Technical Article

Enabling Simple Interfacing with Position Sensors

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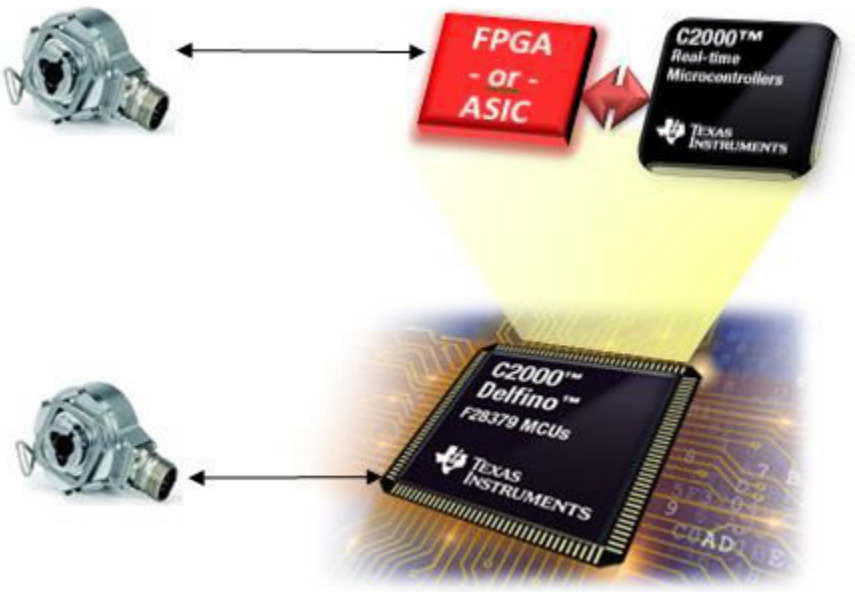
Many original equipment manufacturers (OEMs) have traditionally relied upon field-programmable gate-array (FPGA) or ASIC technology to complete functions that are not supported by off-the-shelf products.

One of these functions includes interfacing with position sensors in industrial servo and AC inverter drives. Using FPGAs and ASICs to support position sensor feedback, increases the system cost and adds unnecessary development complexity. With this current functionality, developers must spend additional time and effort writing complex code instead of focusing on product differentiation as well as core competencies, like motor control and motion control. In addition, both FPGAs and ASICs offer a relatively fixed implementation, which lacks scalability across multiple applications without requiring a redesign.



What if there was a solution that could simplify the system, saving board space and development effort, which frees developers from making unnecessary investments in features that are non-differentiating in the industry?

By using a C2000™ Delfino™ TMS320F28379D/S MCU and DesignDRIVE Position Manager technology, designers can avoid this challenge and interface directly with position sensors.

When combining the DesignDRIVE Position Manager technology with the new Delfino F28379 MCUs, an industrial drive system-on-chip (SoC) solution is created in order for industrial drives to connect directly and easily to EnDat2.2 and BiSS-C absolute position sensors. What's more, by using a portion of the sophisticated analog circuits which are also included on-chip, these same devices are capable of decoding resolver signals as well as angles from analog SIN/COS sensors.

The F28379 MCUs are the first commercial microcontrollers offering the breadth of position sensor support, flexibility, scalability and robustness to make the need for custom FPGA support a thing of the past. Solutions for these four sensors as well as incremental encoders are included at no charge as part of the controlSUITE™ software suite.

For more help on designing interfaces for motor position encoders, check out this blog series.

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