VME	-	8 channels, 16 bits	AC 0	-	-
SVME-E2107	Multi-channel Analog Output	VME	-	4 channels, 12-bits	AC 0	-	-
SVME-E2108	Multi-channel Analog I/O	VME	32 single-ended, 16 differential, 12-bits, 320 KSPS	8 channels, 12-bits	AC 0	-	-
SVME-E2109	Timer-counter	VME	8 digital input channels	-	AC 0	-	10 general purpose 16-bit timer/counters, 5 internal frequency sources

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Curtiss-Wright Controls Embedded Computing offers a number of products that provide high-speed, low-latency communications. These products include PMC, XMC, PCIe and VME cards designed to popular communications standards. These include Fibre Channel, Serial FPDP, Shared-Memory, 1553, StarFabric, Ethernet, Ultra160 SCSI and FireWire (IEEE1394).

Serial FPDP and FPDP Products

Serial FPDP products provide up to 247 MB/s data throughput, 99% bandwidth utilization, and the simplicity and reliability essential for many of today's demanding sensor-to-DSP applications. With FibreXtreme, data transfers occur without the CPU overhead and non-deterministic latencies associated with many layers of complex software protocols.

Product	Form-Factor	Interface Type and Number	Speed	Operating System/ Protocol Support	Ruggedization	Other
FibreXtreme SL100 Single Channel	PMC, PCI, cPCI or CMC (Note 1)	Serial FPDP (Note 2)	1.0625 Gbps, 105 MB/s throughput	VxWorks, Linux, Solaris, Windows, IRIX	AC 0, 200 (Note 5) CC 200 (Note 6)	Extends FPDP up to 50km, several carrier options available - VME and PCI (Note 5)
FibreXtreme SL240 Single Channel	PMC, PCI, PCIe, cPCI or CMC (Note 1)	Serial FPDP (Note 2)	2.5 Gbps, 247 MB/s through-put	VxWorks, Linux, Solaris, Windows, IRIX	AC 0, 200 (Note 5) CC 200 (Note 6)	Extends FPDP up to 50km, VME & PCI carrier options
FibreXtreme SL100DC Dual Channel	XMC or PCIe	Serial FPDP (Note 2)	1.0625 Gbps, 105 MB/ channel	VxWorks, Linux, Windows	AC 0	Extends FPDP up to 50km
FibreXtreme SL240DC Dual Channel	XMC or PCIe	Serial FPDP (Note 2)	2.5 Gbps, 247 MB/channel	VxWorks, Linux, Windows	AC 0	Extends FPDP up to 50km
FibreXtreme SL100QC Quad Channel	XMC or PCIe	Serial FPDP (Note 2)	1.0625 Gbps, 105 MB/ channel	VxWorks, Linux, Windows	AC 0	Extends FPDP up to 50 km
FibreXtreme SL240QC Quad Channel	XMC or PCIe	Serial FPDP (Note 2)	2.5 Gbps, 247 MB/channel	VxWorks, Linux, Windows	AC 0	Extends FPDP up to 50 km
SFM	XMC or PMC	Serial FPDP, 2 or 4 optical transceivers	1.0625, 2.125 or 2.5 Gbps	VxWorks, Linux, Windows	AC 0	64 MB DDR2 SDRAM buffering per channel
DPIO2	PMC	FPDP/FPDP II		VxWorks, WIndows	AC 0	

Notes

1. The CMC format provides a 32-bit parallel interface for conversion to Serial FPDP. FibreXtreme CMC cards can be mounted on companion VME or PCI carrier boards, or used with a custom carrier.
2. FibreXtreme Serial FPDP products are available with copper or 800 nm/1300 nm/1550 nm optical transceivers.



Shared-Memory Products

SCRAMNet® shared-memory products are optimized for the high-speed, ultra-low latency transfer of data among many computing platforms that are all solving portions of the same real-time problem. Its simplicity and speed are ideally suited for applications requiring a high degree of synchronization and control. The next-generation SCRAMNet GT product line can accommodate network control functions and network data streams seamlessly and simultaneously.

Product	Form-Factor	Interface Type and Number	Speed	Operating System/ Protocol Support	Ruggedization	Other
SCRAMNet+ SC150e	PCI, cPCI or PMC	Shared Memory (Note 1)	150 Mbps, 16.7 MB/s throughput	VxWorks, Linux, Solaris, Windows, HP UX, IRIX, QNX	AC 0 (Note 3)	250 nsec latency
SCRAMNet+ SC150	PCI, VME	Shared Memory (Note 1)	150 Mbps, 16.7 MB/s throughput	VxWorks, Linux, Solaris, Windows, HP UX, IRIX, QNX	AC 0 (Note 3)	250 nsec latency, Mezzanine for rehosting onto custom carrier
SCRAMNetGT GT200	PCI, PMC or VME	Shared Memory (Note 2)	2.5 Gbps, 200 MB/s through-put	VxWorks, Linux, Solaris, Windows, IRIX, LabView, MATLAB, RTX	AC 0, 200 (Note 3) CC 200 (Note 4)	-

Notes

1. SCRAMNet+ is a ring topology shared memory network, available in copper, standard fiber (300M) or extended fiber (3000M) media.
2. SCRAMNet GT is a ring topology shared memory network operating at 2.5 Gbps, available in standard fiber (300M) or extended fiber (3000M) media. Reconfigurable networks can be constructed with use of the optional Curtiss-Wright physical layer switches.
3. Humidity 10% to 85% non-condensing, no shock or vibration testing. Storage Temperature -40°C to +85°C, Humidity 0% to 95% Non-condensing.
4. Storage Temperature -40°C to +85°C, Humidity 0% to 95% Non-condensing, Random Vibration .1g^2/Hz 10 Hz to 1k Hz, -6dB/octave 1k Hz to 2k Hz.

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Fibre Channel, Star Fabric and Ethernet Products

FX400 Fibre Channel products maximize the superior communication and interconnect capabilities of ANSI standard Fibre Channel. Combining the delivery and repeatability of a channel with the connectivity and protocol multiplexing of a network, Fibre Channel delivers the high-speed data transfers and interconnect versatility required in applications such as storage area networks, avionics databus and image processing systems.

Curtiss-Wright also offers PMC cards designed to popular communications standards. These include StarFabric and Ethernet.

Product	Form-Factor	Interface Type and Number	Speed	Operating System/ Protocol Support	Ruggedization	Other
FX400	PMC, PCI or PCIe	1 or 2 Fibre Channel	4.250, 2.125, 1.0625 Gbs	VxWorks, Linux, Windows	AC 0, 100	133 MHz PCI-X, multi-protocol driver, 266 MHz PCI-X, multi-protocol driver, PCIe x 4, multi-protocol driver
StarLink II	PMC	4 StarFabric ports	440 MB/s total	VxWorks, Linux, INTEGRITY	AC 0, 100 CC 100, 200	Includes integrated StarFabric switch
PSTB	PMC	2 StarFabric ports (Bridge Only)	2.5 Gbps	VxWorks, Linux	AC 0, 100 CC 100, 200	-
PSTN	PMC	2x Star Fabric Ports (Bridge and Switch)	2.5 Gbps	VxWorks, Linux	AC 0, 50, 100 CC 100, 200	-
PGE2	PMC	2x GbE Ethernet	1 Gb/s	VxWorks, Linux	AC 0, 50, 100 CC 100, 200	Front or rear I/O
PMC-ENET	PMC	1x 10/100 BaseTX Ethernet 1x EIA-232		VxWorks	AC 0	32-bit 33 MHz PCI



Avionics/Vehicle Bus & Serial I/O Communications Products

Curtiss-Wright Controls Embedded Computing offers communications products to interface with standard network and serial interfaces used in avionics and vehicle systems including MIL-STD-1553A/B, CANbus and MilCAN. MIL-STD-1553 products are supported with a full-featured source-included software driver that accommodates the many operational modes encountered in 1553 systems.

Product	Form-Factor	Interface Type and Number	Speed	Operating System/ Protocol Support	Ruggedization	Other
PMC-214	PMC	4 CANbus or MilCAN	250/500, 1000 Kbps	VxWorks, Linux, Windows	AC 0, 100 CC 200	Optional US Army Utility Bus, 16-bit discrete I/O
PMC-211	PMC	2 CANbus	250/500, 1000 Kbps	VxWorks	AC 0, 100 CC 200	Optional US Army Utility bus, 16-bit discrete I/O
PMC-601	PMC	2 MIL-STD-1553	1 Mbps	VxWorks, INTEGRITY, LynxOS	AC 0, 100 CC 200	16-bit discrete I/O
1553 Gold+	PCI	2 MIL-STD-1553	1 Mbps	Linux, Solaris, Windows	AC 0	Single & multi-mode versions
1553 Gold+	VME	2 MIL-STD-1553	1 Mbps	Solaris, SunOS, Unix	AC 0	Single & multi-mode versions
PMC-1553	PMC	4 MIL-STD-1553	1 Mbps	VxWorks, Linux	AC 0, 100 CC 200	Product produced by AIM-USA
PMC-429	PMC	ARINC 429 4, 8, 16 & 32 serial ports	12.5 Kbps & 100 Kbps	VxWorks, Linux	AC 0, 100 CC 200	Product produced by AIM-USA





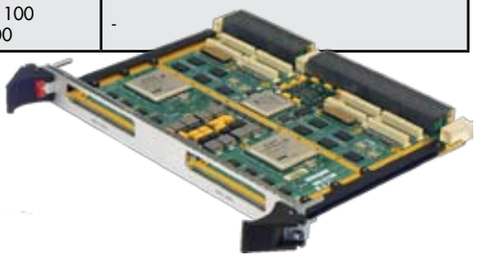
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Buffer Memory Nodes

In signal processing and data acquisition systems, buffer memory nodes are used to rate buffer real-time data streams. Rate buffering can involve staging data prior to processing by a distributed multi-computer, rate buffering post-processed data before sending it to slower, persistent storage, or capturing data in applications requiring real-time snap shots. Other common implementations involve serving as a central database for compute nodes or providing a canvas for imaging applications to reconstruct post-processed data. Curtiss-Wright offers a range of buffer memory nodes for VPX, VME, XMC and PMC.



Product	Form-Factor	Memory Capacity	Connectivity	Ruggedization	Other
MFC700	6U VPX/ VPX-REDI	Up to 32 GB DDR2 SDRAM (4-16 GB on the baseboard plus 2 XMC sites for the MM-6171)	Serial RapidIO fabric, RocketIO and low-speed I/O	AC 0, 100 CC 100, 200	Xilinx Virtex-5 memory controllers, onboard 8 port Serial RapidIO switch
MM-6171	XMC	Up to 4 GB DDR2 SDRAM	Serial RapidIO or x8 PCIe	AC 0, 100 CC 100, 200	Xilinx Virtex-5 memory controller, VxWorks and Linux support
MM-6165D	PMC	4 GB SDRAM	64-bit 66 MHz PMC	AC 0, 100 CC 100, 200	-
MM-6495D	VME	8 GB SDRAM	VME, Dual RACE++	AC 0, 100 CC 100	-



FMC/XMC/PMC Carrier Cards

Product	Form-Factor	XMC/PMC Interface	Ruggedization	Other
StarReach	6U VME	2x 64-bit/66 MHz	AC 0, 100 CC 100	StarFabric interface extends PCI to 5M
SCP/DCP-201	3U cPCI	1x 64-bit/66 MHz	AC 0, 100 CC 100, 200	-
PBX3	6U	3 X 32/64-BIT 33/66 MHz	AC 0, 50	PCI-to-PCI Bridge, Up to 1 GB SDRAM, Up to 1 GB NAND Flash, Stacking architecture
VPX6-215 ExpressReach	6U VPX	2x X/PMC sites + 1 IPM site	AC 0, 100 CC 100, 200	VITA 46.0 compliant, 4xPCIe ports on P1, rear panel I/O
VPX3-215 ExpressReach	3U VPX	1x X/PMC site	AC 0, 100 CC 100, 200	VITA 46.0 compliant, 4xPCIe ports on P1, rear panel I/O
FPE320	3U VPX	1x FMC site	AC 0, 200 CC 100, 200	Xilinx Virtex-5 FPGA board with Four x4 interconnects for PCIe, RocketIO or Serial RapidIO
FPE650	6U VPX	2x FMC sites	AC 0, rugged CC contact factory	Xilinx Virtex-5 FPGA board wtih rear panel I/O
HPE720	6U VPX	2x FMC Sites OR 1x FMC + 1x X/PMC Site	AC 0, 100	Xilinx Virtex-5 FPGA board with rear panel I/O
M6000	6U VME/VXS	2x X/PMC sites	AC 0 CC contact factory	I/O Controller, dual 4 Gbps Fibre Channel
M5000	6U VME	2x PMC-X sites	AC 0	I/O Controller, dual 2 Gbps Fibre Channel
C5000	6U cPCI	2x PMC-X sites	AC 0	I/O Controller, dual 2 Gbps Fibre Channel
MM-6460D	6U VME	2x 64-bit/66 MHz	AC 0	2-8 GB Buffer Memory, Dual RACE++ interfaces, VME64





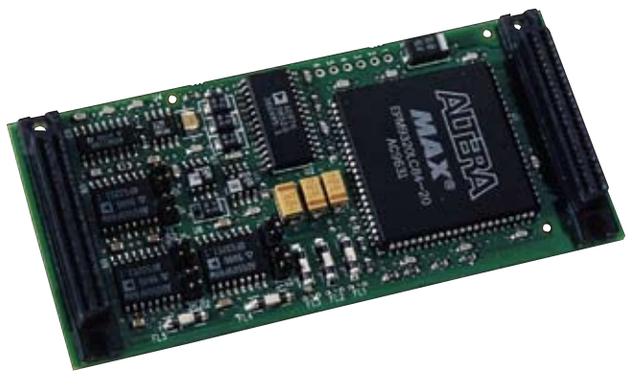


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IndustryPack® I/O Modules

Curtiss-Wright Controls Embedded Computing offers I/O solutions based on the popular IndustryPack standard. IndustryPack I/O modules can be mounted on a variety of carriers to fit VME, PCI and CompactPCI systems.

Product	I/O Interfaces	Operating System Support	Ruggedization	Other
ADC128F1	Analog input, 8 channel	OS-9, Windows	AC 0	12-bit resolution, ±10V range
ADM1224F	Analog input, 24 channel	OS-9, Windows	AC 0	Triple ADC converter, multiplexed differential inputs
DAC128V	Analog output, 8 channels	OS-9, Windows	AC 0	12-bit resolution, 8 voltage ranges
DIO316I	Digital I/O, 16 inputs, 16 outputs, 16 I/O	OS-9, Windows	AC 0	Interrupt on input change
TRIDO48	Digital output, 48 channels	OS-9, Windows	AC 0	Tristatable outputs
DID48	Digital input, 48 channels	OS-9, Windows	AC 0	Hardware de-bounced inputs, interrupt on change
LOW40	High power driver, 40 channel	OS-9, Windows	AC 0	Low side open collector outputs, transient protected
RELAY16	Relays 16 Form C	OS-9, Windows	AC 0	1A relays, integrated transient suppression
REED25	Relays 25 Reed	OS-9, Windows	AC 0	Magnetically shielded relays for EMI sensitive applications
COMM232	Serial I/O, 4 EIA-232 ports	OS-9	AC 0	Full handshaking signals
DUAL32CT	Counter/Timer dual 32-bit	OS-9, Windows	AC 0	Clock generation, watchdog timers, variable period/duty cycle generation



IndustryPack® Carrier Cards

Product	Form-Factor	IP Sites	Ruggedization	Other
VMESC5	VME	5	AC 0	Up to 250 I/O points per slot
PCISC5	PCI	5	AC 0	Up to 250 I/O points per slot





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GRAPHICS, RADAR & VIDEO

Curtiss-Wright Controls Embedded Computing family of graphics controllers and video frame grabbers are specifically designed for providing man-machine interfaces where graphics and sensor imagery must be combined. Supported with standards-based X11 and OpenGL software interfaces, a range of needs is supported from simple graphics output, to multi-head, high-performance 3D rendering for the most advanced applications such as 3D terrain mapping, target acquisition/tracking and helmet mounted displays.

Product	Form-Factor	Graphics Processor	Inputs				Outputs					Software API – Operating System	Ruggedization	Other
			RGB	NTSC/ PAL/ RS-170	LVDS	DVI	RGB	NTSC/ PAL/ RS-170	RS-170/ RS-343/ STANAG 3350	LVDS	DVI			
XMC-710	XMC	NVIDIA G73M	-	1	-	-	2	1	2	-	2	VxWorks, Linux, Windows XP, OpenGL (X11)	AC 0, 100 CC 100, 200	(Note 1)
PMC-704	PMC	ATI M9	1	1 of 4	1	-	2	1	1	2	2	VxWorks, Linux, Windows XP, INTEGRITY, OpenGL (X11)	AC 0, 100 CC 100, 200	External Sync (Note 1,2)
PMC-706	PMC	ATI M9	-	-	-	-	2	1	-	2	2	VxWorks, Linux, Windows XP, INTEGRITY, OpenGL (X11)	AC 0, 100 CC 100, 200	(Note 1)
PMC-724	PMC	None	-	1 of 4	1	-	-	-	-	-	-	VxWorks, INTEGRITY	AC 0, 100 CC 100, 200	Frame Grabber
PAE4 (Atlas)	PMC	ATI M9	1	1	-	1	2	1	-	-	2	VxWorks, Linux (X11), Windows, OpenGL, SDL, DirectX	AC 0	Includes USB and Audio I/O
Sabre-G	6U VME	ATI M9 (x2)	-	-	-	-	2	-	-	-	2	Linux (X11)	AC 0, 50	Sabre graphics with underlay/ overlay architecture
Sabre-V	6U VME	ATI M9 (x2)	2	2 of 8	-	2	2	-	-	-	2	Linux (X11)	AC 0, 50	Sabre graphics video capture, high-quality scaling and windowing with multilayer architecture

Notes

1. Not all input/output combinations are available in all variants. Refer to the data sheet for greater detail or contact your sales representative.
2. A DO-178B driver can be made available for this item. Please contact your sales representative.

Graphics Software Support

Curtiss-Wright graphics software products are based primarily on the X Window and OpenGL application programming interface. These are industry standard API for 2D and 3D graphics that maximizes application compatibility across product lines and portability to next generation graphics products.

Software support is offered for PowerPC and Intel host cards, for various real-time operating systems. The Embedded Computing group works with leading RTOS and GUI tools vendors to continually improve the interoperability and support required for embedded graphics applications development.

- Curtiss-Wright Graphics Software Suite with X11 and OpenGL
- Curtiss-Wright Standard Drawing Library
- Curtiss-Wright VDS video distribution software
- VxWorks, Linux, Integrity, WinXPe
- SCADE from Esterel
- VAPS from Presagis
- Interface Development Suite from Tilcon



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Radar and Video Solutions

Curtiss-Wright Controls Embedded Computing offers a complete family of radar and video products and systems designed to provide "sensor-to-display" solutions for a wide variety of command and control applications. This extensive product range provides high-performance radar and video acquisition, processing, distribution, recording, and display functionality. The capabilities offered across the product range fulfill the needs of applications ranging from multi-layer radar and graphics display, for naval command and control consoles, through to rugged airborne video distribution and recording subsystems.



Radar Acquisition, Processing and Scan Conversion

Product	Form-Factor	Function	Outputs	Inputs	Software API - Operating System (Note 1)	Rugged-ization	Other
Cougar	6U VME, two slots	Radar input and high-resolution radar scan conversion	DVI-I	Radar inputs: 2 analog radar videos, 8 digital radars, 2 triggers, 2 sets of turning data PCI, DVI from graphics card	Linux, Solaris, Windows	AC 0	Integrated dual-channel radar interface, and high-resolution (2k x 2k) scan-conversion and display solution with underlay/overlay via DVI-D input.
Osiris	PMC , PCI	Radar input	PCI	Radar inputs: 2 analog radar videos, 8 digital radars, 2 triggers, 2 sets of turning data	Linux, Solaris, Windows	AC 0	High-performance dual-channel radar interface card
Advantage Xi	PCI	Radar scan converter	DVI-I	DVI from graphics card	Linux, Solaris, Windows	AC 0	Radar scan conversion with underlay/overlay via DVI-D input
Eagle	PMC	Radar scan converter	DVI-I	PCI, DVI from graphics card	Linux, Solaris, Windows	AC 0, 50 CC 100	Radar scan conversion with underlay/overlay via DVI-D input
Eagle-2	PMC	High-resolution radar scan converter	DVI-I	PCI, DVI from graphics card	Linux, Windows	AC 0, 100	High-Resolution (2k x 2k) Radar scan conversion with underlay/overlay via DVI-D input
Advantage Zeta	PCI	Radar input and scan conversion	DVI-I	Radar Inputs: 3 Analog , 3 Digital, ACP/ARP, Serial or Parallel	Linux, Solaris, Windows	AC 0	Combined radar input and scan conversion
Sabre-R	6U VME	Graphics, video and radar scan conversion	2x DVI-I	Radar Input: Via RVP Server Video Inputs: 2x RGB, 2 of 8 TV	Linux (X11)	AC 0, 50	Combined graphics, video windows and radar scan-converter module
RVP Radar Distribution	VME, cPCI or turnkey system	Radar distribution	Radar video data on LAN	Radar inputs	Linux, Solaris, Windows	AC 0, 50	Radar video distribution on LAN
RVP Radar Tracker	VME, cPCI or turnkey system	Radar tracker	Radar video plot or track data on LAN	Radar inputs or external plot input	Linux, Solaris, Windows	AC 0, 50	Radar video plot extractor and tracker

Note 1: For exact OS support details please contact your sales representative.



Video Distribution, Windowing and Recording

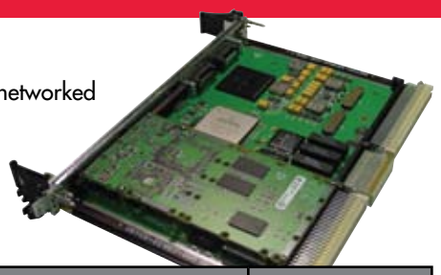
Product	Form-Factor	Function	Outputs	Inputs	Ruggedization
VDA	(Note 1)	Buffers and replicates a single analog RGB input to two RGB outputs	2x RGB sync-on-green (6 BNC)	1x RGB sync-on-green (3 BNC)	(Note 2)
Cobra	6U VME	4 video windows, scaled and positioned. Video overlay, video cross-mixing, alpha-blending	DVI-I	12 video input lines supporting RGB, NTSC/PAL, RS170, RS343, 1x DVI	AC 0, 50
VxPoint	6U VME	Video crosspoint switch	32 video output lines supporting RGB, NTSC/PAL	8 video input lines supporting RGB, NTSC/PAL	AC 0
Orion	PMC, PCI	JPEG2000 compression/decompression	2x NTSC/PAL, PCI	2 of 10 NTSC/PAL	AC 0, CC 200
Sentric VME	6U VME	Digital video screen recorder	2x RGB, 1x DVI, 2x audio, up to 2x NTSC/PAL	2x RGB, 1x DVI, 2x audio, up to 2x NTSC/PAL	AC 0, 50
Sentric	Desktop, Rackmount	Digital video screen recorder systems	Up to 4x RGB, up to 2x DVI, up to 4x audio, up to 4x NTSC/PAL	Up to 4x RGB, Up to 2x DVI, up to 4x audio, up to 4x NTSC/PAL	AC 0
Video Buffer	6U VME	RGB buffer. Each of 2 RGB inputs is split and buffered to two RGB outputs	4x RGB	2x RGB	AC 0
Sabre-V	6U VME	Combined graphics and dual video windows processor	2x DVI-I	2x RGB, 2 of 8 NTSC/PAL	AC 0, 50

Notes:
1. Length: 6 inches/152 mm, Width: 4 inches/102mm, Height: 2.5 inches/64mm
2. -30C to +55C Qualified LRU for airborne applications

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SWITCHES/ROUTERS

Gigabit Ethernet Switches/Routers



Curtiss-Wright Controls Embedded Computing Gigabit Ethernet switches enable the vision of inter-networked military and aerospace systems by providing systems integrators with a fast and powerful way to interconnect chassis, cards, and CPU's through switched Gigabit Ethernet links. Operating at wire-speed, Gigabit Ethernet switching can be used to architect the infrastructure for unified (GbE only) or hybrid (GbE and other switched fabric) networks for transferring IP-based control and data packets within advanced military systems.

Product	Form-Factor	Port Options	Interface	Software	Ruggedization
650 (rugged PGR8)	PMC	8 ports	10BaseT, 100BaseTX, 1000BaseT	Unmanaged (Layer 2 only), Port Mirroring	AC 0, 100 CC 100, 200
680 SwitchBlade	6U VME	12 or 20 ports	10BaseT, 100BaseTX, 1000BaseT	Managed (Layer 2/3+, IPv4/v6, Multicast, QoS, Security, "De-class" secure memory erase)	AC 0, 100 CC 100, 200
	6U VME	24 ports (20x GbE + 4x GbE or 4x FE or 4x FO-SX via optional RazorBlade modules)	10BaseT, 100BaseTX, 1000BaseT, 1000BaseSX	Managed (Layer 2/3+, IPv4/v6, Multicast, QoS, Security, "De-class" secure memory erase)	AC 0, 100 CC 100, 200
681 Compact SwitchBlade	3U CPCI	10 ports	10BaseT, 100BaseTX, 1000BaseT	Managed (Layer 2/3+, IPv4/v6, Multicast, QoS, Security, "De-class" secure memory erase)	AC 0, 100 CC 100, 200
683 Compact FireBlade	3U VPX	26 ports (24xGbE SerDes + 2x 10G XAUI)	10BaseT, 100BaseTX, 1000BaseT, XAUI	Contact Factory: Unmanaged, Managed, Security	AC 0, 100 CC 100, 200, 300
682 FireBlade+ CryptoNet	6U VME	20 ports	10BaseT, 100BaseTX, 1000BaseT	Unmanaged OR Managed + Security (Layer 2/3+, IPv4/v6, Multicast, QoS, Enhanced Security w/ CryptoNet, Firewall, NAT, VPN, IPSec, "De-class" secure memory erase)	AC 0, 100 CC 100, 200
	6U VME	26 ports (20x GbE + 4x FE OR 4 xGbE OR 4x FO-SX + 2x 10GbE)	10BaseT, 100BaseTX, 1000BaseT, 1000BaseSX, 10G XAUI	Managed + Security (Layer 2/3+, IPv4/v6, Multicast, QoS, Enhanced Security w/ CryptoNet, Firewall, NAT, VPN, IPSec, "De-class" secure memory erase)	AC 0, 100 CC 100, 200
684 FireBlade II	6U VPX	28 ports (20x GbE + 4x FE OR 4x GbE OR 4x FO-SX + 4x 10GbE)	10BaseT, 100BaseTX, 1000BaseT, 1000BaseSX, 10G XAUI	Contact Factory: Unmanaged, Managed, Security	AC 0, 100 CC 100, 200
SMS-682 SwitchBox II	Standalone w/ power supply	20 or 26 ports (20x GbE + 4 FE OR 4x GbE OR 4x FO-SX + 2x 10GbE)	10BaseT, 100BaseTX, 1000BaseT, 10G XAUI, MIL-STD-38999 connectors	Managed (Layer 2/3+, IPv4/v6, Multicast, QoS, Security, "De-class" secure memory erase)	CC 100, 200
68x RTM	6U VME, CPCI, or VPX	Up to 24 ports GbE, 1 to 4 ports 10GbE + 1 debug port + 1 serial port (depends on 68x variant selected)	10BaseT, 100BaseTX, 1000BaseT, RS232, 10G XAUI	Used with 68x for lab environment	AC 0
68x SW Maintenance	n/a	n/a	n/a	Yearly 68x software maintenance	n/a
Note: Switches and Routers with other port and security combinations are also available, please contact factory.					

VXS Circuit Switch

In VXS high-speed serial systems, a switch card is needed to enable standard backplanes to be used in different topologies. A circuit switch card such as the CSW1 offers maximum flexibility in configuring VXS systems.

Product	Form-Factor	Interface Type	Number of Ports	Other	Ruggedization
CSW1	6U VXS	Fiber optic or VXS switch slot	Up to 12 front panel fiber optic, 56 1x (14 4x) backplane links up to 3.25 Gbps	Supports hardware broadcast, Supports different signal rates across different channels concurrently	AC 0, rugged CC contact factory



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PHYSICAL LAYER SWITCHES

Physical Layer Switches

Physical layer switches are scalable, versatile, multi-purpose devices that provide protocol-transparent, non-blocking switching for Fibre Channel, Serial FPDP, shared-memory communications and other digital signals up to 4.25 Gb/sec and 8 Gb/s FC, 10 Gb/s Ethernet. Network and system configurations can be changed quickly and easily through an easy-to-use interface, thus saving time and money. They are available in a variety of form factors.

Product	Form-Factor	Interface Type	Number of Ports	Port Options (Note 1)	Ruggedization
VLX2500	VME slot or 19″ 1U rack	Any digital signal up to 3.125 Gb/s	8 ports and 16 ports	SFP-type, FC, GbE and SFPDP	AC 0, 100 (Note 2)
GLX4000	19″ 4U rack or 8U rack	Any digital signal up to 4.25 Gb/s AND 8 Gb/s FC, 10 Gb/s Ethernet	144 and 288 ports, 48 ports per port card	SFP-type, 4/2/1 FC, 1/2.5G SFPDP, OC48; SFP+ type, 8/4/2 FC, OC192; XFP-type, 10GigE; RJ45, 10/100/1000 Ethernet; 9-pin, 1394B (FireWire); RJ48, T1/E1/J1	AC 0
CLX2500	cPCI slot	Any digital signal up to 1 Gb/s	16 ports	Rear IO, FC and GbE	CC 200

Notes

1. FC = Fibre Channel, GbE = Gigabit Ethernet, SFPDP = Serial FPDP
2. Available in -10°C to 70°C air-cooled configuration



MIL-STD-1553 Switches

MIL-STD-1553 test and development can involve a large number of Remote Interface Units (RIUs) with frequency changing connections and routing configurations. Our MBX1553 MIL-STD-1553 Switch makes management of these configurations a simple process, without the need for cable swapping and connector replacement.

Product	Form-Factor	Interface Type	Number of Ports	Port Options	Ruggedization
MBX1553	19″ 1U rack	MIL-STD-1553 A/B	16 LRU and 16 Bus	1553-type transformer coupled	AC 0







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DATA RECORDERS & STORAGE

Curtiss-Wright Controls Embedded Computing offers high-performance recording and playback solutions for any application, from those requiring frequent "snapshots" of small packets of data to those requiring acquisition of long periods of multiple channels of streaming data. Some models feature playback at real-time rates so that simulation exercises can be conducted multiple times using the same captured data.

The recorders are available as both open and targeted recorders. Open recorders enable users to utilize extensive software libraries to develop their own applications. Targeted Recorders are application targeted pre-programmed solutions to address specific requirements.

Vortex Data Recorders



Open Recorder, Playback and Analysis Solutions

Product	Controller Form-Factor	I/O Options	Operating Systems	Ruggedization	Other
Vortex VXS	6U VXS/VME Eurocard	2 XMC/PMC sites, 2x 4 Gbps Fibre Channel, VME or VXS P0	VxWorks, Linux	AC 0 CC contact factory	
Vortex VME	6U VME Eurocard	2 PMC sites, VME, 3 PMC mezzanine option, 2x 2 Gb Fibre Channel	VxWorks, Linux	AC 0	
Vortex cPCI	6U cPCI Eurocard	CompactPCI, 2 PPMC sites, Gb Ethernet, 2x 2 Gb Fibre Channel	VxWorks, Linux	AC 0	
Vortex PC	Desktop or Rack Mount PC	Dependent on system selection	Linux	AC 0	Internal storage option with some models
Vortex SAN Access Kit	Workstation	1, 2 or 4 channels of Fibre Channel to the workstation	Linux, Solaris, Windows	-	This software suite providing direct access to the Storage Area Network



Targeted Recorder, Playback and Analysis Solutions

Product	Controller Form-Factor	Interface	Ruggedization	Other
Multi-Channel Serial FPDP	6U VXS, 6U VME	2 or 4 Serial FPDP	AC 0	Multi-Channel Sensor Interface Applications: Sustained recording up to 800MB/s per recorder, scaleable external storage options
10 Gb Ethernet Playback	6U VME	10 Gb Ethernet, Fibre Channel	AC 0	Sensor Simulator Application: multi-channel playback synchronization control, scaleable external storage options
AES-256 Data Encryption/ Decryption Solution	6U VME	Serial FPDP, Fibre Channel	AC 0	AES-256 Data Encryption for Secure Application: Record, Pass-through or Playback, Scaleable external storage options
IF/Baseband Recorders	PC, 6U VME, 6U VXS, 6U cPCI	215 MSPS 12/14-bit digitizer	AC 0	IF/Baseband digitzer, scaleable storage options
Wideband Recorders	PC, 6U VME, 6U VXS, 6U cPCI	Up to 2 GSPS 8-bit digitizer	AC 0	Wideband Applications: bandwidth filters, scaleable performance, scaleable storage options
Ultra Wideband Recorders	PC, 6U VME, 6U VXS, 6U cPCI	Multi-channel GSPS digitizer	AC 0 CC contact factory	Ultra Wideband Applications: GPS time stamping, scaleable performance, scaleable external storage options
FPDP Recorders	6U VME, 6U cPCI	FPDP, FPDP II	AC 0	Sensor Interface Application: sustained recording rates of 180 or 385MB/s, scaleable external storage options
Snapshot Recorder	6U VXS, 6U VME	Multi-channel Serial FPDP	AC 0	Multi-Channel Sensor Applications of short duration, records 16 channels of 54 second snapshots, scaleable architecture



Storage Solutions

Product	Form-Factor	Support	Ruggedization	Other
NASxR	3U Rack Mount	Network Protocol Support - CIFS, NFS	AC 0	Up to 3.6 TB capacity
SANbric	Removable cartridge	2 Gbps Fibre Channel	AC 0, 50 CC 50	Up to 2.7 TB capacity
VMDRIVE	6U Eurocard	2 Gbps Fibre Channel	AC 0, CC 100	From 32 to 500 GB capacity
VPX NAS	6U Eurocard	Network Protocol Support - CIFS, NFS	AC 0, 100, 200	VITA 46 standard, Up to 64 GB capacity
XMC/PMC-550	XMC/PMC	VxWorks, Windows, Linux	AC 0, 100, CC 200	Up to 32 GB, RAID0 Support

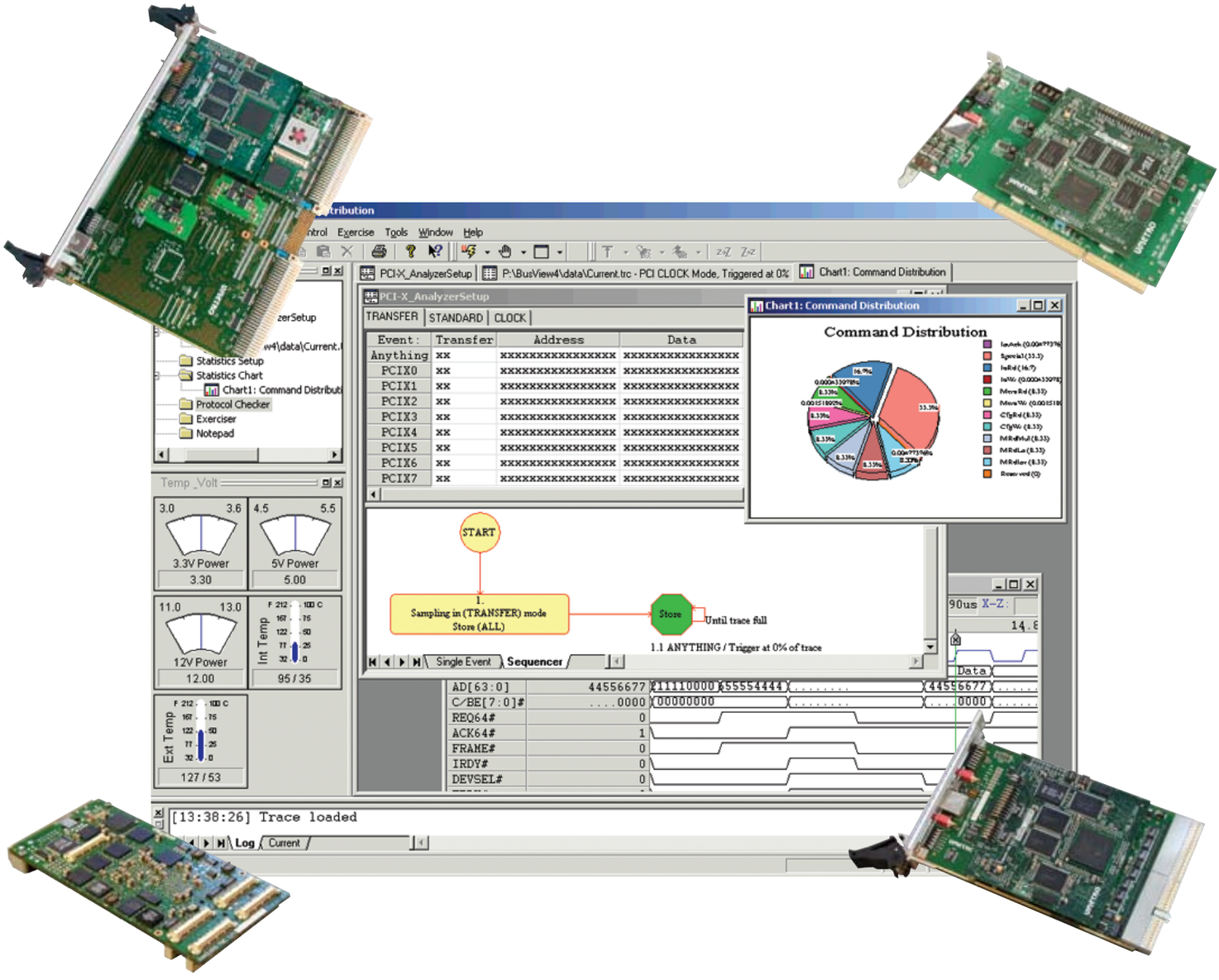
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BUS ANALYZERS

Bus analyzers are indispensable tools for debugging computer hardware and software. Bus protocol analyzers conform to the logical, electrical and mechanical specification of the target bus. After sampling the bus transactions, the analyzer displays the traffic in easy to read formats, so that users can easily understand and interpret the results.

Curtiss-Wright's Vanguard analyzers achieve remarkable performance and functionality through our emphasis on concurrent and independent operation of all functions. Functionality in the analyzers include state and timing sampling, real-time statistics, automatic protocol and timing checker, exercisers and compliance checkers in a single board form factor.

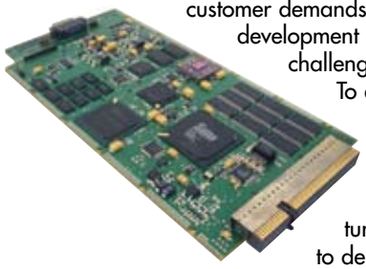
Product	Form-Factor	Protocols	Description	Interface	Trace Buffer Size
Vanguard VME	6U VME	VME, VME64, 2eVME, 2eSST	Bus Analyzer, Exerciser, Protocol Checker	Ethernet, USB	2M
Vanguard PMC	PMC	64-bit 133 MHz PCI/PCI-X	Bus Analyzer, Exerciser, Protocol Checker, Compliance Checker	Ethernet, USB	2M
Vanguard PCI	PCI/PCI-X	64-bit 133 MHz PCI/PCI-X	Bus Analyzer, Exerciser, Protocol Checker, Compliance Checker	Ethernet, USB	2M
Vangaurd PCI0SL	PCI/PCI-X	64-bit 133 MHz PCI/PCI-X	Bus Analyzer, Exerciser, Protocol Checker, Compliance Checker for systems with no spare PCI/PCI-X slots	Ethernet, USB	2M
Vanguard CompactPCI	3U cPCI	64-bit 133 MHz PCI/PCI-X	Bus Analyzer, Exerciser, Protocol Checker, Compliance Checker	Ethernet, USB	2M
BusView	-	-	Graphical User Interface Software for Windows	-	-
API Interface	-	-	API Interface for Vanguard Bus Analyzers	-	-



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MODIFIED COTS (MCOTS)

HARNESS THE POWER OF MODIFIED COTS



The rapid pace of technological innovation combined with customer demands for the latest technologies within shorter development times and limited budgets create major challenges for system designers and integrators. To address these challenges and achieve engineering excellence, defense and aerospace system integration teams around the world are leveraging best-in-class technologies. At the same time they are turning to experienced development partners to deliver complete solutions tailored to each customer's specific needs.

But not all development partners are created equal. Selecting the wrong partner can lead to poor quality engineering and project overruns. It may even mean the difference between winning and losing the original contract.

Curtiss-Wright Controls Embedded Computing's Modified COTS (MCOTS) team can help you address all your customer's development requirements, including the design and manufacture of custom boards, board support packages and optimized drivers that will give you a competitive edge.

LEVERAGE MARKET LEADING EXPERIENCE AND EXPERTISE



With an extensive library of market leading COTS intellectual property, a multi-million dollar development and test infrastructure, and an experienced world class engineering team, the Curtiss-Wright MCOTS team offers unmatched design and development expertise.

By combining its market leading experience and expertise with its strong embedded industry partnerships, the MCOTS team makes it easier for you to design and develop efficient, high performance, state-of-the-art rugged military electronics.



CHOOSE MCOTS CAPABILITIES

The Curtiss-Wright MCOTS team offers a complete selection of services that make it easier for you to take your project over the finish line in less time and under budget:

- In-depth requirements capture, definition and specification generation
- Proven, detailed design processes, including critical design reviews, developed and enhanced through decades of experience
- Award winning defense and aerospace program management expertise
- In-depth and thorough mechanical engineering, ruggedization design and testing program of any COTS vendor



- Extensive FPGA, graphics and communications development experience
- Comprehensive board support package (BSP) development and porting
- Optimal software driver integration
- Experienced safety/security certification and artifact generation
- The best COTS longevity of supply and obsolescence management services available
- Effective long term product re-engineering and cost reduction strategies
- Highly flexible development and manufacturing business models

PARTNER WITH CURTISS-WRIGHT'S MCOTS TEAM



- Reduce Costs
  - Save approximately 40% to 60% on project costs by leveraging our IP investment and development infrastructure.
- Reduce Risks
  - Draw on our experience and insights into how to build rugged boards.
  - Capitalize on our extensive inventory of hardware and software IP building blocks developed during decades of defense and aerospace projects.
  - Leverage the expertise of our major strategic partners' road maps and their technology directions that will give you the inside track on the best approach for your project.
  - Tap into our longevity of supply and technical support services, which are specifically designed for defense and aerospace program support.
  - Benefit from our quality project management and delivery processes, which have been field proven with hundreds of customers.
- Accelerate Time-to-Market
  - Save approximately 4 to 8 months of development time by leveraging our experienced developers who have the insights and knowledge to help you cross the finish line sooner. That's the MCOTS approach.
  - Start application development right away using COTS products. You focus on your application, while we focus on the COTS hardware and software.



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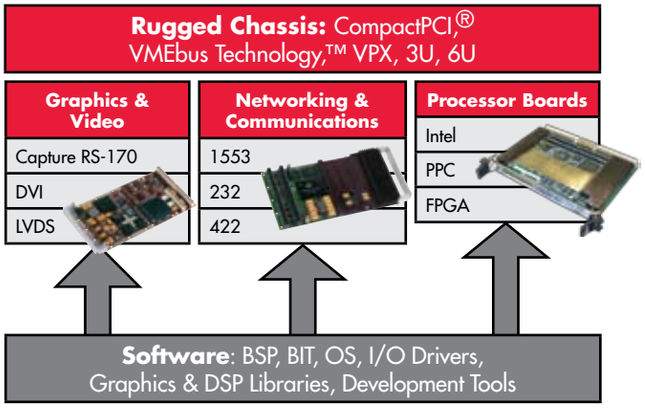
PACKAGED COTS SYSTEMS

Our Packaged COTS (PCOTS) subsystems are comprised of state-of-the-art components from Curtiss-Wright Controls Embedded Computing's library integrated into our advanced rugged enclosures.

ENVIRONMENTAL QUALIFICATION TESTING

Curtiss-Wright PCOTS systems employ environmentally qualified solutions that have been designed for harsh military environments:

- Temperature
- Shock & Vibration
- Altitude
- Salt Fog
- Input Power
- EMI
- And more...



MULTI-PLATFORM MISSION COMPUTER (MPMC) SYSTEM FAMILY

Curtiss-Wright's family of Multi-Platform Mission Computers (MPMC) provide advanced rugged computing solutions with faster deployment, lower development costs and reduced program risk.

MPMC-9350



- 3U System
- 5 Slot chassis
- 130 Watts
- Built-in fan (forced air cooling)
- -40°C to +71°C

MPMC-9320



- 2 slot 3U System
- 2 integrated PMCs
- Up to 16GB Flash Storage
- 80 Watts
- Convection-cooled
- -40°C to +55°C

MPMC-9310



- 1 slot 3U System
- 2 integrated PMCs
- Up to 16GB Flash Storage
- 55 Watts
- Conduction-cooled
- -40°C to +55°C

MPMC-9620



- 2 slot 6U System
- 2 integrated PMCs
- Up to 32GB Flash Storage
- 8-port GbE Layer2 Switch
- 150 Watts
- Convection-cooled
- -40°C to +55°C

MPMC-9610



- 1 slot 6U
- 60 Watts
- Convection-Cooling
- -40°C to +55°C

APPLICATION SPECIFIC PCOTS SYSTEMS

SENTRIC

Sentric is a high-resolution screen recorder that captures, compresses and digitally stores one or more channels of high-resolution RGB computer video, composite TV and audio. Building on success with previous generations of screen recording solutions, Sentric is a fully digital screen recording solution, even capturing digital video (DVI) if required.



RVP TRACKER

Curtiss-Wright's RVP Tracker receives and processes primary radar video to identify and track candidate targets of interest and distribute the plot/track data over an Ethernet local area network (LAN). Configured as either single or multi-channel variants, RVP Tracker systems are available in industrial grade rack-mounted units, naval-qualified enclosures, or alternatively as board-level solutions for OEM integrators.



RVP RADAR DISTRIBUTION

The standard RVP Radar Video Distribution configuration is a 4U rack-mount industrial-grade enclosure. This system is based on high-performance Pentium hardware processors running the embedded RVP application software on power-up. A rugged Flash disk is used to enhance reliability and tolerance of operating temperatures.

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RUGGED SUBSYSTEMS SOLUTIONS

Curtiss-Wright Controls Embedded Computing Subsystems gives system integrators access to a true end-to-end supplier, with technology leadership in every aspect of advanced system design, including:

- rugged state-of-the-art packaging, liquid and conduction cooling
- high speed serial and data fabric I/O
- high density computing and hardware/software development
- specialized enclosure design
- custom and component engineering services
- and full life-cycle support and programmatic services.

The Subsystems group offers the industry's most complete and innovative product and integration services with solutions expertise in:

- Flight Control / Mission Computers
- Servo Motion Control and Stabilization Systems
- Fiber Optic Gyro (FOG) Rate Sensor Assemblies
- Sensor Management / Network Centric Computers
- Fire Control Computers
- Ammunition Handling Systems and more…

YOUR SUBSYSTEM PARTNER: A LEGACY OF SUCCESS

Curtiss-Wright is the leading supplier of ruggedized embedded computing subsystems for our defense and aerospace partners. We have a proven track record with a long history and pedigree of supplying solutions to prime contractors on high profile programs including:

- M1A2 Abrams Main Battle Tank
- RQ-4A Global Hawk UAV
- M2A3 Bradley Fighting Vehicle
- New Expeditionary Fighting Vehicle (EFV)
- Trident Class Submarines
- V-22 Osprey VTOL Tilt-rotor
- M1128 Stryker IAV Mobile Gun System
- Avenger Forward Area Air Defense

No matter what level of system expertise you require, Subsystems is uniquely positioned to deliver a solution. We supplement your internal development by drawing upon the combined resources of all Curtiss-Wright divisions to provide hardware platforms integrated with software including Built-In-Test, along with tested and certified RTOS BSPs. These turnkey subsystems are ready to host your application, delivering unmatched service and virtually unlimited hardware solutions.

SWITCHBOX - STANDALONE GIGABIT ETHERNET SWITCH MODULE

The L2/L3 managed SwitchBox delivers 20 ports in a single slot rugged chassis. This ready to deploy rugged multi-layer switch enables fast, reliable and deterministic switching and routing of control and data packets with up to 20 wire-speed 10/100/1000-Mbps interfaces.



RAD-HARD FOG RATE SENSOR ASSEMBLY (RSA)

The RSA is a high performance, low-cost successor to trouble-some mechanical gyro technology for turret stabilization. The Fiber Optic Gyro (FOG) RSA product line comes in single and dual-axis packages with a radiation hardened option to meet nuclear survivability. The all-fiber gyro has no moving parts to wear out or fail, ensuring high reliability and exceptional vibration, shock, and acceleration survivability.



MISSION COMPUTER

Curtiss-Wright's Mission Computer systems provide high-performance mission computing including video display capabilitiy and full authority, auto-pilot flight control.



SENSOR MANAGEMENT UNIT (SMU)

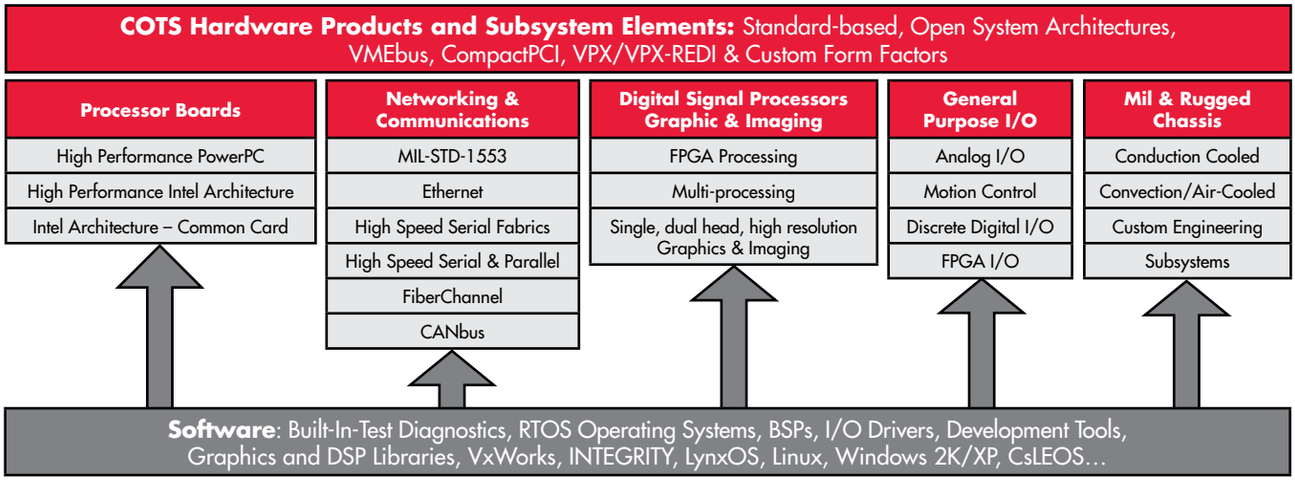
Curtiss-Wright's Sensor Management Unit is part of the Network Centric Computer family. The rugged subsystem utilizes specialized management software to gather, manage, store, and re-transmit critical data. With legacy proprietary and high-speed interfaces based on open system protocols, our SMU facilitates data management from all airborne payload sensors quickly and reliably.



SERVO MOTOR CONTROLLER

Curtiss-Wright's family of servo motor controllers are compact and lightweight. The liquid cooled chassis designs bring high functional density and improved reliability to control many vehicle components such as turrets, pumps, fans, compressors, and actuators. The GUI software can be used for rapid development with Matlab by quickly changing loop parameters for torque, position, and speed modes.





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SYSTEM ENCLOSURES

Customers rely on Curtiss-Wright Controls Embedded Computing to meet their unique and sophisticated platform requirements. The most advanced designs may necessitate that the approach use custom footprints. Curtiss-Wright extends its technology leadership beyond system components with the capability to combine custom footprints into modified or customized rugged system enclosures. Delivered together, our high performance subsystems in state-of-the-art packaging accomodate specific program requirements. We offer complete subsystems solutions using AC and DC power sources with various cooling (natural and forced air, conduction, convection, liquid flow through) ranging from 2 to 21 card slots and modified to your mounting arrangements.

Product	Slots	Backplane	Form-Factor	Power Input	Cooling
VPX3-935	6	3U VPX	1" pitch Bench top	114/230 VAC	Air-cooled Internal Fan
VPX6-905	6	6U VPX	1" pitch Bench top	114/230 VAC	Air-cooled Internal Fan
3U cPCI chassis	8	3U cPCI	12.62" x 4.88" x 7.62"	28VDC	Conduction-cooled Forced Air
RC-1	1	6U VME or cPCI	12" x 8.25" x 3"	16V to 40 VDC	Conduction-cooled Natural convection
RC-2	2	6U VME	11" x 4.5" x 8.5"	28VDC or 115VAC	Conduction-cooled Natural convection
RC-5	5	6U VME	5.8" x 8.4" x 14"	28VDC or 115VAC	Conduction-cooled Natural convection







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CUSTOM ENGINEERING & MANUFACTURING SERVICES



With Curtiss-Wright Controls Embedded Computing as your engineering and manufacturing partner, you can be confident that, together, we'll effectively satisfy your unique program requirements, minimize your manufacturing risk and enable you to leverage your unique engineering talents to sharpen your competitive edge.

We maintain the expertise to meet the demanding requirements of Defense and Aerospace design and manufacturing, leveraging the strength of the entire Curtiss-Wright organization. Our organization is solely focused on the Defense and Aerospace market and has obtained the certifications and approvals that matter most to our customers.

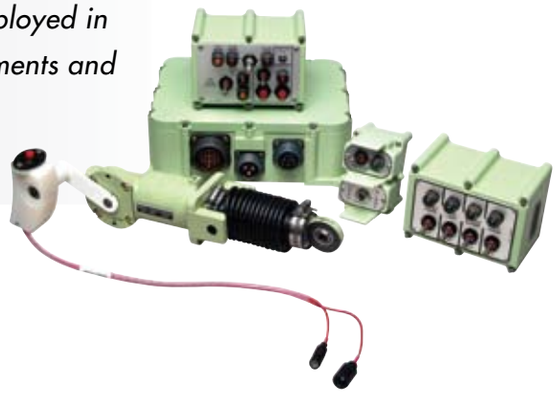
At Curtiss-Wright, our decades of technical engineering in system power and communication, and the soldier-machine interface can enable you to off-load the design, manufacturing and support of complex military electronics so you can focus on the high-value engineering that you do best. We've helped many companies sharpen their competitive edge on many high-profile military programs, including the Abrams Tank, the Bradley Fighting Vehicle, the Armored Security Vehicle, and the Black Hawk and Apache helicopters.

Nearly every potential customer we meet tells us about the special expertise required to design, manufacture and support their complex military electronics, especially those that are deployed in demanding operational environments and expected to remain in service for decades...

AND COMPREHENSIVE MANUFACTURING SUPPORT

Our engineering and manufacturing facility in Littleton, Massachusetts offers program managed, technical engineering and contract manufacturing services focused on highly reliable and rugged designs. We provide design expertise in power conversion, distribution and control; wireless controls; bus interfaces; electro-mechanical, soldier-machine interfaces; cable harnessing; and current and legacy CCAs. However, our design and manufacture of military electronics and electrical systems and light mechanical components is complimented by the complete package we offer to our customers. In addition to our design and manufacturing capabilities, we also:

- Maintain complete circuit-card manufacturing capability for legacy Build To Print
- Actively engage in total lifecycle support so there are no surprises
- Manage Technical Data packages to assure they stay up to date with current components and specifications
- Provide LRU design assistance, assembly and testing to ensure a manufacturable result
- Maintain configuration control so that systems continue to operate together
- Inventory End of Life components to mitigate obsolescence
- Conduct ongoing, process management assurance testing, such as pre and post process pull testing for crimp tooling and set up verification
- Perform in-process testing such as Automated Optical Inspection and junction and pin verification, plus FAT, HALT, HASS, ESS and POS
- Fully support our customers in any and all phases of their development process







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