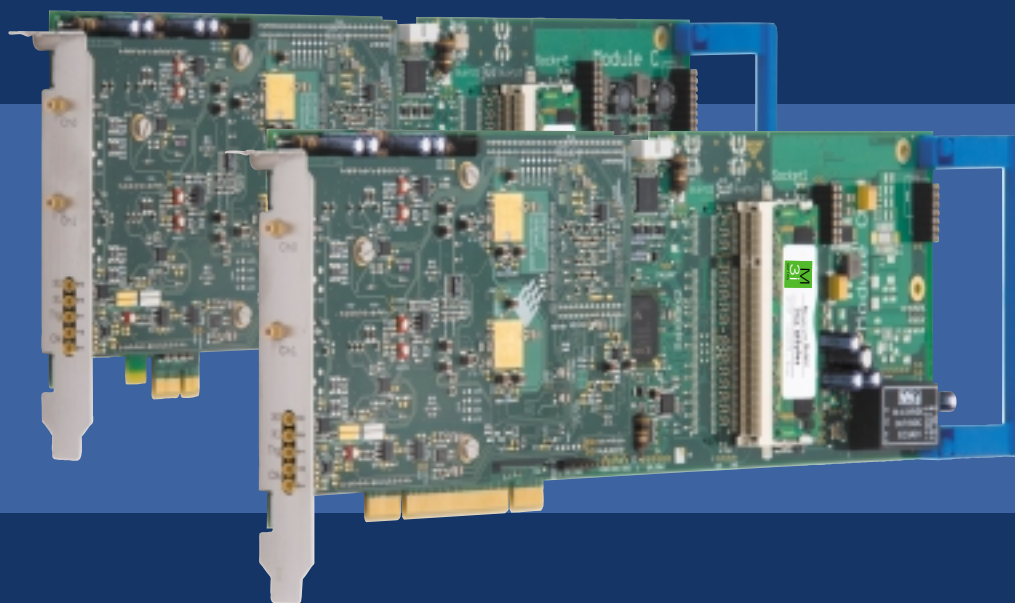




SPECTRUM
SYSTEMENTWICKLUNG MICROELECTRONIC GMBH

400 MS/s 14 Bit Digitizer

Ultra fast data acquisition / transient recorder



Application areas

Automation
Production Test
Sonar/Radar
Laser/Ultrasound
LDA/PDA
Research/Development
Automotive
Laboratory
Spectroscopy
ATE
and many more ...

- Monolithic A/D converters used for best quality
- 200 MHz signal bandwidth
- 1 channel or 2 synchronous channels
- Up to 4 GBytes (2 GSamples) on-board memory
- PCI Express or PCI-X bus interface with up to 245 MByte/s data transfer rate
- PCI-X interface 100% compatible to PCI 32 bit
- In-system synchronisation of several cards with zero clock delay
- Scope or multiple segment mode with programmable pre-trigger, post-trigger, trigger delay and timestamp
- Versatile software support

Drivers for Windows 2000, XP, Vista and
Linux Kernel 2.6 32/64 bit included



The M3i.41xx 14 bit 400 MS/s Digitizer is the first of a new series of high resolution, high speed industrial grade PC instruments. Nearly 20 years of development knowledge in the field of high speed PC instruments allow us to offer products of outstanding performance and enhanced software support, combined with best reliability for test and measurement industry.

Front-end modules

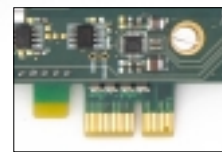
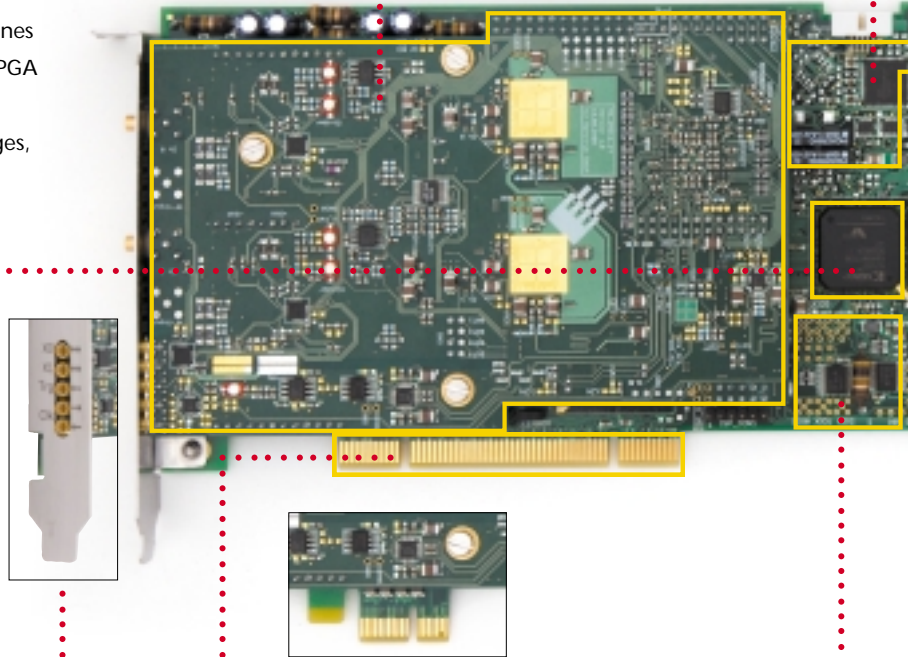
A completely new designed front-end module combines state-of-the-art analog components with powerful FPGA processing power. The analog front end can be user programmed by software with 6 different input ranges, 50 Ω / 1 M Ω termination, AC/DC coupling and a user activated low pass filter.

Main control

Using state-of-the-art FPGA technology allows us to offer several enhanced features like Multiple Recording, Timestamp or combined triggers. The completely reworked control section is individually configurable and allows a later update of the firmware by software. The control unit can use the complete installed on-board memory as a buffer in FIFO mode and simultaneously offer a minimum latency time.

Additional connections

The 5 multi purpose connections are routed to clock input, clock output, trigger input and 2 freely programmable I/O connections. These connections may be used as additional trigger inputs, trigger outputs, diverse status information like ARMED, additional digital inputs sampled with the analog signal or as custom signals.



PCI Express

All products of the M3i series are available as a PCI Express version (x1 lane) allowing the use with modern and future PC systems. All features of the M3i series are also available with the PCI Express version and it's even possible to synchronise between PCI Express and PCI/PCI-X cards in one system.

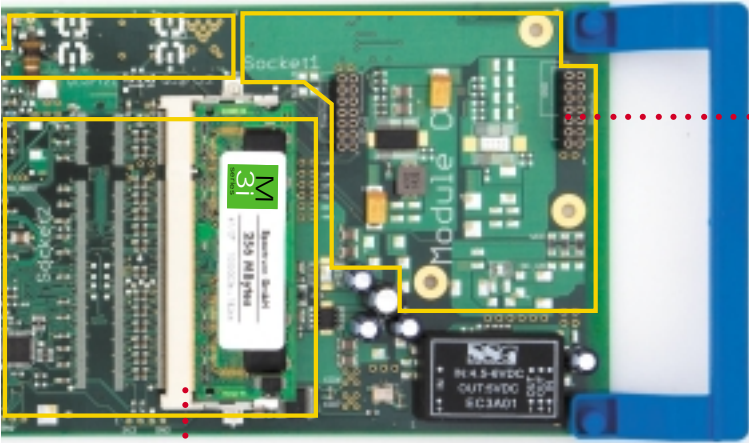
PCI-X bus interface

The combined universal PCI / PCI-X interface is compatible to all PCI and PCI-X slots with 33, 66, 100 and 133 MHz, 3.3V or 5V I/O voltage as well as 32 and 64 bit. The two hardware controlled Scatter-Gather busmaster DMA controller reach a maximum continuous transfer speed of up to 245 MB/s (PCI-X) and 125 MB/s (PCI) allowing continuous streaming in FIFO mode.



..... **Clock generation**

The powerful clock section allows to use internal clock with a very fine setup granularity, external clock as AC coupled signal with a wide variety of accepted input levels, synchronized clock as well as external reference clock.



..... **Synchronisation**

The Star-Hub option is able to synchronise multiple cards in one system with no phase delay between the channels. With this option trigger and clock information is routed between the cards, each of the cards or even a combination of multiple cards, can be used as trigger source for the complete synchronised system.

..... **Up to 4 GBytes (2 GSamples) on-board memory**

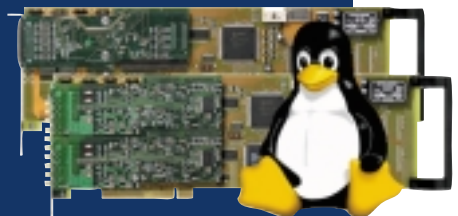
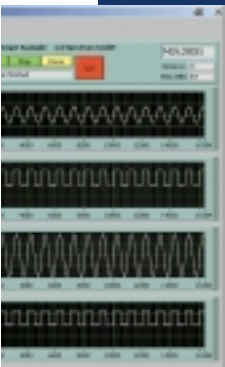
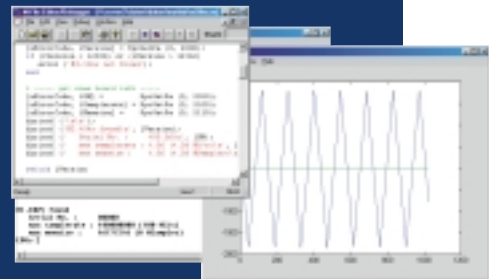
The standard version is already equipped with 256 MBytes (128 MSamples) memory. With up to 4 GBytes on-board memory, long-term full speed acquisitions even with high sampling rates and/or a high channel count are possible. Equipped with the maximum memory it is for example possible to acquire one 14 bit A/D channel with 400 MS/s sampling rate for 5 seconds. The complete memory, even 4 GBytes, is directly mounted on-board of the card – no extra system slot will be blocked.

..... **BaseXIO**

The 8 asynchronous digital I/O lines can be used for control or status request of external instruments or as additional segment information acquired with the timestamp.

Software Support:

- Windows 2000, XP and Vista 32 bit and 64 bit
- Linux Kernel 2.6 32 bit and 64 bit with KDE and Gnome
- Powerful Control Center for Information and Maintenance
- Visual C/C++, Borland C++ Builder, Gnu C++
- Borland Delphi
- NET based languages: VB.NET, C#, J#
- LabWindows/CVI
- LabVIEW
- MATLAB
- Agilent VEE





Available M3i.41xx versions

card	1 channel	2 channels	memory	max. memory
M3i.4142	400 MS/s	250 MS/s	128 MSamples	2 GSamples
M3i.4140	400 MS/s		128 MSamples	2 GSamples
M3i.4121	250 MS/s	250 MS/s	128 MSamples	2 GSamples
M3i.4120	250 MS/s		128 MSamples	2 GSamples
M3i.4111	100 MS/s	100 MS/s	128 MSamples	2 GSamples
M3i.4110	100 MS/s		128 MSamples	2 GSamples

Unbeatable Spectrum Support

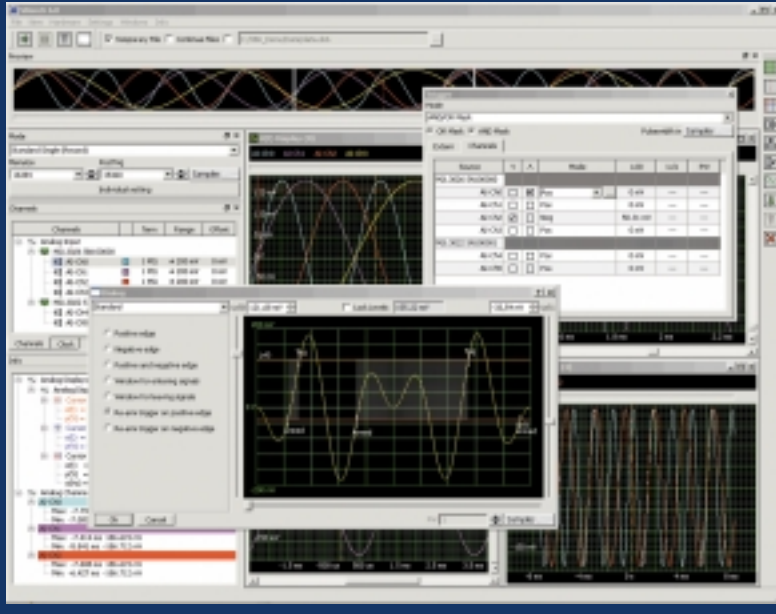
- 2 years world-wide warranty
- Drivers for Windows and Linux included
- Examples for several programming languages included
- SBench scope software included
- Support free-of-charge directly from the developers
- Free-of-charge drivers, firmware and software updates

Custom specific cards

The modular structure of the cards, combined with nearly 20 years of development expertise at Spectrum allow us to make custom specific changes to the cards to match your particular application. Whether you need different input ranges or filters, advanced trigger functions, on-board pre-processing, additional output signals or complete custom designed analog modules – just discuss your needs with our design team.

SBench 6 – powerful new software platform from Spectrum

- Available for Windows XP, Vista and Linux KDE and Gnome
- Easy to use interface with drag and drop, docking windows, context menus
- Highly configurable by customer
- Designed to handle several GBytes of data
- Powerful math and export functions



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