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RCADA - 65nm 12b 3Gspc Rad Hard dual ADC dual DAC

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The RCADA mixed signal chip is currently under development by Ramon Chips and Silantrix, combining the rad-hard RadSafe™ libraries and methodologies from Ramon Chips and Silantrix proprietary architecture for data converters.

The extreme wideband capabilities of RCADA require very high performance digital processing (for pre-processing and for “digitally assisted analog” methods), as well as high bandwidth digital communication capabilities (to enable low power and low mass transmission of the digital data), to be provided by RC64, Ramon Chips’ many core DSP processor. The two devices will be integrated in an advanced, high-performance multi-chip module (MCM). The key capabilities of RC64 will be presented.

RCADA is a multi-purpose data converter that aims to support all high performance applications in advanced space missions including telecommunication, SAR, navigation and earth observation.

RCADA integrates two matched ADC cores, 1.5Gspc 12b each, which can be interleaved, forming a single 3.0Gbps 12b ADC. Similarly, it includes two DAC cores, which can be configured as either a dual 1.5Gbps 12b DAC or as a single 3.0Gbps DAC. It can also be configured as a single ADC and a single DAC, 1.5Gbps 12b each, operating simultaneously.

Within the MCM, RCADA interfaces RC64 via 48 pairs of bi-directional LVDS buffers, operating at 750Mbps each.

RCADA will be fabricated using 65nm CMOS technology. It will operate with 1.2V and 2.5V supplies. Target power consumption is less than 450mW. It will be qualified to MIL-STD-883 Class Y. It will provide very high immunity to TID and to latchup and no sensitivity to single event effects.

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