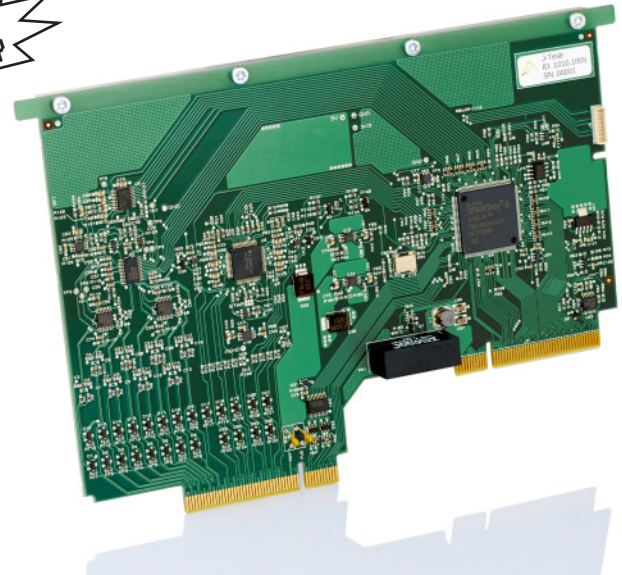


ADC / DAC Peripheral

Technical Overview

- +/- 10V input/output range
- Separate 0.1% ADC and DAC references
- 16 bit DAC system
- 8 DAC channels in 2 banks of 4
- Selectable internal or external DAC reference
- DAC calibration possible for higher accuracies
- 16 bit low-noise ADC system
- 8 differential or 16 single ended channels (or mixed)
- Up to 32 differential or 32 single-ended channels
- Programmable PGA
- High impedance over-voltage protected inputs
- +/-12V supplies & controls for external buffers/muxes
- 8 Generic I/O with UART & PWM & Muxing features



Peripheral Details

The ADC/DAC peripheral card incorporates both a precision ADC system and a precision DAC system.

As with all J-Testr bus controlled peripherals the ADC/DAC card has 8 GPIOs with special function such as basic PWMs and UART.

ADC System

The ADC system uses a very low-noise 16bit ADC with a matching 0.1% tolerance reference to achieve high measurement accuracy and noise levels below +/-0.5 LSB. A very large dynamic range is achieved using a Programmable Gain Amplifier (PGA) which allows the user to set signal gains between x0.125 and x128. This not only allows very small signals to be measured using the full 16 conversion bits, but also allows signals as large as +/-10V to be measured, thus giving maximum measurement flexibility.

The ADC system is capable of automatically scanning between 1 and 32 analogue channels. For each 'scan' channel the PGA gain and multiplexing setup can be individually configured. For single-ended measurements, one end of the signal can be simply programmed to connect to the analogue ground. This enables the ADC system to measure all different types of signal during its scan cycles.

The hardware on-board the ADC/DAC peripheral card supports up to 8 differential channels, for precision measurements, or up to 16 single-ended channels, for less critical measurement or a combination of both. If more ADC channels are required, then any of the GPIO signals can be configured as extra multiplexer control lines to enable additional multiplexers to be added to the interposer. Adding extra multiplexers to the interposer allows the ADC system to measure up to 32 differential or single-ended signals.

Results from the 32 ADC channels are buffered so the user only has to read a single register to get the measurement required. Scanning can triggered or continuous depending on the user's needs.

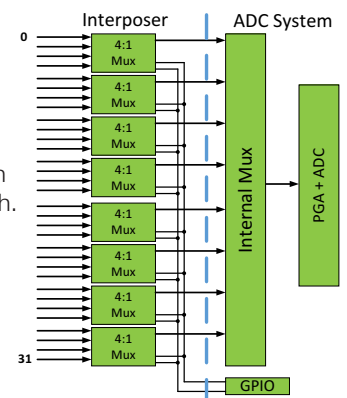
DAC System

The DAC function allows for testing of UUT ADC systems, comparator circuitry, or any other circuitry that requires a fine resolution, high stability, programmable voltage level. The DAC system has two bank of four 16-bit high-resolution protected outputs. The system uses an industry-standard highly integrated DAC IC designed specifically for electronic test systems. The ADC/DAC Peripheral card allows the user access to the powerful test features this IC offers by allowing easy/quick access to the IC internal registers.

The ADC/DAC Peripheral card enables the user to select the reference for each of the two DAC banks. The reference can be either the on-board low-noise high accuracy 0.1% reference, or be connected to an external reference provided by the user on the interposer.

The ability to select different references gives the user maximum flexibility to tune the output voltage range to the needs of the UUT. This is especially true as the DAC IC allows the output to be either x4 or x6 of the selected reference input.

If extremely high accuracy is required for the testing of high accuracy ADC systems, the DAC IC provides powerful calibration features to tune the output accuracy to very low tolerances.



For further information contact your distributor or email: jtestr@eigerdesign.com

All specifications are subject to possible change.

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