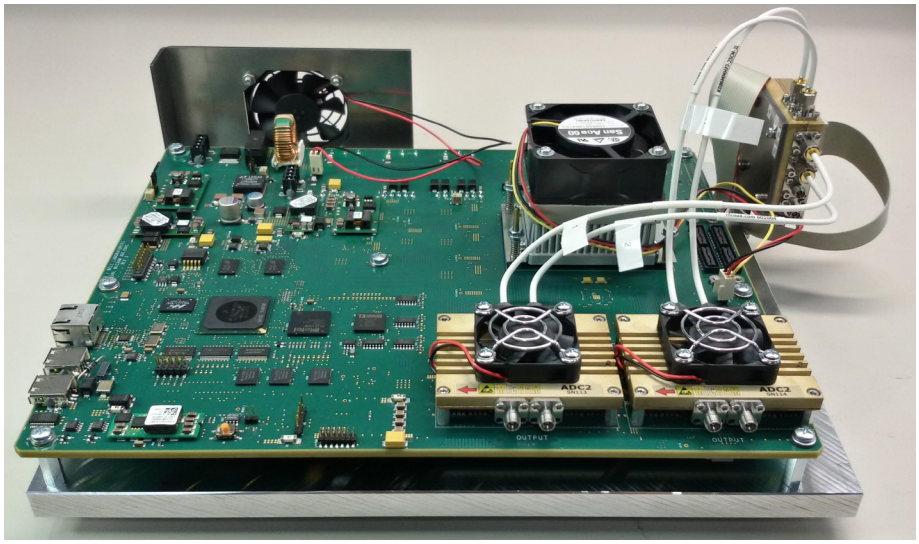
ADC6801: Single Channel 68GS/s Waveform Digitizer

ADC3402: Dual Channel 34GS/s Waveform Digitizer

Datasheet



- 2 channels @ 34 GS/s Sample rate
- 1 channel @ 68 GS/s Sample rate
- 6 bits vertical resolution
- 20+ GHz Analog Bandwidth (typical)
- Low (<100 fs) typical intrinsic RMS jitter
- 400 mV input range

ADC6801 and ADC3402 Performance

- 1 or 2 sampling channels per board
- 20+ GHz Analogue Bandwidth (-3 dB point)
- 9 Mpts per channel on ADC6801, 4.5 Mpts per channel on ADC3402
- Sample Rate up to 68 GS/s on each channel (34 GS/s in dual channel mode)
- Fully automatic channel interleave
- FPGA-based digital signal processing
- High speed datas transfer and control via LAN interface
- Flexible, powerful and expandable

ADC6801 Waveform Digitizer and Processing system combine Micram's 6 bits analog-to-digital converter technology (up to 68 GS/s and 20+ GHz analog bandwidth) with on-board signal processing hardware and high speed data transfer link to an external computer.

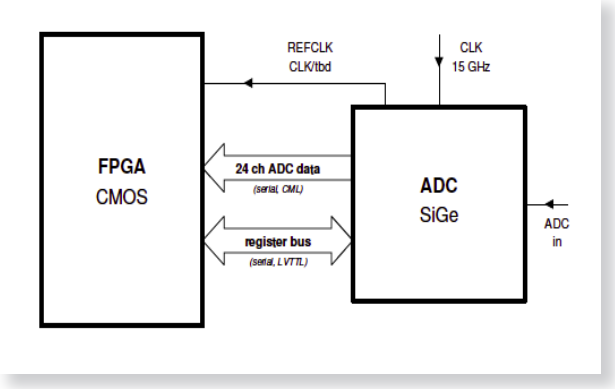
Powered by the latest Micram silicon Geermanium bipolar ADC2 analog to digital converter, the ADC3420 and ADC6801 systems enable researchers and engineers to capture up to 9 Mpts of data samples per channel and apply real time processing via the on-board powerful Xilinx V-7 FPGA.

Technology: Si-Ge ADC2 Chip

Micram ADC2 analog to digital Si-Ge *converter - the heart of the ADC6801 and ADC3402 Systems*

The ADC2 chip consists of two time-interleaved cores in a unique folding and interpolation architecture. Adjustment DACs are inlcuded to make both cores equal regarding offset and gain, and to adjust phase differences between cores.

The converted, gray coded data values are transmitted to the on board FPGA via 24 serial data lanes. The ADC2 has a serial control interface for configuration and adjustment and a reference clock output. This reference clock output is used to syncronize the FPGA receiver inputs to the ADC main clock source.



Typical ADC system Setup: block diagram

Applications:

Coherent Optical Applications

Semiconductor and Disk Drive testing

Military electronics

High Energy Physics, Astronomy and Avionics

ADC3402 and ADC6801 Specifications

Clocking requirement

Reference Clock Input

Frequency	500MHz to 17 GHz
Minum Clock Power	0 dBm
Impedance	50 Ω nominal, AC-coupled
Input Connector	SMA, differential , module

Optional Reference Clock Output with CD3 Module

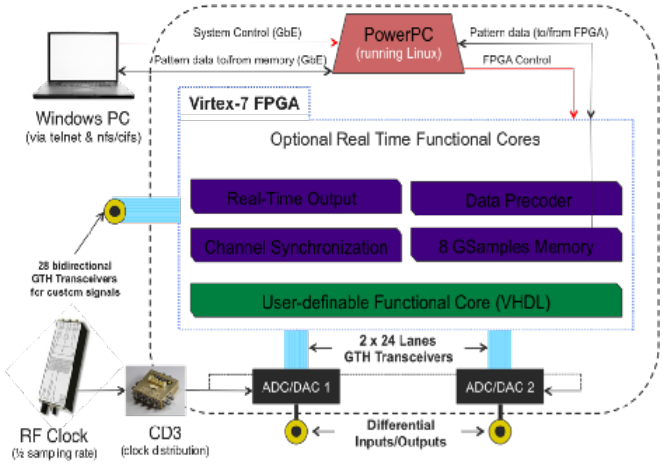
Clock rate	/2, /4, /8,/16,/32
Output type	SMA, diffential, CD3 module
Impedance	50 Ω nominal, AC-coupled
Amplitude	400 mV typical
Connector	SMA, differential, module

Data Input

Analogue Bandwith	20+ GHz (typical)
Data input Connectors	2.92 mm
Sampling Rate	1-34 GS/s on ADC3402 2-68 GS/s on ADC6801
DAC Resolution	6 bits, Si-Ge
Data Input	Differential, AC coupled
ENOB	>5, f < 5 GHz >4.5, f < 20 GHz
Number of ADC channels per board	2 @ 34GS/s or 1 @68 GS/s, front panel connectors
Acquisition Memory	9 Mpts/channel on ADC6801 4.5 Mpts/channel on ADC3402
Max Input Voltage	400 mV pk-pk differential, AC Coupled, adjustable
Resolution	TBD
Input Impedance	50 Ohm, 100 Ohm differential
Rise/Fall time	TBD

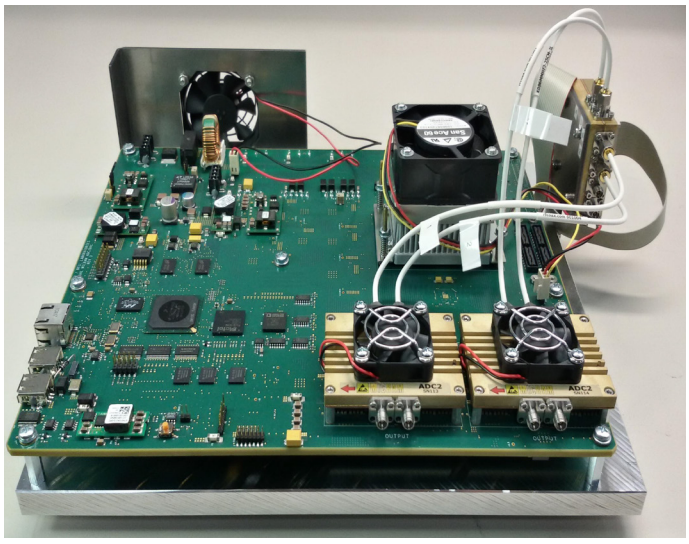
USPA Board Architecture

Many channels often means many screens, confusing controls and a lot of time wasted. We've put everything you need for the ADC3402 and ADC6801 on one board; it's easy to see all operational aspects in one glance, and changes can be made to channels individually, or all together. User custom setups can be easily saved and reload for future use.



USPA Board System Block Diagram

The ADC6801 provides fully automatic synchronization and interleaving of two 34GS/s analog to digital input channels, and a powerful, fully integrated, easy to use MATLAB programming interface.



USPA board with two ADC2 modules

General

Control software	Requires Intel®-based computer running Windows® OS
Interfaces	LAN
Included power supply	100 V to 240 V AC, 48 Volt DC, 50-60 Hz,
Power consumption	150 VA max
Operating temperature	0°C to 55°C
Storage temperature	-30°C to 70°C
Operating altitude	Up to 2000 m
Dimensions (W x H x D)	Bench top
Weight	22 lbs (10 kg)
Warranty	1 year standard For warranty and calibration services, contact Micram

Included Accessories

External Power Adapter

LAN cable

User guide with programing reference on CD

Metal Base Plate with cooling fan

Ordering Information

ADC6801	1 channel 68 GS/s ADC waveform digitizer system. 1 year warranty included
ADC3402	2 channel 34 GS/s ADC waveform digitizer system. 1 year warranty included
ADC6801-3W	3 years total warranty for ADC6801
ADC3402-3W	3 years total warranty for ADC3402
ADC6801-3C	3 years calibration service for ADC6801
ADC3402-3C	3 years calibration service for ADC3402
CD3	36 GHz Clock divider and Clock Distributor

Other Micram products

DAC1001	1 channe 100 GS/s DAC4 System
DAC1002	2 channel 100 GS/s DAC4 System
DAC7201	1 channel 72 GS/s DAC3 System
DAC7202	2 channel 72 GS/s DAC3 System
DAC3401	1 channel 34 GS/s DAC2 System
DAC3402	2 channel 34 GS/s DAC2 System
MX2180	100 Gbps 2:1 Multiplexer
CDR8086	100 Gbps 1:2 De-Mux
DMX1460	1:4 Demultiplexer
DFF60/DFF30	Flip flps
FD60	Frequency Divider
CD3	Clock Divider/Distributor

About us

Micram Microelectronic GmbH is an independent fabless whole-service provider for high performance ASIC solutions. It is a privately owned company, located near by the Ruhr-University technology park in Bochum, Germany.

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