NEWS RELEASE

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Curtiss-Wright Introduces Its Highest Performance 3U OpenVPX™ Digital Signal Processing Engine

SOSA™-aligned CHAMP-XD3 DSP engine with new 10-Core Intel® Xeon® D-1700 processor delivers more scalable processing power with advanced security features for modern defense systems

ASHBURN, Va. – February 24, 2022 – Curtiss-Wright's Defense Solutions division, a leading supplier of modular open systems approach (MOSA) based solutions designed to succeed, today introduced the CHAMP-XD3, its highest performance, security-enhanced, 3U OpenVPX digital signal processing (DSP) processing module. Based on the just-announced Intel® Xeon® D-1700 processor, the SOSA-aligned payload card represents a "quantum leap" for sensor data processing capability in size, weight, and power (SWaP) constrained applications.

The CHAMP-XD3 combines a 10-core Intel Xeon D-1700 processor for DSP processing with a Xilinx MPSoC FPGA, which supports Curtiss-Wright's Enhanced TCOTS framework, aligned with the compute-intensive payload profile as defined by the SOSA Technical Standard. This rugged, conduction-cooled module is designed to handle the largest processing tasks characteristic of multi-mode / synthetic aperture radars (SAR), modern signal intelligence (SIGINT), electro-optical/infrared (EO/IR), and EW applications.

To ensure wire-speed transfers of sensor data, the card provides three channels of DDR4-2400 SDRAM memory (up to 48 Gbytes), delivering more than 50% additional memory bandwidth compared to previous generation solutions. In addition, the CHAMP-XD3 features up to 160Gbytes of memory via dual NVMe SSD devices to support demanding virtualization, high-bandwidth, and redundant non-volatile storage requirements. The dual SSD's deliver twice the memory bandwidth

of prior solutions and provide support for Intel's Virtual RAID on CPU (VROC), which improves RAID performance by shifting control from the host bus adapter to the CPU itself. To eliminate I/O bottlenecks, the module's backplane supports a wide-band,16-lane Gen3 PCIe expansion plane, in addition to its 40 GbE data plane and dual 10-GbE Control Plane interfaces.

"Our latest SOSA-aligned DSP engine redefines the art of the possible for sensor processing in the 3U OpenVPX form-factor, enabling developers of high-performance embedded computing (HPEC) systems to take full advantage of the performance delivered by the new Intel Xeon D-1700 processor architecture," said Chris Wiltsey, Senior Vice President and General Manager, Curtiss-Wright Defense Solutions. "With its high-core count, exceptional floating-point performance and integrated AI acceleration, the CHAMP-XD3 builds on Curtiss-Wright's legacy of bringing industry-leading modular open systems-based sensor processing modules to market. Combined with industry leading DSP capabilities, the CHAMP-XD3 supports our latest eTCOTS security infrastructure for critical program protection."

This powerful DSP processor module is engineered for the most demanding compute-intensive sensor processing applications. To meet the needs of emerging cognitive electronic warfare (EW) requirements and accelerate artificial intelligence (AI) / machine learning (ML) functions, the CHAMP-XD3 features Intel's AVX-512 instructions to support extensive floating-point calculations. With AVX-512, Intel doubles the width of the floating-point engine, significantly speeding sensor, ML, and deep learning inference processing, as well as machine vision and smart video analytics applications. AVX-512 also enables Intel Deep Learning Boost, which is based on optimized vector neural network instructions (VNNI).

The CHAMP-XD3's Xilinx® MPSoC™ FPGA features a quad-core Arm® A53 and a dual-core R5 processor, and can be used for enhanced TrustedCOTS™ (eTCOTS™) security functionality. An optional MPSoC FPGA toolkit is available for applications that require greater design versatility for adding security IP. This toolkit enables the integration of advanced security IP, such as Raytheon's Night Cover™ product suite and Idaho Scientific's Immunity™ cryptography cores. The MPSoC FPGA can also support co-processing and general purpose I/O requirements. The module's Microsemi® SmartFusion2™ FPGA has a dedicated intelligent platform management controller (IPMC) core, with HOST 3.0 extensions, that supports system and health monitoring, as well providing enhanced security capability that adds additional protection of critical control logic.

Software support for the CHAMP-XD3 DSP engine includes a comprehensive BIOS and Linux board support package (BSP) for ease of integration and solution development.

The CHAMP-XD3 is available in both SOSA-aligned and enhanced IO configurations.

Complete CMOSS/SOSA System Solutions

The CHAMP-XD3 integrates seamlessly with Curtiss-Wright's broad range of CMOSS/SOSA-aligned system building blocks, including:

- **VPX3-687** VICTORY data / control plane Ethernet switch
- **VPX3-663** PCIe Gen 3 / 10G Ethernet hybrid switch
- **VPX3-673A** A-PNT/Radial Clock card
- **VPX3-1260** 9th Gen Intel Xeon-E processor-powered general-purpose single board computer
- **VPX3-E320** ruggedized universal software-defined radio peripheral
- **VPX3-4935** NVIDIA® Quadro™ Turing™-power GPU-coprocessing engine
- **8-slot 3U OpenVPX CMOSS/SOSA-aligned enclosure**
- **CMOSS/SOSA Starter Kit** for ground combat vehicles with VPX3-1260, VPX3-673A and VPX3-687 modules.

To download the CHAMP-XD3 product sheet, please click here. For information about availability of development boards to support your program needs, please contact us at ds@curtisswright.com, visit our website at www.curtisswrightds.com, or contact your local Curtiss-Wright sales representative.

For additional information about Curtiss-Wright MOSA technologies, please visit www.curtisswrightds.com, LinkedIn, and Twitter @CurtissWrightDS.

A Leader in Open Standards

Curtiss-Wright is an active contributor to the definition and advancement of the open standards included in CMOSS and those being defined in The Open Group Sensor Open Systems Architecture™ (SOSA). Curtiss-Wright has been a leading participant in the development of the CMOSS and SOSA standards since the inception of both initiatives and is a key participant in several SOSA™ Consortium working groups (including holding a chair position in the SOSA Consortium). In addition, the company has been a leading contributor to the VITA Standards

Organization (VSO) that oversees the definition of the OpenVPX, PMC, XMC, and FMC form-factor standards that provide the foundation of both CMOSS and SOSA technical standards. This makes Curtiss-Wright ideally positioned to work with customers to help guide the development and success of their CMOSS- and SOSA-aligned applications.

About Curtiss-Wright Corporation

Curtiss-Wright Corporation (NYSE:CW) is a global innovative company that delivers highly engineered, critical function products and services to the Aerospace and Defense markets, and to the Commercial markets including Power, Process and General Industrial. Building on the heritage of Glenn Curtiss and the Wright brothers, Curtiss-Wright has a long tradition of providing reliable solutions through trusted customer relationships. Headquartered in Davidson, N.C., the company employs approximately 8,200 people worldwide. For more information, visit www.curtisswright.com.

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