PCI-Embedded Solution without PC

ADDI-DATA®

MSX-Box

Embedded system for made-to-measure and network solutions in industrial measurement and automation.

www.msx-box.com

The PCI-Embedded System for Network Controlling, ...

... measuring and data acquisition

The PCI standard is the future ...

... and the benefits of it are in your hands - Addi-Data has developed the MSX-Box (**M**easurement **S**olution E**X**tended-Box), which sets the standard for openness, scalability, flexibility and a guaranteed future.

The basis of standard technologies represents much more than just a philosophy or marketing formula as the use of open standards is intended at all hardware and software levels

From the CPU and backplane through the operating system, programming environment and communication technology, to operating and visualisation methods, open standards are used.

The range stretches from compact mini-systems with no hard disk to powerful process computers.

The open system in detail

Although it features standard components like PCI backplane, PCI I/O boards and controller board, the MSX-Box is run without expandable parts like hard disk, drive, ventilator or keyboard.

The development of the controller board (MIPS 64-bit processor) was focussed on the long-term availability of the components likewise the PCI I/O boards of ADDI-DATA. Herewith the long-life delivery of the product is ensured.

The MSX-Box is based on an open system which enables to insert any PCI measurement board available on the market.

In the standard design the box is fitted with 5 PCI slots as well as an additional front bracket opening for interface enlargement. Two of these slots are used for the controller board and the Ethernet board.

Long-term availability

Parallel to the increasing requirements of applications, the MSX-Box can be fitted with cost-effective standard components, step by step. The PCI bus guarantees extensibility using any external or in-house developments.

The ADDI-DATA product philosophy and the use of the RISC technology ensure a long-term availability of the Embedded System.

The communication

Data exchange with other systems occurs through Ethernet (TCP/IP) or RS232 interfaces and the boards inserted in the MSX-Box can be run from any remote PC. Another interesting functionality is the distribution of several MSX-Boxes in your Ethernet network.

As the MSX-Box contains the complete Internet technology, it can communicate through an IP address. It can be accessed through the present firm network and a standard browser.

As options the MSX-Box offers even more isolated connection and communication possibilities through Profibus, Interbus, CAN as well as RS485 or RS232.

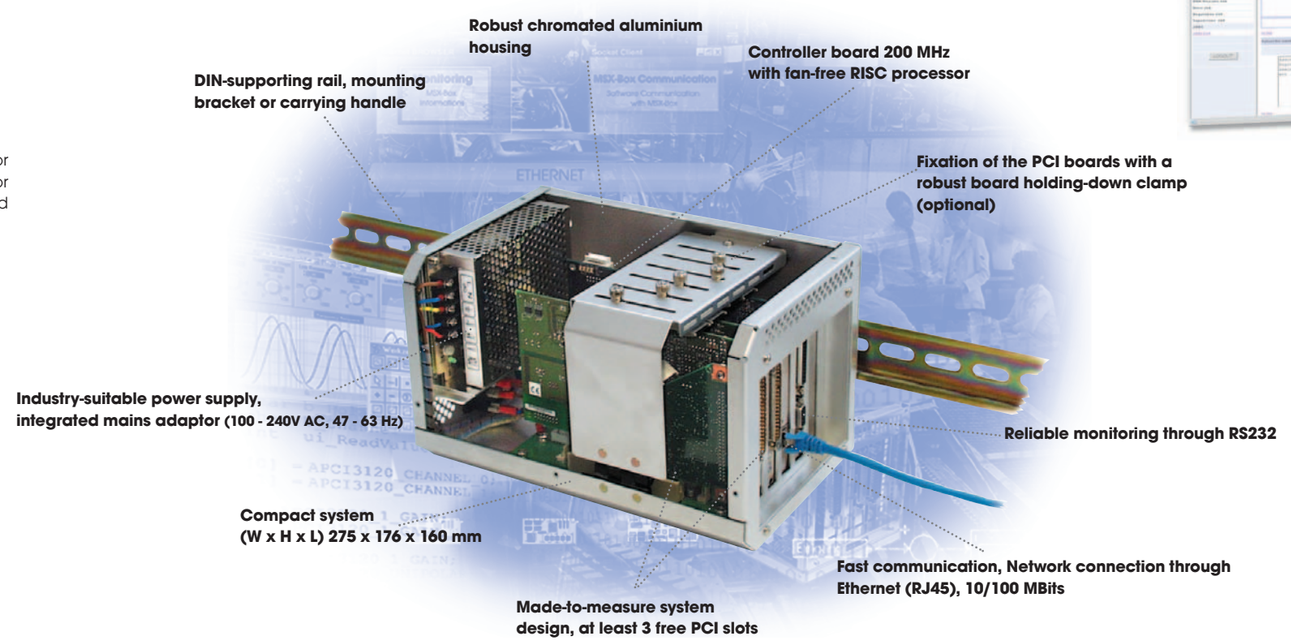
Possible operative ranges of the embedded MSX-Box are the following:

- Measurement and control applications
- Machine control
- Industrial automation processes
- Automatic test devices
- Multi-channel data acquisition
- Axis control
- Data logger
- ...

The features:

The MSX-Box is a new and cost-effective PCI-Embedded solution for measurement, regulation and control tasks. This new platform for industrial applications offers a complete solution by using standard technologies exclusively.

- **Scalable and open system**
  Insertion of standard PCI measurement boards with Linux drivers
- **Integration of standard components**
  Standard PCI backplane, controller board, PCI Ethernet board, mains adaptor
- **Communication standard**
  Ethernet (TCP/IP) or RS232 interface
  optional: Profibus, Interbus-S, CAN, RS485, ...
- **Embedded webserver**
  Visualisation and monitoring through Internet technologies
- **Licence free**
  Open source
- **Compact dimensions**
- **DIN-supporting rail or wall mounting with mounting bracket**
- **High reliability**
  by using standard industrial components



Standard software technologies ...

... used efficiently

The software concept

Using standard technologies for your operating system and software development tools, you are totally independent from any manufacturer. At the same time, you can use state-of-the-art web and open-source technologies at an attractive price level and participate in technical progress and developments.

Future-based solution

The MSX-Box features a simple and modular design yet can carry out "Jobs" flexibly and reliably in measurement and control applications. An IP address can be allocated to the MSX-Box. You can thus communicate with the external world by means of Internet technologies (Ethernet, TCP/IP, ...).

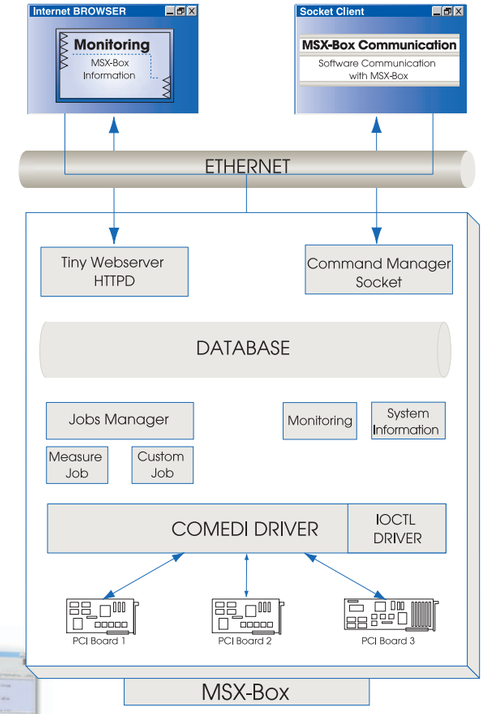
The driver level is open and can work with any PCI board which you have inserted. To stress even more on the manufacturer independence, the operating system integrated in the MSX-Box is Embedded Linux.

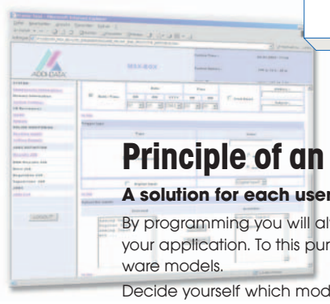
More than only a chain of tools

Individual programming is copied through binary files, e.g. through the FTP service on the MSX-Box, stored in flash and run on the MSX-Box.

In order to support you in your own development, the delivered "tool chain" CD-ROM includes the following development tools for free:

- GNU C cross-compiler
- GNU tools: GCC , GDB, ...
- Tools for operating the MSX-Box:
  Tiny Webserver, web front-end and monitoring, socket server, command manager
- Design documents





Principle of an open system

A solution for each user

By programming you will always find the right and easy solution which fits perfectly your application. To this purpose the MSX-Box can be called up according to 3 software models.

Decide yourself which model corresponds to your application:

Software model 1: Thanks to the front-end for visualisation and monitoring, you, as a non-programmer, can access the numerous functionalities of the MSX-Box directly through the standard user interface - the Internet browser. You can communicate with MSX-Box from a remote PC through Ethernet or serially with RS232.

You can access the so-called "Measure Jobs" of the MSX-Box. These can be only be parameterised, started and stopped. The contained commands are then carried out by the MSX-Box.

Software model 2: If you wish a made-to-measure control and yet do not want to do without the main functions of the "Measure Jobs", you can create your own "Custom Job" or enlarge your application software on basis of the software structure delivered. When required, you may naturally benefit from the competent support of the ADDI-DATA developer team as well.

Software model 3: For this model Linux and C programming knowledge is required as the entire software structure is delivered as open source; in addition you - as a developer - can entirely write your software application. This is enabled by Linux which is used as operating system on the MSX Box. You can use the usual GNU tools for developing such as GCC , GDB, ... for example.

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Technical specifications

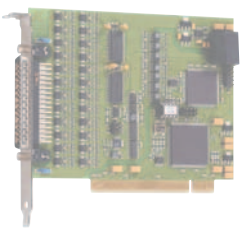
All you need ...

MSX-Box-500 with 5 PCI-Slots
MSX-Box-800 with 8 PCI-Slots

PCI controller board	
RISC processor:	64 bit MIPs, fan-free
Clock:	200 MHz
Memory:	16 MB Flash 128 MB SDRAM, option up to 256 MB
Temperature monitoring:	configurable status at delivery: 5° C to 45° C Higher or lower levels programmable through software; Interrupt can be generated when the set value is exceeded Resolution: 0,5° C
Installed OS:	Embedded Linux
Standard interfaces:	SUB-D 9-pin: 1 x RS232 SUB-D 25-pin: Reset input 24 V; High active 1 relay output, free prog., closing contact
Optional:	SUB-D 25-pin: 1, 2, 4 or 8 CAN, master/slave, isolated 1 x RS232/RS485, isolated Additional bracket: 1 x Profibus/slave, isolated 1 - 2 x Interbus/master, isolated 4 dig. inputs, 24 V/10 mA, isolated 3 dig. outputs, 24 V/200 mA, isolated
Dimensions:	PCI half-size board

Ethernet PCI board (RJ45)	
Ethernet port:	1
Data transfer rate:	10/100 MBits
Mains adaptor	
Input voltage:	100 V - 240 V, AC, 47-63 Hz (other voltage on request)
Eingangsstrom:	1,2 A/115 V, 0,6/230 V
Output voltage:	5 V DC-40W (max 8A)
Protection against:	short circuit; overload and overvoltage
Connection:	power cable, 2 m
PCI passive backplane	
PCI slots:	for version MSX-Box 500 in total: 5 for version MSX-Box 800 in total: 8 reserved: 1 for the PCI controller board 1 for the PCI Ethernet board free for: 3/6 additional PCI half-size boards,5V
Compliant to:	PCI specification PICMG rev. 2.1.
Compact housing for version MSX-Box 500	
Dimensions (MSX-500):	(L x H x W) 275 x 176 x 160 mm
Weight (MSX-500):	approx. 2 kg (standard MSX-Box system)
Housing material:	chromated aluminium housing
Heat dissipation:	through convection
Temperature range:	0 - 50°C
Front opening:	for 5 PC boards and 1 bracket
Status display:	5 LEDs, 2 of which are free
Extensive software support	
Free development tools (GNU compiler)	
Accessories, optional	
Board fixation:	Board holding-down clamp
Mountig possibilities:	• DIN rail • removable mounting bracket • Carrying handle
Cable:	• RS232 cable 1,5 m, 9 pin • Ethernet patch cable 2 m, shielded, RJ45 connector (PC <-> MSX-Box)
Colours:	other housing colours (according to RAL scale) and inscriptions on request

Many ADDI-DATA's PCI measurement boards as well as PCI boards of other manufacturers (supported by Linux) can be inserted in the MSX-Box! For more information visit our web site:



www.addi-data.com

For more information:

Contact your distributor:

❑ ***Yes,*** I want to know more about the ADDI-DATA MSX-Box embedded system!

❑ ***Yes,*** I want more information about the ADDI-DATA measurement boards!

- ❑ Digital I/O, 24 V
- ❑ Analogue input boards
- ❑ Multifunction board
- ❑ Temperature acquisition
- ❑ Pressure measurement
- ❑ Acquisition of inductive transducers
- ❑ Serial interfaces
- ❑ Multifunction counter boards
- ❑ Axis control boards ....
- ❑ _____

Firm: _____

Name: _____

Function: _____

Department: _____

Street: _____

Postcode, City: _____

Telephone: _____

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E-mail: _____

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