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Industry's First Highly Integrated Radiation-Hardened Motor Controller Consolidates Essential Functions for the Motor Control and Position Sensing Circuitry of Satellite Elements into a Single Chip

Microchip's LX7720 device increases reliability while reducing weight and board area

CHANDLER, Ariz., Oct. 26, 2020 (GLOBE NEWSWIRE) -- The need to reduce size, weight and power (SWaP) on satellites and other space systems continues to challenge the aerospace market. Combining more than 20 commonly used functions into a single chip, Microchip Technology Inc. **(Nasdaq: MCHP)** today announced the **LX7720 radiation-hardened mixed signal motor controller**, the latest addition to its Space System Manager (SSM) product family. As the industry's first highly integrated radiation-hardened by design (RHBD) motor control integrated circuit (IC), the LX7720 significantly reduces weight and board space relative to conventional discrete motor control circuits. By reducing the number of components on a system, developers can inspect and test fewer parts, while also minimizing the physical points of potential failure due to a smaller number of connections and solder joints.

The LX7720 controller offers a unique solution for satellite manufacturers sensitive to board area and weight reduction by consolidating essential functions for the motor control and position sensing circuitry required for robotics, multi-axis pointing mechanisms and precise motion control of optical elements. Microchip's controller combines four half-bridge N-channel Metal Oxide Semiconductor Field Effect Transistor (MOSFET) drivers, four floating differential current sensors, a pulse modulated resolver transformer driver, three differential resolver sense inputs, six bi-level logic inputs, power drivers via external Field Effect Transistors (FETs), loop control electronics for voltage or current control, position read-back (resolver, potentiometer, limit switches, etc.), fault detection and more into a single device.

"As the reduction of weight and board space on satellites continues to challenge the aerospace market, we are pleased to reinforce our commitment to developing innovative solutions with this highly reliable and highly integrated radiation-hardened motor controller," said Bryan J. Liddiard, vice president of Microchip's mixed signal linear business unit. "The LX7720 enhances our ever-growing space product portfolio as we continue to expand a total system solution for our customers building these sophisticated satellites."

The LX7720 serves as a mixed signal companion IC to the selected digital IC used in the application. Microchip's Radiation Tolerant (RT) PolarFire® and RTG4™ Field Programmable Gate Array (FPGA) products and recently announced SAMRH71 radiation hardened microcontroller (MCU) are ideal companion chips, from a single supplier. The LX7720 is MIL-PRF-38535 Class V and Class Q qualified and has already been adopted by customers to enable various motor control applications in space robotics and human-rated space programs. It is the ideal solution for spacecraft applications involving motor driver servo control, linear actuator servo control and for driving stepper, brushless direct current (BLDC) and permanent-magnet synchronous (PMSM) motors. The LX7720 offers radiation tolerance to 100 krad Total Ionization Dose (TID), 50 krad to Enhanced-Low-Dose-Rate-Sensitivity (ELDRS) exposure and is single event immune.

Development Tools
Microchip offers both hardware and software support. Hardware includes the LX7720 Daughter Board (DB) that interfaces with Microchip's SAMRH71F20-EK Evaluation Kit. The DB can also connect to Microchip's RTG4 FPGA Development Kit. These development platforms offer motor control software to allow application specific evaluation with the LX7720-DB.

Pricing and Availability
The LX7720 is available in MIL-PRF-38535 Class Q and V flows packaged in a 132-pin hermetic ceramic quad flatpack as well as a sub-QML screened option offered in a 208-pin plastic package. Samples and the LX7720-DB development boards are available. For additional information and to purchase these products, contact a Microchip sales representative, authorized worldwide distributor, or visit Microchip's website.

Resources
High-res images available through Flickr or editorial contact (feel free to publish):

- Application image: **https://www.flickr.com/photos/microchiptechnology/50406858537**
- Chip image: **https://www.flickr.com/photos/microchiptechnology/50406716381**

About Microchip Technology
Microchip Technology Inc. is a leading provider of smart, connected and secure embedded control solutions. Its easy-to-use development tools and comprehensive product portfolio enable customers to create optimal designs which reduce risk while lowering total system cost and time to market. The company's solutions serve more than 120,000 customers across the industrial, automotive, consumer, aerospace and defense, communications and computing markets. Headquartered in Chandler, Arizona, Microchip offers outstanding technical support along with dependable delivery and quality. For more information, visit the Microchip website at **www.microchip.com**.

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