

### A4D1 - High-Speed Analog I/O Module

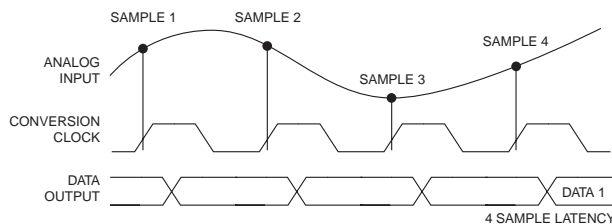
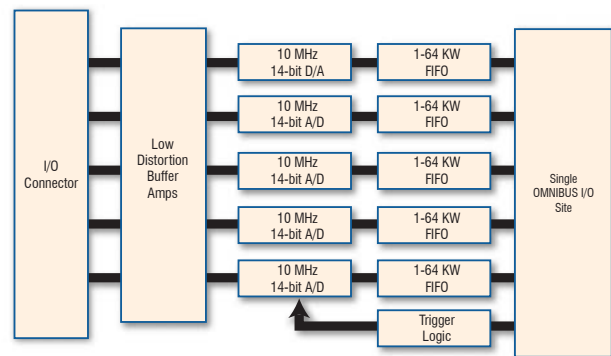
The A4D1 module offers four channels of 10 MHz 14 bit A/D conversion, and one channel of 10 MHz 14 bit D/A conversion making it ideal for high-speed data acquisition, transient capture and control systems. The A/Ds from Analog Devices use a novel pipelined architecture as well as a wide-band sample-and-hold amplifier making them well suited for direct IF down conversion extended to 45 MHz. The A/Ds deliver data from a pipeline which is only four samples deep, resulting in low data latency - a requirement for servo control applications. Potentiometers allow each channel gain/offset error correction for accurate measurements.

The D/A on the A4D1 is an oversampling 14-bit D/A converter optimized for waveform reconstruction applications requiring exceptional dynamic range like direct digital synthesis or wireless communications. It has a 4x interpolation filter that reduces the original inband images by more than 69 dB and has a latency of 2.5  $\mu$ s.

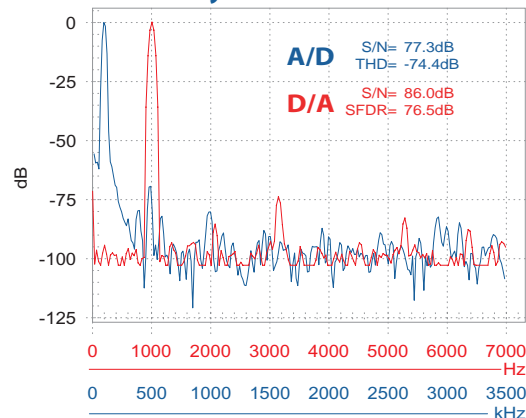
Each converter channel has a 1K or 64K sample FIFO to allow efficient data collection and transport to and from the host card. This allows data collection/playback as single points or as a data set of up to 1K/64K samples in size, reducing the interrupt rate to the host board.

Software examples demonstrating module operation and communication are included in the Zuma/Armada Toolsets. A full calibration report ships with every module.

<b>Interface</b>	Compatible with all OMNIBUS host products Consumes one interrupt to host board.
<b>Power Requirements</b>	5 V @ 500 mA; +15 V @ 20mA; -15 V @ 70mA
<b>Physicals</b>	OMNIBUS mezzanine card; 2.000" X 4.600"
<b>A/D Converters</b>	4 Analog Devices AD9240
<b>Resolution</b>	14-bit
<b>Update Rate</b>	10 MHz max.
<b>Analog Input Range</b>	$\pm 2$ V, custom ranges may be special ordered
<b>S/N Ratio</b>	75 dB
<b>THD</b>	-73 dB
<b>Dynamic Range</b>	80 dB
<b>Gain Error</b>	Trimmable on each channel - factory calibrated
<b>Differential Linearity Error</b>	$\pm 1$ LSB
<b>Offset Error</b>	Trimmable on each channel - factory calibrated
<b>Aperture Delay</b>	1 ns
<b>Aperture Jitter</b>	4 ps
<b>Input Type</b>	Single Ended
<b>Input Impedance</b>	50 Ohms
<b>Filter characteristics</b>	2 <sup>nd</sup> Order filter -3 dB set at 5 MHz, no overshoot
<b>Conversion Trigger Sources</b>	Software, host timers or externally triggered
<b>Interface to DSP</b>	Memory-mapped 32-bit result returned for each A/D pair
<b>D/A Converter</b>	1 Analog Devices AD9774
<b>Resolution</b>	14-bit w/4X interpolation
<b>Output Range</b>	$\pm 5$ V, 0-5 V custom ranges may be special ordered
<b>Settling Time</b>	35 ns to 0.025%
<b>Dynamic Range</b>	96 dB
<b>Offset Error</b>	Trimmable on each channel - factory calibrated to $\pm 4$ LSB
<b>Gain Error</b>	Trimmable on each channel - factory calibrated to $\pm 4$ LSB
<b>Differential</b>	
<b>Nonlinearity Error</b>	$\pm 3$ LSB - Monotonic
<b>D/A Glitch Energy</b>	5 pV-sec typical at MSB transition
<b>Interface to DSP</b>	Memory-mapped; 14-bit interface to DSP
<b>Output prop delay</b>	2.5 $\mu$ sec fixed
<b>THD</b>	-70 dB



### In System Performance



### Ordering Information

A4D1 with 1K FIFOs	80020-12
A4D1 with 64K FIFOs in & out	80020-12R

OMNIBUS Modules