ARINC 429 Protocol IC Features SPI Host Bus Interface

Holt Integrated Circuits today introduced the HI-3593, a dual-receive, single-transmit ARINC 429 protocol IC with SPI host bus interface, operating from a single +3.3V supply. The integrated line driver includes an on-chip DC/DC converter which generates the bipolar ARINC 429 differential voltage levels needed to directly drive the ARINC 429 bus, using only four external capacitors.

The HI-3593 also provides two receivers, each with user-programmable label recognition for any combination of 256 possible labels, 32 x 32 Receive FIFO, priority label filtering (using three dedicated priority-label quick-access double-buffered registers) and analog line receiver. The independent transmitter also has a 32 x 32 Transmit FIFO. The status of the transmit and receive FIFOs and priority-label buffers can be monitored using programmable external interrupt pins, or by polling the HI-3593 Status Registers. Other features include a programmable option of data or parity in the 32nd bit, and the ability to switch the bit-significance of ARINC 429 labels.

The Serial Peripheral Interface minimizes the number of host interface signals resulting in a small footprint device that can be interfaced to a wide range of industry-standard microcontrollers supporting SPI. Alternatively, the SPI signals may be controlled using just four general purpose I/O port pins from a microcontroller or custom FPGA. The SPI and all control signals are CMOS and TTL compatible and support 3.3V operation.

A single chip ARINC 429 application solution at 3.3V is now possible, providing numerous advantages over an FPGA solution for customers requiring DO-254 certification in safety critical applications. Different outputs are also available for easy implementation of external lightning protection, allowing the requirements of DO-160F, Level 3, waveforms 3, 4, 5A and 5B to be satisfied.

“The HI-3593 provides a compact single-chip 3.3V ARINC 429 solution, minimizing board space and component count and providing an efficient path to DO-254 certification” said Anthony Murray, Director of Business Development at Holt.

The HI-3593 is available in a compact 44-pin PQFP package and a smaller footprint 44-pin QFN, with a choice of industrial (-40oC to +85oC) or extended (-55oC to +125oC) temperature ranges. Samples and a demonstration kit are available upon request.

To request information on Holt’s ARINC 429, MIL-STD-1553 and other products, visit the Holt Web site at www.holtic.com [1].

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[1] http://www.holtic.com