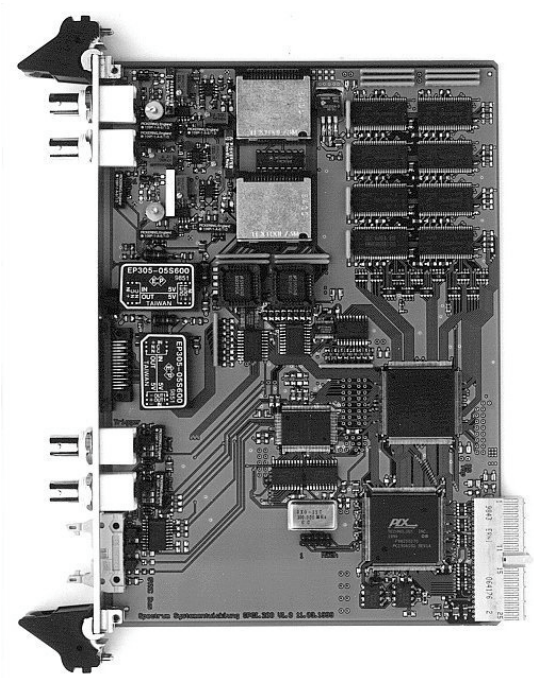
SPECTRUM
SYSTEMENTWICKLUNG MICROELECTRONIC GMBH

CPCI.208 100/200 MHz 6U CompactPCI transient recorder

- **2 analoge Kanäle mit 8 Bit Auflösung**
- **Eingänge unabhängig auf 8 Bit Digitaleingänge umschaltbar**
- **Simultane Aufnahme auf beiden Kanälen**
- **100 MHz Aufzeichnung auf 2 Kanälen**
- **200 MHz Aufzeichnung auf 1 Kanal**
- **Bis zu 256 MSamples Speicher**

- **2 analogue channels with 8 bit resolution**
- **Inputs switchable to 8 bit digital input**
- **Simultaneously sampling on both channels**
- **100 MHz sampling on 2 channels**
- **200 MHz sampling on 1 channel**
- **Up to 256 MSamples memory**



Software delivered with the board

- Drivers for Windows NT
- Drivers for Windows 95/98
- Drivers for Windows 2000
- Drivers for Windows 3.x
- Drivers for DOS
- Programming examples for Microsoft Visual C++
- Programming examples for Borland C++
- Programming examples for Borland Delphi

Software available

- SBench – comfortable initialising, programming and data display for all Spectrum boards.
- Software drivers for National Instrument's LabVIEW for Windows
- Software drivers for MatLab from Mathworks Inc.
- Software drivers for HP-VEE from Hewlett Packard

Allgemeine Information

Mit zwei separaten A/D Wandlern ist die CPCI.208 eine schnelle Karte für den CompactPCI Bus. Jeder Kanal kann wahlweise als Analogeingang oder als 8 Bit Digitaleingang benutzt werden. Alle Ein- und Ausgänge sind auf die Frontblende geführt.
Durch den großen Speicher von bis zu 256 MSample (über 1 Sekunde Aufzeichnung bei voller Geschwindigkeit!) ist auch die Aufzeichnung extrem breitbandiger Signale möglich. Der Speicher kann optional segmentiert werden (Multiple Recording), um mehrere schnell aufeinander folgende Ereignisse aufzuzeichnen.
Die vielfältigen Synchronisationsmöglichkeiten, wie Trigger- und Taktein-/ausgang, machen die CPCI.208 zu einem universell einsetzbaren Werkzeug. Mit Hilfe des internen Sync-Busses ist der Aufbau großer Mehrkanalsysteme sowie die Verbindung mit anderen Spectrum Karten möglich.

Anwendungsbeispiele: Radar, Qualitätssicherung, Spektroskopie, Ultraschall, LDA/PDA

General Information

The CPCI.208 is a fast board for the CompactPCI bus with two separate A/D-Converters. Each channel may be switched to analogue or 8 bit digital recording. All inputs and outputs are available at the front panel.
Due to the large memory of up to 256 MSamples (more than 1 second recording time with full speed) the recording of signals with extremely wide bandwidth is possible. As an option this memory may be segmented (Multiple Recording) to record several events with a fast repetition rate.
The various synchronisation possibilities like trigger and clock input and output are forming the CPCI.208 to an universal tool. With the help of the internal sync-bus it is possible to build up multichannel-systems as well as to connect different types of Spectrum boards with each other.

Application examples: Radar, Quality management, Spectroscopie, Supersonics, LDA/PDA

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Software programmable parameters

Samplerate	1 MHz to 200 MHz, external clock
Input range	±200 mV, ±500 mV, ±1 V, ±2 V, ±5 V, ±10 V
Input impedance	50 Ohm / 1 MOhm, AC/DC (jumper)
Clock input	50 Ohm / 1 MOhm (relais)
Clock output	enable / disable
Memory depth	32 Samples up to max memory in steps of 32
Trigger output	enable / disable
Trigger input	50 Ohm / 1 MOhm (relais)
Triggermode	channel 0, channel 1, external, software
Triggerlevel	1/16 ... 15/16 of the input range
Triggeredge	rising or falling edge
Posttrigger	32 Samples - 256 MSamples in steps of 32

Technical data

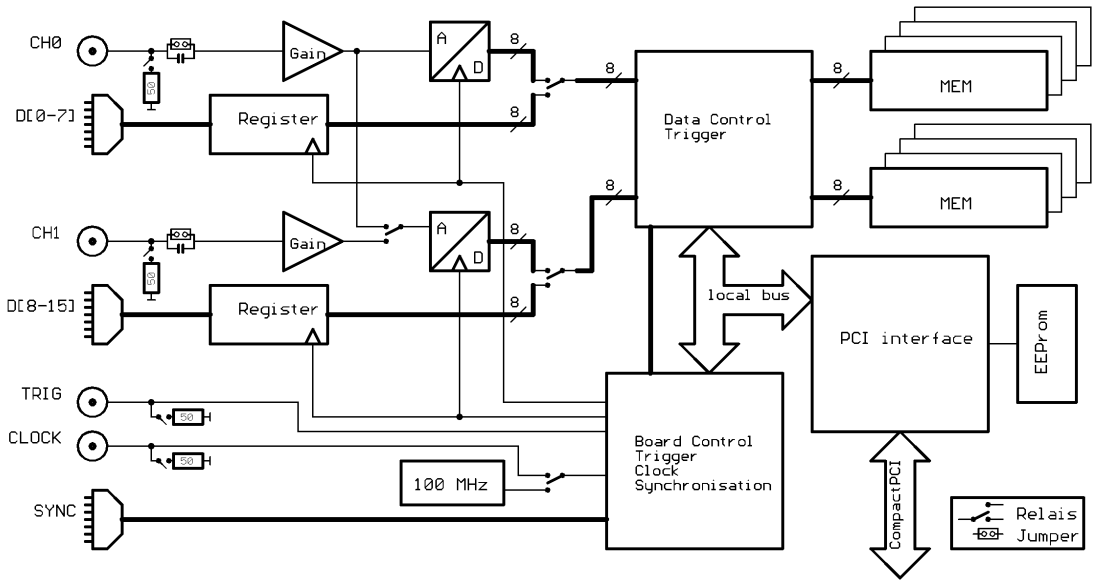
Resolution	8 bit
Samplerate	1 MHz up to 200 MHz
Bandwidth DC –3 dB	0 Hz to 90 MHz
Bandwidth AC –3 dB	40 Hz to 90 MHz
Differential linearity error	≤ ±0.5 LSB
Integral linearity error	≤ ±0.5 LSB
ENOB fs = 1 MHz, fck=100 MHz	7.5 bit typ. (ADC)
ENOB fs = 31 MHz, fck=100 MHz	6.5 bit typ. (ADC)
Aperture jitter	10 ps typ. (ADC)
Input impedance	50 Ohm or 1 MOhm || 25 pF
TTL input impedance	110 Ohm || 15 pF
Multi: trigger to 1st sample delay	≥ 8 samples (fixed for clock)
Multi: recovery time	≤ 20 samples
Trigger output delay	2 samples
Trigger accuracy (≤100 MHz)	1 sample
Trigger accuracy (200 MHz)	2 samples
Digital input to analogue input delay	2 samples
Ext. clock: output delay	abt. –6 ns
Ext. clock: delay to internal clock	abt. 10 ns
Sync: board to board trigger jitter	0 samples
Sync: board to board clock delay	≤ 1 ns

Input range	±200 mV, ±500 mV	±1 V, ±2 V	±5 V, ±10 V
Offset error (100 MHz)	≤ 3 LSB	≤ 2 LSB	≤ 2 LSB
Offset error (200 MHz)	≤ 4 LSB	≤ 3 LSB	≤ 3 LSB
Gain error (100 MHz)	≤ 4 %	≤ 3 %	≤ 2 %
Gain error (200 MHz)	≤ 4 %	≤ 3 %	≤ 2 %
Noise (100 MHz)	≤ 1 LSB	≤ 1 LSB	≤ 1 LSB
Noise (200 MHz)	≤ 2 LSB	≤ 2 LSB	≤ 2 LSB
Crosstalk	≤ -48 dB	≤ -48 dB	≤ -48 dB

Dimension	233 mm x 160 mm (32 bit CompactPCI)
Connector	9 mm BNC female
Overvoltage protection	±20 V
Warm up time	10 minutes
Operating temperature	0°C - 50°C
Storage temperature	-10°C - 70°C
Humidity	10% to 90% non condensing

	+3.3 V	+5 V	+12 V	-12 V
Power consumption (A)	0 A	3800 mA	0 A	0 A
Power consumption (W)	0 W	19 W	0 W	0 W

Hardware block diagram



Order information

CPCI.208 standard	CPCI.208 with 16 MSamples memory including drivers	CPCI208
Option 32 M	Memory upgrading to 32 MSamples	CPCI208-32
Option 64 M	Memory upgrading to 64 MSamples	CPCI208-64
Option 256 M	Memory upgrading to 256 MSamples	CPCI208-256
Multiple recording	Memory segmentation for fast repetition rates	CPCI208-mr
Gate	Gated sampling with an external TTL control signal	CPCI208-gs
Cascading	Synchronisation of several CPCI.208 for multi-channel-systems	CPCI208-cs
Double mem	Channel 0 uses memory of both channels for all samplerates	CPCI208-dm
Input range	6 user specific input ranges between ±200 mV and ±10 V, bipolar or unipolar	CPCI208-ir
DASYLab driver	Drivers for DASYLab 5.0 for Win 95/98, Win 2000 and Win NT	CPCI208-dl
Agilent VEE driver	Drivers for Agilent VEE 5.0 for Win 95/98, Win 2000 and Win NT	CPCI208-hp
LabVIEW driver	Drivers for LabVIEW 4.0 for Win 3.11, Win 95/98, Win 2000 and Win NT	CPCI208-lv
MatLab driver	Drivers for MatLab 5.0 for Win 95/98, Win 2000 and Win NT	MATLAB

Spectrum reserves the right to make changes at any time to improve design and to supply the best product possible.