



USB-ME-Systems System Suggestions



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Printed: 28. 05. 2015

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The USB-ME-Systems from Multi Channel Systems MCS GmbH

USB based ME-Systems

The USB based ME-System product line from Multi Channel Systems has essential advantages over PC card based data acquisition systems. The **USB-ME-Systems** are the first of a new generation of universal recording systems that realize data transfer to **any** computer via USB. The USB 2.0 High Speed cable provides data transfer with a sampling rate of up to 50 kHz per channel to a laptop, for example.

The standard ME product line is based on a data acquisition card, the MC_Card, that is installed in the data acquisition computer. The USB based ME-Systems are independent from the MC_Card. They use an integrated data acquisition and A / D converter board.

USB-ME-Systems with separate data acquisition amplifiers are available for maximum flexibility in combining different components, while the **Portable ME-Systems** are the most compact options available. The **Wireless-System** is for wireless recording from freely moving animals.

Portable ME-Systems

USB-ME16/32-FAI-Systems

The **USB-ME16-FAI-System** or **USB-ME32-FAI-System** are very compact and portable stand-alone solutions.

The systems feature a 16- or 32-channel filter amplifier (gain factor 100), data acquisition and A / D conversion integrated into one device. The amplified and digitized signals are transmitted to the connected computer via universal serial bus (USB 2.0 High Speed). Thus, it is possible to use **any computer** as a data acquisition computer, for example, a laptop. The size of the complete system is small enough to fit into a laptop bag together with the computer.

Recorded data is displayed, analyzed, and reviewed with the powerful and easy-to-use **Multi Channel Suite** or **MC_Rack** program. You can export the data in standard formats to other programs, for example with the **MC_DataTool** software.

USB-ME16-FAI-System

The USB-ME16-FAI-System includes two 8-channel miniature preamplifiers **MPA8I**. The MPA8I is connected to the microelectrodes and provides the initial tenfold amplification stage. Adapters (for example ADPT-NN-16) to contact standard microelectrodes such as probes from NeuroNexus Technologies are available as accessories. Custom adapters are available on request.

USB-ME32-FAI-System

The USB-ME32-FAI-System includes four 8-channel miniature preamplifiers **MPA8I** – OR – one 32-channel miniature preamplifier **MPA32I**. The miniature preamplifiers are connected to the microelectrodes and provide the initial tenfold amplification stage. Adapters (for example ADPT-NN-16 or ADPT-NN-32) to contact standard microelectrodes such as probes from NeuroNexus Technologies are available as accessories. Custom adapters are available on request.

Portable ME-Systems

Portable ME16/32-Systems

The **Portable ME-Systems** of the second generation are functionally identical to the USB-ME-FAI-Systems. However, they feature smaller improved headstage amplifiers with the widely used Omnetics connectors to further minimize size and weight.

The Portable ME-Systems are compact and light weight. They feature an integrated 16- or 32-channel filter amplifier and data acquisition. The digitally converted electrode signals are transmitted to the connected computer via USB 2.0 High Speed. The micro preamplifiers are available with 16 or 32 channels.

Recorded data is displayed, analyzed, and reviewed with the powerful and easy-to-use **Multi Channel Suite or MC_Rack** program. You can export the data in standard formats to other programs, for example with the **MC_DataTool** software.

Portable ME16-System

The Portable ME16-System includes two 8-channel miniature preamplifiers **MPA8I** – OR – one micro preamplifier μ PA16. The MPA8I or the μ PA16 are connected to the microelectrodes and provide the initial tenfold amplification stage. You do not need adapters to contact standard microelectrodes such as probes from NeuroNexus Technologies. Custom adapters are available on request.

Portable ME32-System

Two micro preamplifiers μ PA16 – OR – one micro preamplifier μ PA32 are part of the Portable ME32-System. You do not need adapters to contact standard microelectrodes such as probes from NeuroNexus Technologies. Custom adapters are available on request.

Wireless Systems

The innovative **Wireless System** for wireless recording in freely moving animals is the solution for amplifying, recording, and analyzing *in vivo* data from four, eight, sixteen or thirty-two channels. Digital data is sent from the headstage to the receiver via radio communication. The receiver and the interface board are connected with a MCS bus cable, the interface board transfers the data via USB 2.0 High Speed cable to the computer. The bandwidth of the amplifier is 1 Hz to 5 kHz.

W4-System

The W4-System includes receiver, interface board and a headstage with four channels.

W8-System

The W8-System includes receiver, interface board and a headstage with eight channels.

W16-System

The W16-System includes receiver, interface board and a headstage with sixteen channels.

W32-System

The W32-System includes receiver, interface board and a headstage with thirty-two channels.

USB-ME-Systems

USB-ME64/128/256-Systems

The **USB-ME-System** is a stand-alone solution for acquiring data from 64, 128 or 256 channels. The analog input signals are acquired and digitized by the **USB-ME-System** and the digital electrode signals are transmitted to the connected computer via universal serial bus (USB 2.0 High Speed). Thus, it is possible to use any computer for data processing. The **USB-ME-System** supports the channels without amplification that means data acquisition only.

Recorded data are graphed, analyzed, and reviewed with the powerful and easy-to-use **Multi Channel Suite or MC_Rack** program. You can export the data in standard formats to other programs, for example with the **MC_DataTool** software.

USB-ME64-System

The **USB-ME64-System** is for acquiring data from up to 64 channels.

USB-ME128-System

The **USB-ME128-System** is for acquiring data from up to 128 channels.

USB-ME256-System

The **USB-ME256-System** is for acquiring data from up to 256 channels.

Setups in this Guide — Overview

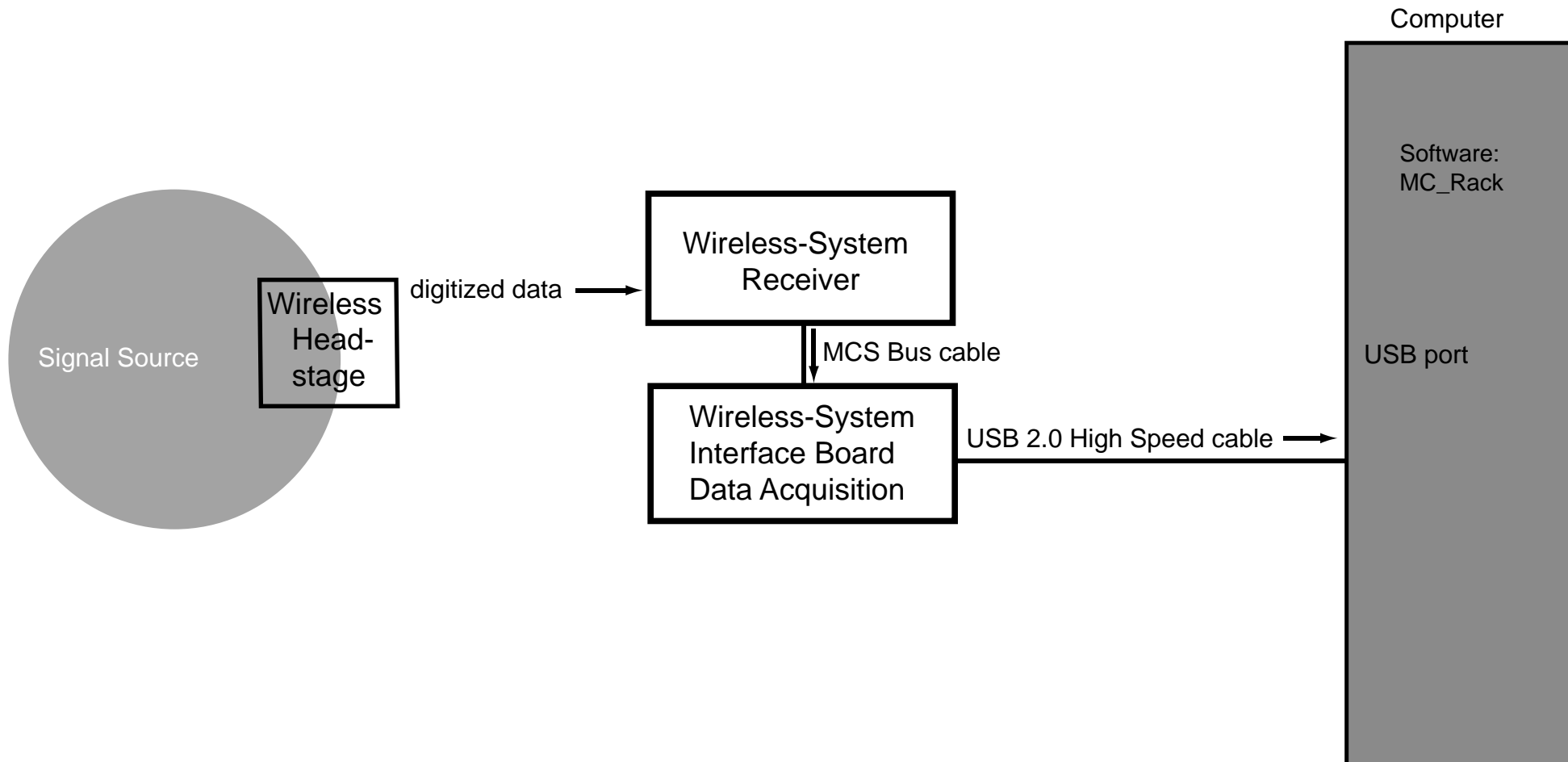
USB-ME-Systems with internal data acquisition and data transfer via USB 2.0 High Speed connection to any computer

	Data Acquisition A / D Converter	FAI <i>Fix gain amplifier</i>	PGA <i>Programmable gain amplifier</i>	Wireless headstage <i>4-, 8- 16- or 32-channel preamplifier</i>	μPA32 <i>32-channel preamplifier + SC4x16-2x32BC Sig Col</i>	μPA16 <i>16-channel preamplifier + SC4x16-2x32BC Sig Col</i>	MPA32II <i>32-channel preamplifier + SC2x32 Signal collector</i>	MPA8I <i>8-channel preamplifier + SC8x8 Signal collector</i>	Number of electrode channels <i>DAQ</i>
Wireless System	Integrated			1 x user specification					4, 8, 16, 32
Portable ME16-System	integrated	FA integrated <i>Gain factor 100 1 Hz to 5 kHz</i>				*1 x		*2 x	16
Portable ME32-System	integrated	FA integrated <i>Gain factor 100 1 Hz to 5 kHz</i>			*1 x	*2 x	1 x		32
USB-ME16-FAI-System	integrated	FA integrated <i>Gain factor 100 1 Hz to 5 kHz</i>						2 x	16
USB-ME32-FAI-System	integrated	FA integrated <i>Gain factor 100 1 Hz to 5 kHz</i>					*1 x	*4 x	32
USB-ME64-FAI-System	integrated	1 x FA64I external <i>Gain factor and bandwidth user specified</i>			2 x μPA32 + SC4x16-2x32BC	4 x μPA16 + SC4x16-2x32BC	2 x MPA32I + 1 x SC2x32	8 x MPA8I + 1 x SC8x8	64
USB-ME64-PGA-System	integrated		1 x PGA64 external <i>programmable gain specified bandwidth</i>		2 x μPA32 + SC4x16-2x32BC	4 x μPA16 + SC4x16-2x32BC	2 x MPA32I + 1 x SC2x32	8 x MPA8I + 1 x SC8x8	64
USB-ME128-FAI-System	integrated	2 x FA64I external <i>Gain factor and bandwidth user specified</i>			4 x μPA32 + 2 x SC4x16-2x32BC	8 x μPA16 + 2 x SC4x16-2x32BC	4 x MPA32I + 2 x SC2x32	16 x MPA8I + 2 x SC8x8	128
USB-ME128-PGA-System	integrated		2 x PGA64 external <i>programmable gain specified bandwidth</i>		4 x μPA32 + 2x SC4x16-2x32BC	8 x μPA16 + 2x SC4x16-2x32BC	4 x MPA32I + 2 x SC2x32	16 x MPA8I + 2 x SC8x8	128
USB-ME256-FAI-System	integrated	4 x FA64I external <i>Gain factor and bandwidth user specified</i>			8 x μPA32 + 4 x SC4x16-2x32BC	16 x μPA16 + 4 x SC4x16-2x32BC	8 x MPA32I + 4 x SC2x32	32 x MPA8I + 4 x SC8x8	256
USB-ME256-PGA-System	integrated		4 x PGA64 external <i>programmable gain specified bandwidth</i>		8 x μPA32 + 4 x SC4x16-2x32BC	16 x μPA16 + 4 x SC4x16-2x32BC	8 x MPA32I + 4 x SC2x32	32 x MPA8I + 4 x SC8x8	256

* = optional:: 1 x μPA16 – **OR** – 2 x MPA8I; 1 x μPA32 – **OR** – 2 x μPA16; 1 x MPA32I + 1 x ADPT-NN-32 – **OR** – 4 x MPA8I + ADPT-NN-16
 = basic USB-ME-System, additional components have to be ordered separate.

Wireless-System

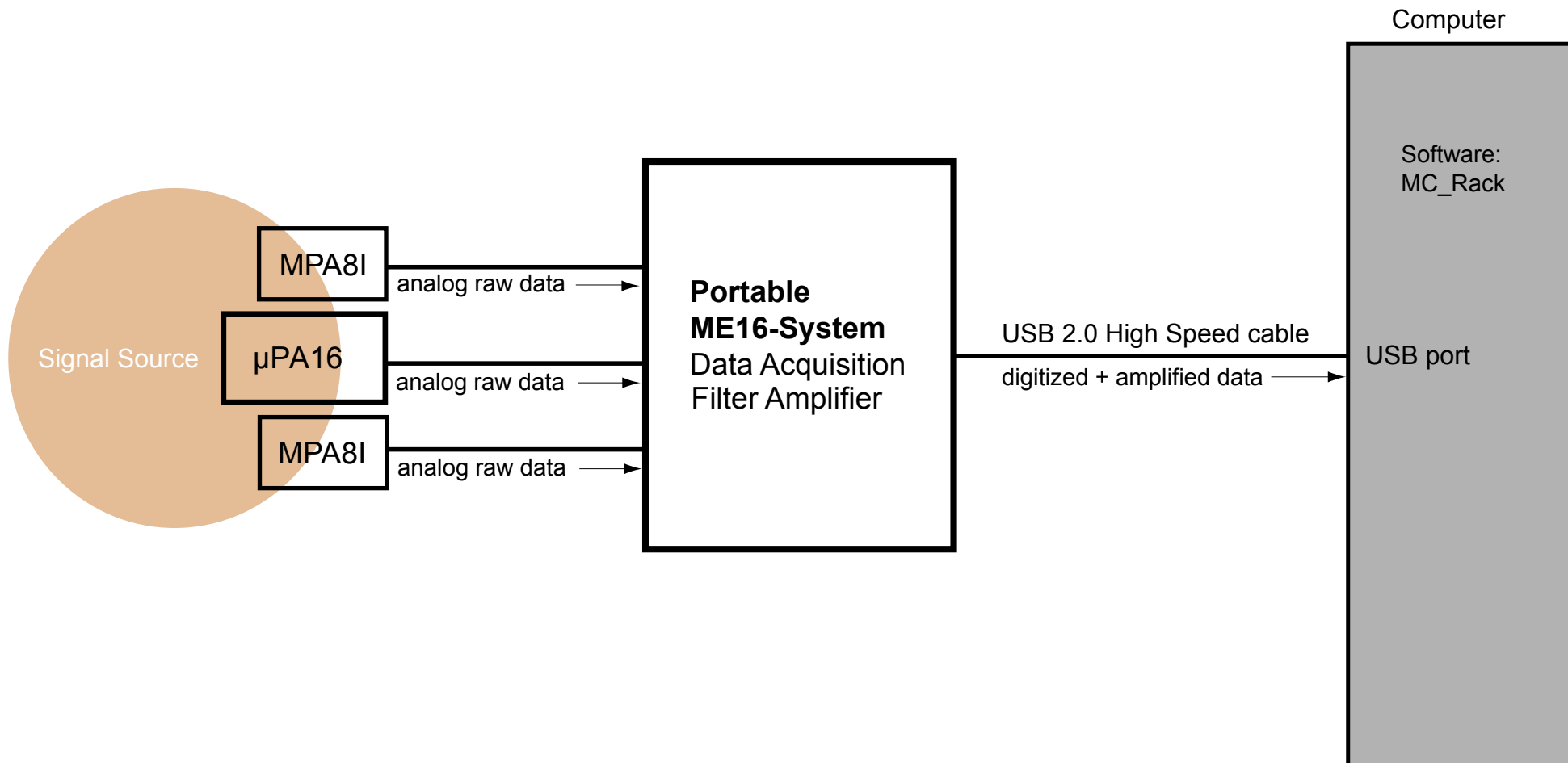
4-, 8-, 16- or 32-channel wireless recording system with integrated data acquisition and A / D converter,
Data input are 4-, 8-, 16- or 32-channel headstage preamplifiers (W4 or W8 or W16 or W32I).



Portable ME16-System

16 channel recording system with 16 filter amplifiers and integrated data acquisition.

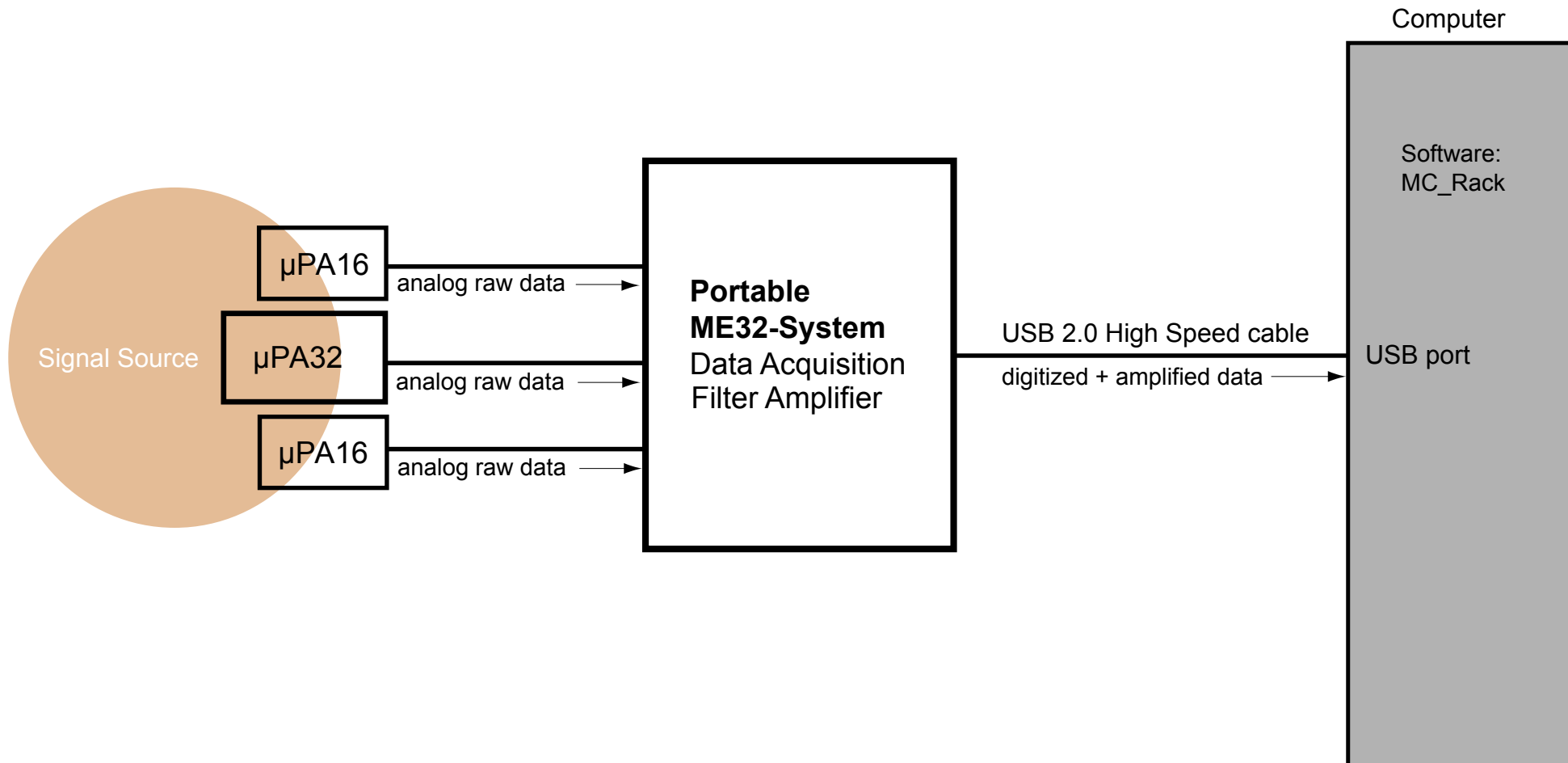
Data input can be 2 x 8 channel miniature preamplifiers (MPA8I) - **OR** - one 16 channel micro preamplifier (μ PA16).



Portable ME32-System

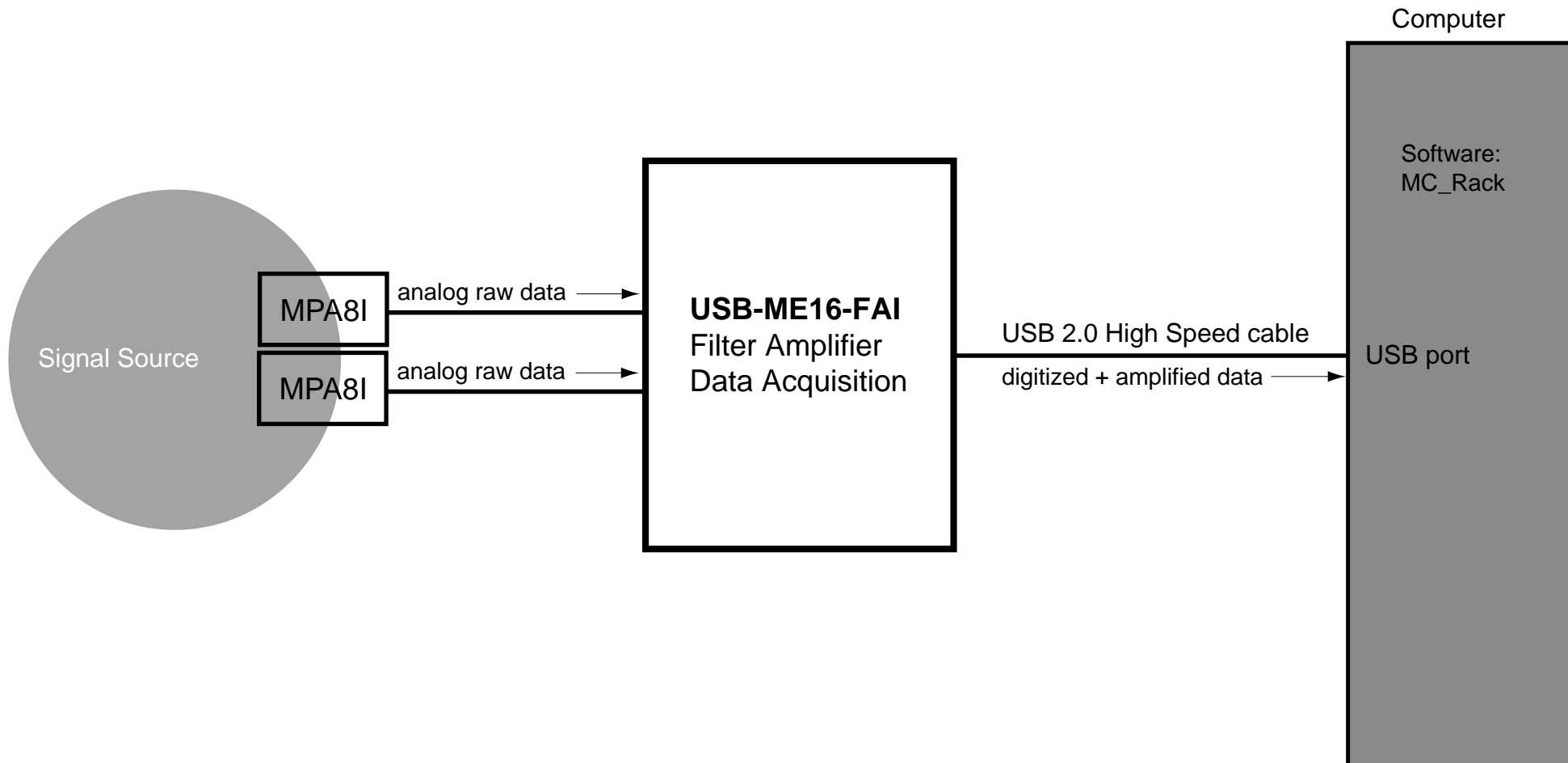
32 channel recording system with 32 filter amplifiers and integrated data acquisition.

Data input can be 2 x 16 channel micro preamplifiers (μ PA16) - **OR** - one 32 channel micro preamplifier (μ PA32).



USB-ME16-FAI-System

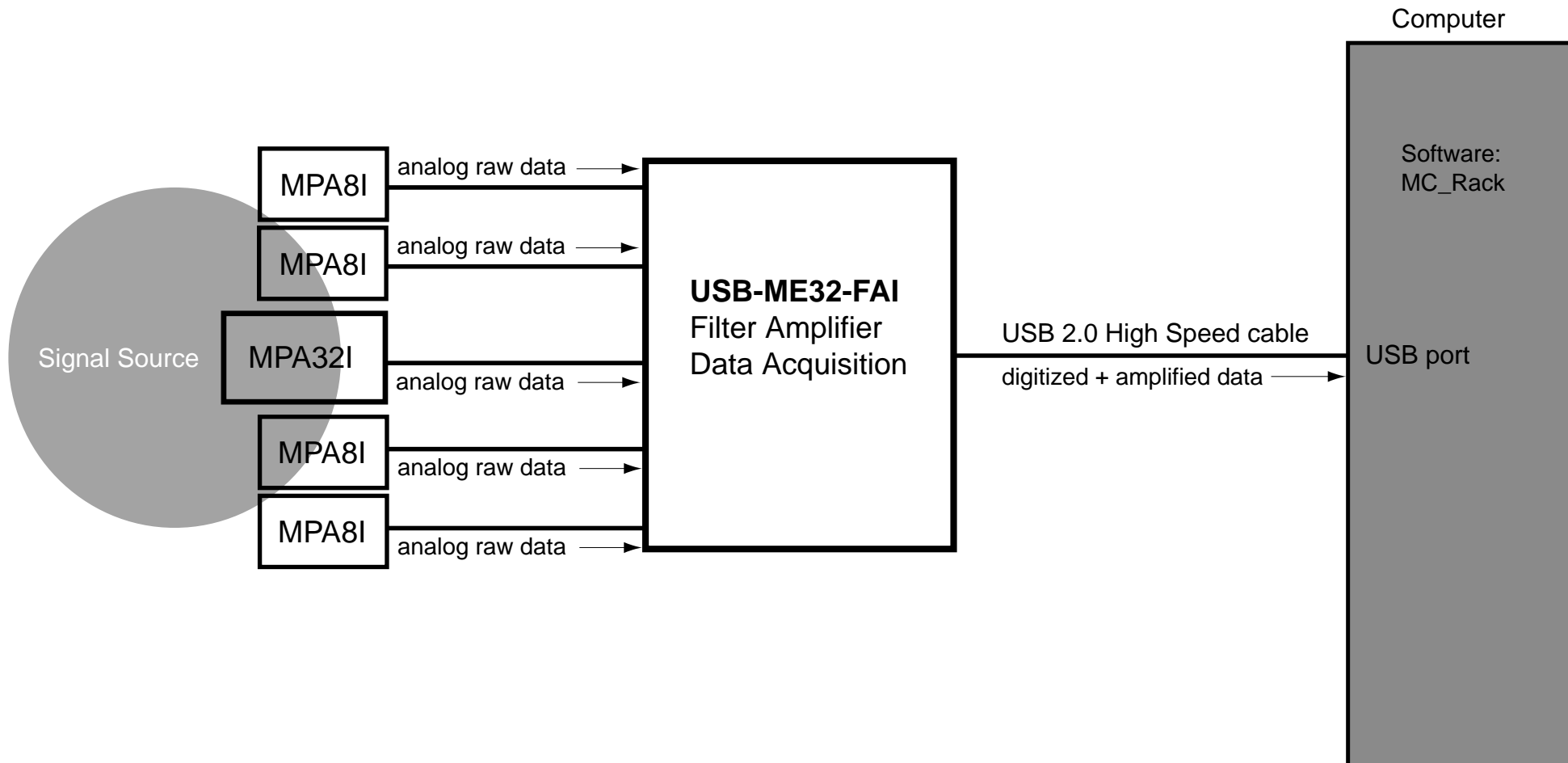
16 channel recording system with 16 filter amplifiers and integrated data acquisition.
Data input are 2 x 8 channel miniature preamplifiers (MPA8I).



USB-ME32-FAI-System

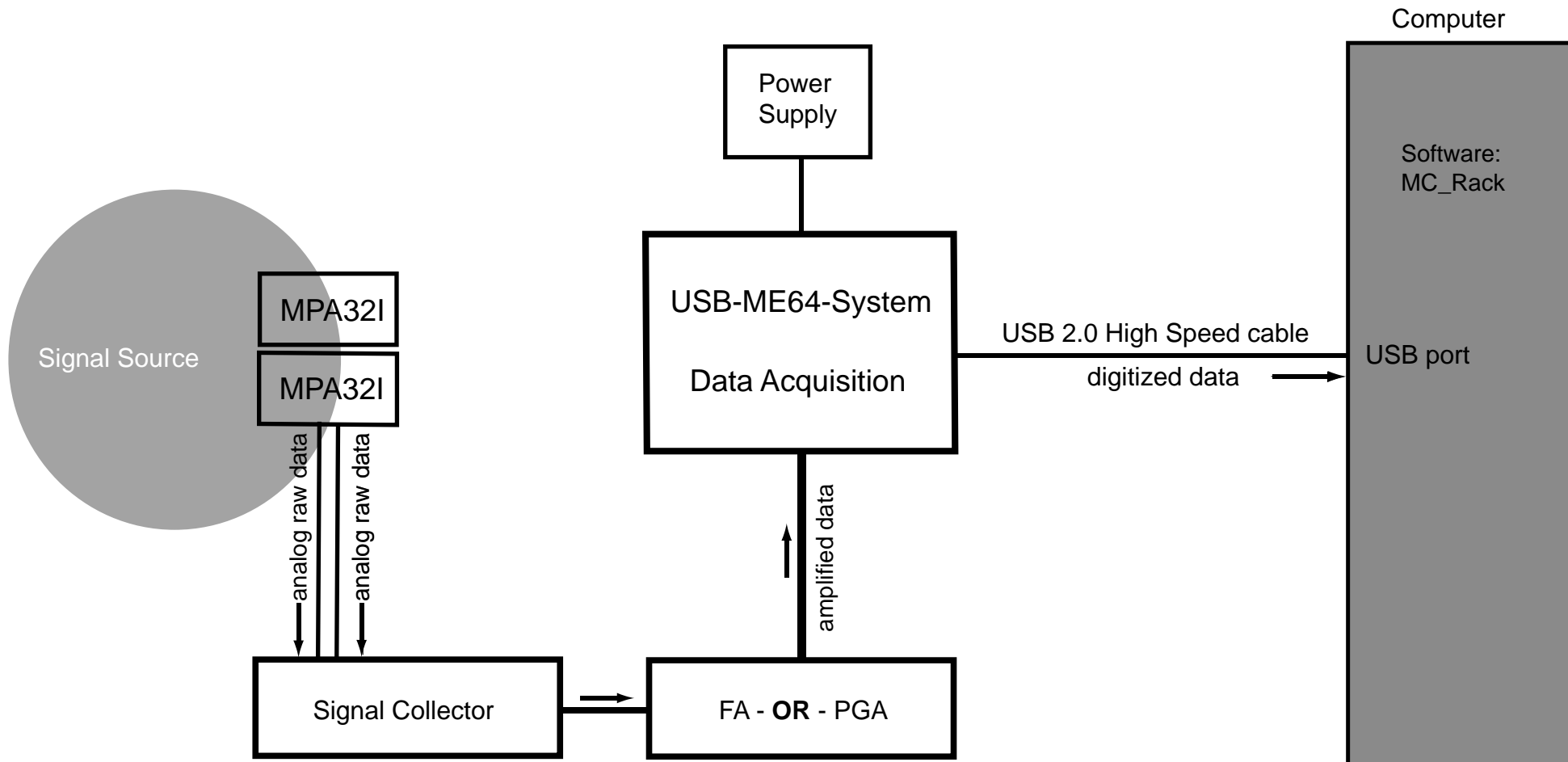
32-channel recording system with 32-channel filter amplifiers and integrated data acquisition.

Data input can be 4 x 8-channel miniature preamplifiers (MPA8I) - **OR** - one 32-channel preamplifier (MPA32I).



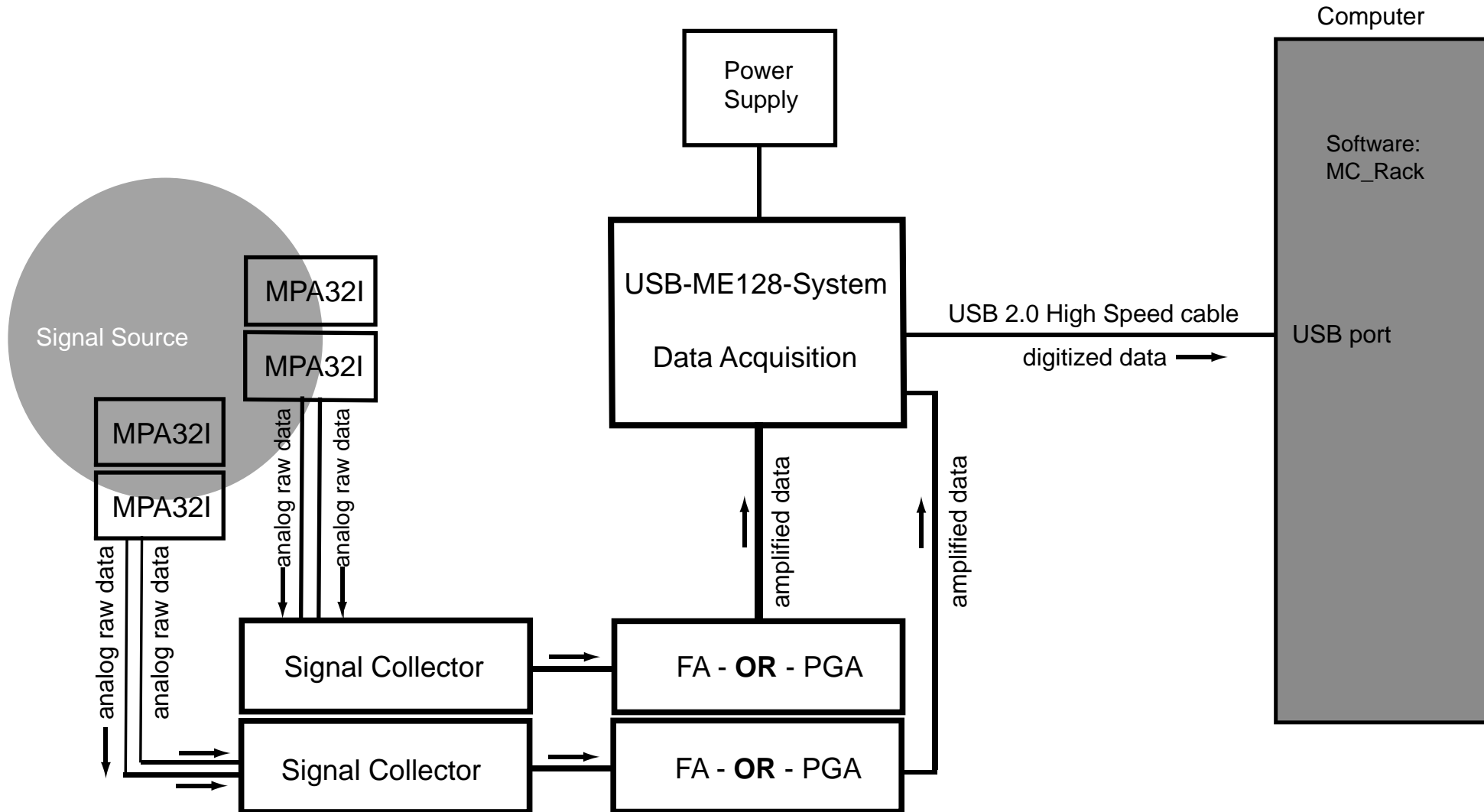
USB-ME64-FAI-System - **OR** - USB-ME64-PGA-System

64-channel recording system with integrated data acquisition and A / D converter, signal collector and FA - **OR** - PGA.
Data input are 2 x 32-channel miniature preamplifiers (MPA32I) - **OR** - 8 x 8-channel miniature preamplifiers (MPA8I).



USB-ME128-FAI-System - OR - USB-ME128-PGA-System

128-channel recording system with integrated data acquisition and A / D converter, signal collector and FA - OR - PGA.
Data input are 4 x 32-channel miniature preamplifiers (MPA32I) - OR - 16 x 8-channel miniature preamplifiers (MPA8I).



USB-ME256-FAI-System - **OR** - USB-ME256-PGA-System

256-channel recording system with integrated data acquisition and A/D converter, signal collector and FA - **OR** - PGA.
Data input are 8 x 32-channel miniature preamplifiers (MPA32I) - **OR** - 32 x 8-channel miniature preamplifiers (MPA8I).
Each module consists of MPAs, signal collector and filter amplifier, and is connected to the USB-ME256-System separately.

