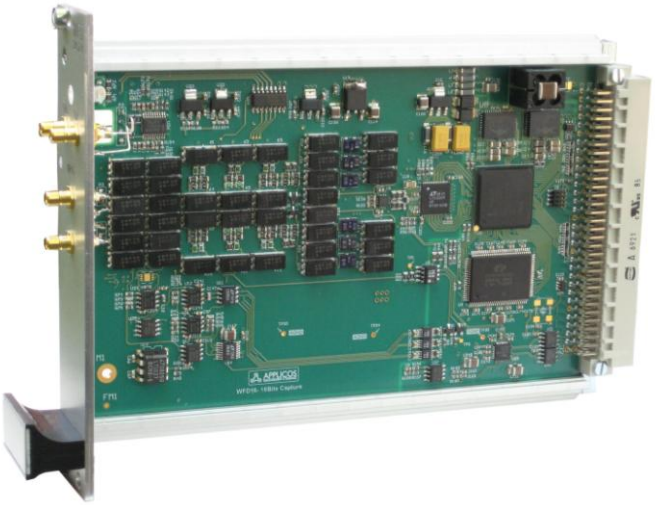
16 bit / 180Msps Waveform Digitizer

WFD16

- 180 MHz max sample speed
- 16 bit resolution
- Fully differential inputs
- 16 input ranges
- Selectable filters to reduce out-of-band noise
- -92dB THD typical at 1MHz
- 71dB SNR typical
- Programmable DC-offset voltage
- For ATX series hardware platform



The WFD16 is a 16 bit Waveform Digitizer for high-speed / high resolution waveform capturing and analyzing. The fully differential signal path ensures an exceptional high signal quality. Despite this emphasis on signal quality the WFD16 also has a good DC accuracy.

The module features differential inputs with a 50Ω or 10kΩ termination and a with a programmable common-mode voltage. For single ended applications the negative input can be connected to the internal DC-offset voltage source to cancel out a DC component of the input signal. The clock can come from the backplane or from the front panel.

The module has 16 input ranges starting at 0.512Vpp up to 7.68Vpp, which covers a wide range of Unit Under Test output voltages.

A filter-bank with 3 Low Pass filters (15MHz, 30MHz, and 60MHz) removes out-of-band noise and provides anti-aliasing.

The Module uses a state of the art ADC which provides an excellent SNR, THD and linearity. The unit is an excellent choice for dynamic signal capturing and analysis as well as time domain analysis. With 8M-word (16M-byte) of memory long signal streams can be captured.

All these features ensure a very accurate result when performing analog measurements. The unit is very suitable for testing DAC linearity and dynamic performance.

APPLICOS
MEASUREMENT & CONTROL

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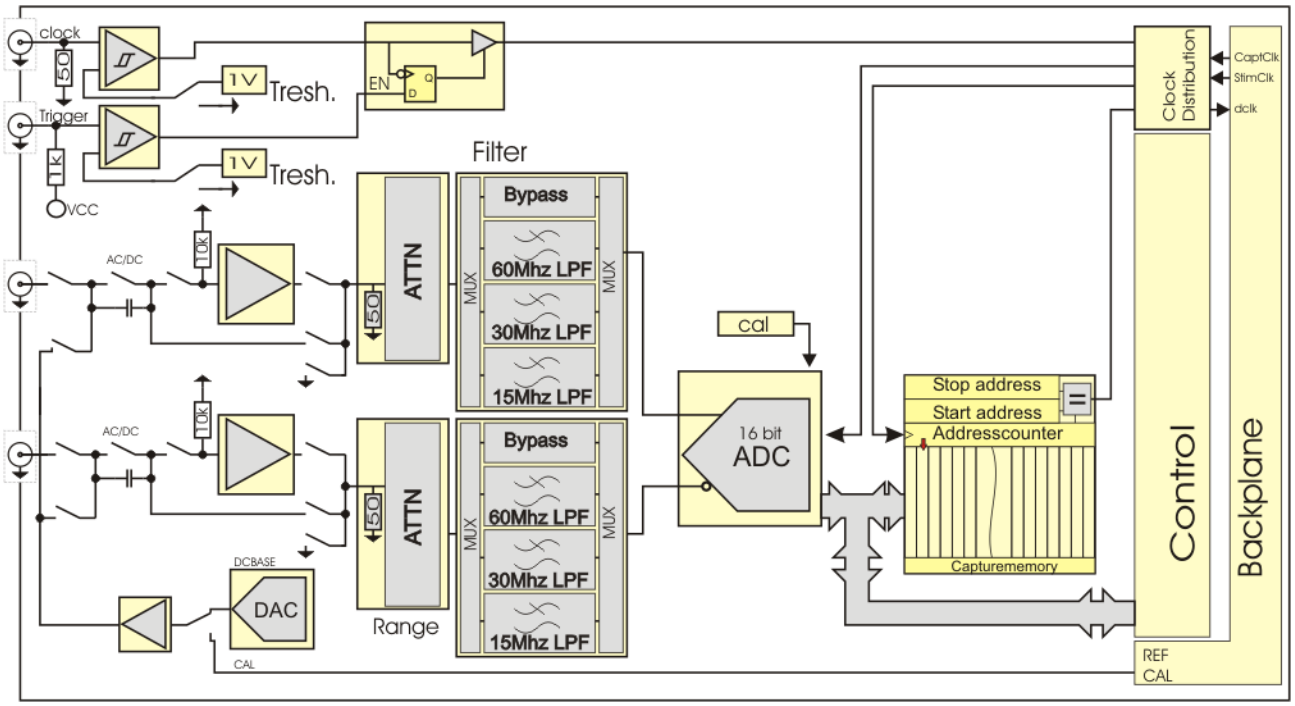
Block diagram



Specifications (conditions: after 1 hour warm-up, T_A=25ºC, filter bypass unless otherwise mentioned)

General

Resolution	16 bit
Sample rate	1MHz - 180MHz
Pattern depth	8M words

Input characteristics

Input impedance	50Ω or 10kΩ/25pF
Input ranges (Vpp)	0.512V, 0.64V, 0.786V, 0.96V, 1.042V, 1.28V, 1.536V, 1.92V, 2.048V, 2.56V, 3.072V, 3.84V, 4.096V, 5.12V, 6.114V, 7.68V
Input filters (3 pole Butterw.)	Bypass, 15MHz, 30MHz, 60MHz
Bandwidth, -3dB (typical)	100MHz (50Ω)
Input configuration	Differential, Single Ended, 50Ω or 10kΩ, DC or AC coupled
Input operating area	2 times the input range

Accuracy (filter bypass)

Absolute accuracy	±(800µV + 0.1% of range)
Non Linearity	±0.006 of range
Temperature drift (typical)	±(10ppm of range + 20ppm of value)/ºC

DC-offset source

Resolution	16-bit
Voltage range	equal to the input range
DC-offset accuracy	±(500µV + 0.01% of value)
Non Linearity	±100ppm of range

Dynamic characteristics

(2Vpp diff. input signal, 160Msps, BW DC-80MHz)

SNR (fin=1MHz)	70dB
SNR (fin =10MHz)	68dB
THD (fin =1MHz)	-89dB
THD (fin =10MHz))	-85dB
SFDR (fin =1MHz)	90dB

Clock input

Input impedance	50Ω
Threshold level	0V or 1V

Trigger input

Input impedance	1kΩ
Threshold level	0V or 1V

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