

JFLEX™-miniPCI

Product Manual

Document Revision 1.0

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1 USER INFORMATION

1.1 About This Manual

This document provides information about products from Kontron Embedded Computers AG and/or ist subsidiaries. No warranty of suitability, purpose, or fitness is implied.
While every attempt has been made to ensure that the information in this document is accurate, the information contained within is supplied “as-is” and is subject to change without notice.
For the circuits, descriptions and tables indicated, Kontron assumes no responsibility.

1.2 JUMPtec® Brand

JUM*Ptec* Industrielle Computertechnik AG and Kontron Embedded Computers AG merged in July 2002. JUM*Ptec* is now known as Kontron Embedded Modules GmbH.
Products labeled and sold under the Kontron Embedded Modules name (formerly JUM*Pte*c) are now considered Kontron products for all practical purposes, including warranty and support.
JFLEX ™, DIMM-PC®, PISA®, ETX Components SBC™, JUMPtec®, and Kontron Embedded Modules are trademarks or registered trademarks of Kontron Embedded Modules GmbH.

1.3 Copyright Notice

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1.4 Trademarks

The following lists the trademarks of components used in this board.

- IBM, XT, AT, PS/2 and Personal System/2 are trademarks of International Business Machines Corp.

- Microsoft is a registered trademark of Microsoft Corp.

- All other products and trademarks mentioned in this manual are trademarks of their respective owners.

1.5 Standards

Kontron Embedded Modules is certified to ISO 9000 standards.

1.6 Warranty

This Kontron Embedded Modules product is warranted against defects in material and workmanship for the warranty period from the date of shipment. During the warranty period, Kontron Embedded Modules will at its discretion decide to repair or replace defective products.
Within the warranty period, the repair of products is free of charge as long as warranty conditions are observed.
You may receive a bill for test costs if Kontron Embedded Modules finds no fault with the product. You also may receive a bill for repairs if a product's warranty has expired.
For warranty service or repair, return the product to a Kontron Embedded Modules service facility listed in the Technical Support section of this document.
The warranty does not apply to defects resulting from improper or inadequate maintenance or handling by the buyer, unauthorized modification or misuse, operation outside of the product's environmental specifications or improper installation or maintenance.
Kontron Embedded Modules will not be responsible for any defects or damages to other products not supplied by Kontron Embedded Modules that are caused by a faulty Kontron Embedded Modules product.

1.7 Technical Support

Technicians and engineers from Kontron Embedded Modules and/or ist subsidiaries are available for technical support. We are committed to making our product easy to use and will help you use our products in your systems. Before contacting Kontron Embedded Modules technical support, please consult our **Web site** for the latest product documentation, utilities, and drivers. If the information does not help solve the problem, contact us by email or telephone. The table below lists technical support contacts and service facilities for Kontron Embedded Modules.

Asia	Europe	North/South America
Kontron Embedded Technology (Asia Pacific)	Kontron Embedded Modules GmbH	Kontron America
Far East Science Park, 2nd Floor No. 2, Lane 50, Nan Kang Road Section 3, Nan Kang District Taipei, Taiwan	Brunnwiesenstr. 16 94469 Deggendorf – Germany	6260 Sequence Drive San Diego, CA 92121-4371
Tel: +886-2-2782-0201	Tel: +49 (0) 991-37024-0	Tel: 888-294-4558
Fax: +886-2-2782-7486	Fax: +49 (0) 991-37024-104	Fax: (858) 677-0898
http://www.jumptec.com.tw/ http://www.kontron.com.tw/	http://www.jumptec.de/ http://www.kontron-em.de/	http://www.kontron.com/

2 INTRODUCTION

2.1 JFLEX-miniPCI

The JFLEX-miniPCI is an extension board for Kontrons JRex 3,5'' embedded line SBC family.

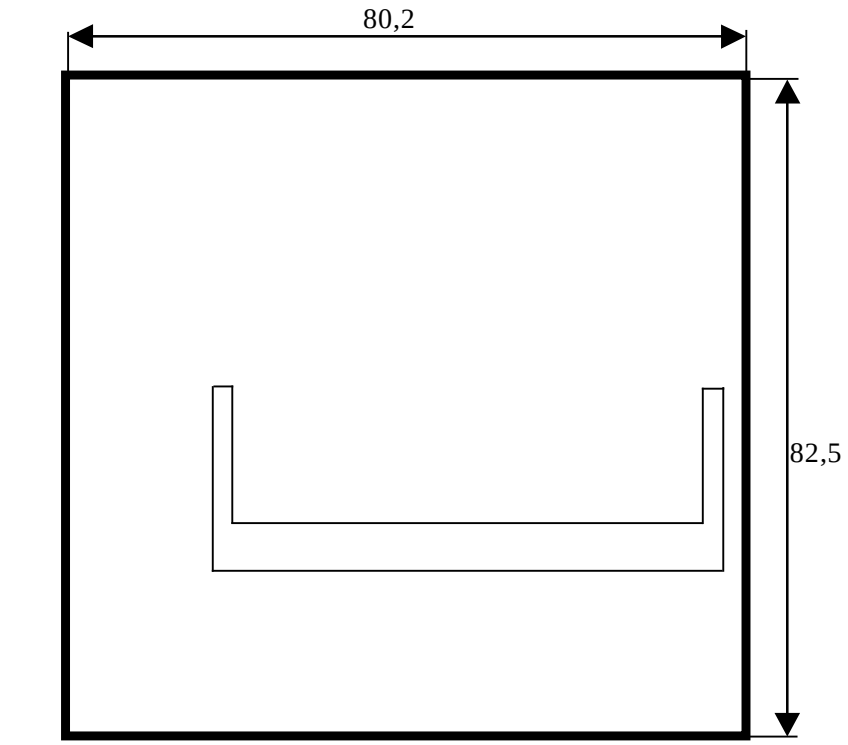
Following features are provided by the JFLEX-miniPCI

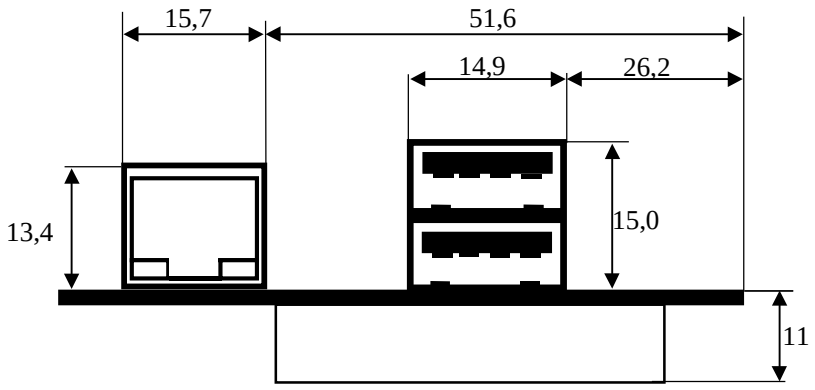
- Mini-PCI socket (Type 1) (optional feature)
- Mini-PCI socket (Type 3) (standard feature)
- Ethernet Connector (optional feature)
- USB (optional feature)

3 SPECIFICATIONS

3.1 Mechanical Specifications

- Mechanical: PCB 80,2mm x 82,5mm





All dimensions are given in Millimeters [mm].

3.2 Electrical Specifications

3.2.1 Supply Voltage

- 5V DC +/- 5%
- 3,3V DC +/- 5%

3.2.2 Supply Voltage Ripple

- 100 mV peak to peak 0-20 MHz

3.2.3 available Supply Current

- @ 3.3V max. 3,5A
- @ 5V max. 1,5A
- @5V-Standby max. 0,5A

3.3 Environmental Specifications

3.3.1 Temperature

- Operating: 0 to + 60°C
- Storage: -10 to + 85 ° C

3.3.2 Humidity

- Operating: 10% to 90% (non condensing)
- Storage: 5% to 95% (non condensing)

To protect the external powerlines to peripheral devices the customer has to take care about:

- **The wires to the external device have the right diameter to withstand the max. available current.**
- **The housing of the external device fulfills the fire protecting requirements of IEC/EN 60950.**

4 MODULE FUNCTIONS

4.1 MiniPCI socket Type 1

Connect miniPCI cards following Type-1 specification to this socket.

4.2 MiniPCI socket Type 3

Connect miniPCI cards following Type-3 specification to this socket.

4.3 Ethernet Connector

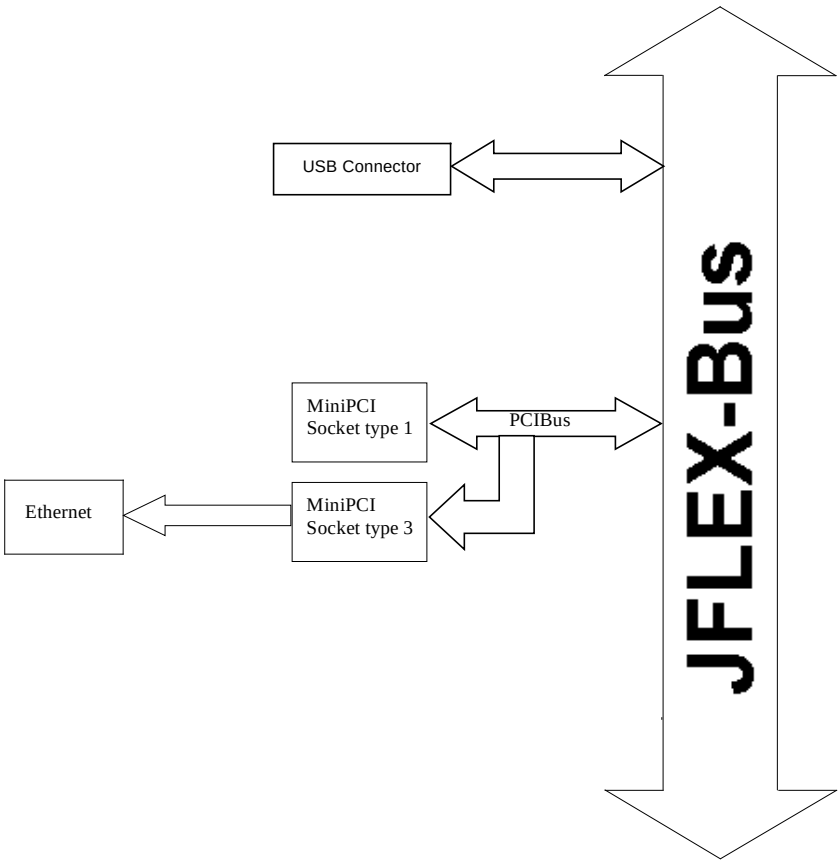
Use this connector for miniPCI ethernet cards without onboard magnetics and connector.

4.4 USB Interface

The JFLEX-miniPCI supports two USB ports. You can expand the USB ports by adding external hubs up to an amount of 127 USB peripherals per port.

Pin	Function
1	USB1_+5V
2	USB1-
3	USB1+
4	USB1_GND
5	USB2_+5V
6	USB2-
7	USB2+
8	USB2_GND

5 APPENDIX A: BLOCK DIAGRAM



6 APPENDIX B: LITERATURE AND STANDARDS

Below is a list of information sources to help you to further understand PC architecture.

6.1 Buses and General PC Architetcure

6.1.1 PCI

PCI spec. @ http://www.pcisig.com/home/

- The PCI-SIG provides a forum for ist ~900 member companies, who develop PCI products based on the specifications that are created by the PCI-SIG.
- *PCI & PCI-X Hardware and Software Architecture & Design*, Fifth Edition, Edward Solari and George Willse, Annabooks, 2001, ISBN 0-929392-63-9.
- *PCI System Architecture,* Tom Shanley and Don Anderson, Addison-Wesley, 2000, ISBN 0-201-30974-2.

6.1.2 USB

USB spec. @ http://www.usb.org/

USB Implementers Forum, Inc. Is a non-profit corporation founded by the group of companies that developed the Universal Serial Bus specification. The USB-IF was formed to provide a support organization and forum for the advancement and adoption of Universal Serial Bus technology.

6.1.3 AC ’97

AC ’97 spec. @ http://www.intel.com/labs/media/audio/

The specification defines the Audio Codec ’97 (AC ’97) Architecture and Digital Interface (AC-link) specifically designed for implementing audio and modem I/O functionality in PC systems. This specification does not explicitly define the companion AC ’97 Digital Controller component (sometimes referred to or abbreviated as DC ’97), which typically varies in features and implementation, but is AC ’97 compliant with this specification.

6.1.4 LPC

LPC spec. @ http://www.intel.com/design/chipsets/industry/lpc.htm

The Low Pin Count (LPC) Interface Specification for legacy I/O has facilitated the industry's transition toward ISA-less systems.

The LPC Interface allows the legacy I/O motherboard components, typically integrated in a Super I/O chip, to migrate from the ISA/X-bus to the LPC Interface, while retaining full software compatibility. The LPC Specification offers several key advantages over ISA/X-bus, such as reduced pin count for easier, more cost-effective design. The LPC Interface Specification is software transparent for I/O functions and compatible with existing peripheral devices and applications.

The LPC Interface Specification describes memory, I/O and DMA transactions. Unlike ISA, which runs at 8MHz, it will use the PCI 33MHz clock and will be compatible with more advanced silicon processes.

6.2 RS232C, RS485

- EIA-232-E Interface between data terminal equipment and date circuit-terminating equipment employing serial binary data interchange (ANSI/IEA-232-D)

- National Semiconductor's Interface Data Book includes any applications notes. These notes are also available online at http://www.national.com/. A search engine is provided to search the text of the available application notes. Entering „232" as search criteria to get a current list of related application notes.

- The link www.rs485.com provides detailed information about RS485 and RS422 interfaces.

7 APPENDIX C: DOCUMENT REVISION HISTORY

Version	Date	Edited by	Changes
0.1	04.11.2004	BAJ	First draft
1.0	08.11.2004	BAJ	Minor changes