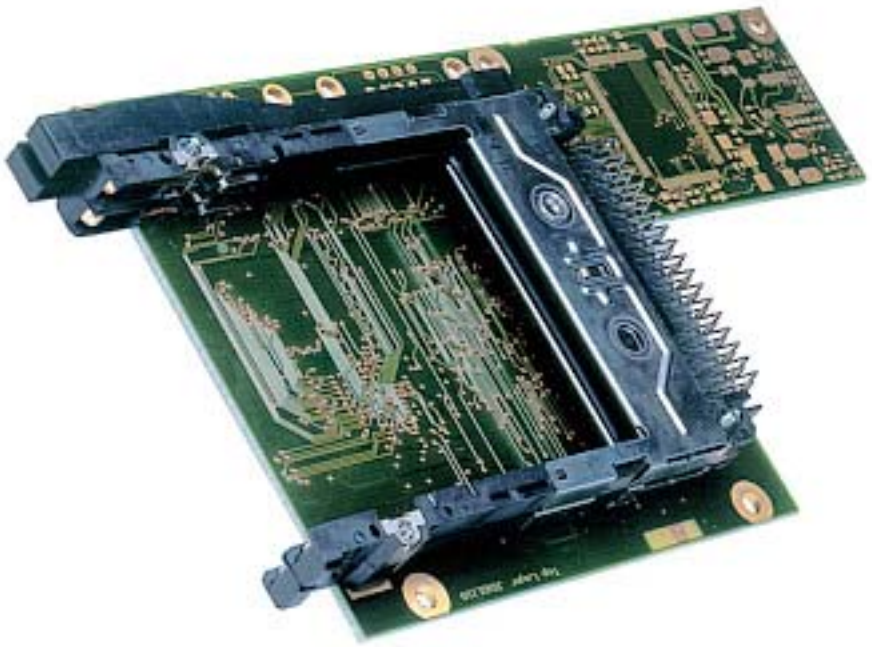


JFLEX-PCMCIA

User's Guide

Document Revision 1.0

kontron

... always a Jump ahead!

CONTENTS

1. USER INFORMATION 1

1.1 About This Manual 1
1.2 Copyright Notice 1
1.3 Trademarks 2
1.4 Standards 2
1.5 Warranty 2
1.6 Technical Support 3

2. INTRODUCTION 4

2.1 JFLEX-PCMCIA1 4
2.2 JRex Concept 4

3. SPECIFICATIONS 5

3.1 Functional Specifications 5
3.2 Mechanical Specifications 6
3.3 Electrical Specifications 7
3.3.1. Supply Voltage 7
3.3.2. Supply Voltage Ripple 7
3.3.3. Supply Current 7
3.4 Environmental Specifications 8
3.4.1. Temperature 8
3.4.2. Humidity 8
3.4.3. Thermal Gradient 8
3.4.4. Altitude 8

4. JFLEX-PCMCIA INTERFACE 9

4.1 Controller 9

5. BUS INTERFACES 10

5.1 PC Card Socket Power Interface 10
5.2 Interrupt Configurations 10
5.3 PCI Bus 11
5.4 Software Considerations 11

6. APPENDIX A: BLOCK DIAGRAM 12

7. APPENDIX B: MECHANICAL DIMENSIONS AND CONNECTOR LAYOUT 13

8. APPENDIX C: PC ARCHITECTURE INFORMATION 14

8.1 Buses and USB Information 14
8.1.1. PCI 14
8.1.2. PCMCIA 14

9. APPENDIX D: DOCUMENT REVISION HISTORY 15

1. USER INFORMATION

1.1 About This Manual

This document provides information about products from Kontron Embedded Computers AG and/or its 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 as far as patents or other rights of third parties are concerned.

1.2 Copyright Notice

Copyright © 2003 Kontron Embedded Computers AG.

All rights reserved. No part of this manual may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), without the express written permission of Kontron.

JUMP*tec* Industrielle Computertechnik AG and Kontron Embedded Computers AG merged in July 2002. JUMP*tec* is now known as Kontron Embedded Modules GmbH. Products labeled and sold under the Kontron Embedded Modules name (formerly JUMP*tec*) are now considered Kontron products for all practical purposes, including warranty and support.

DIMM-PC®, PISA®, ETX Components SBC, JUMPtec®, and Kontron Embedded Modules are registered trademarks of Kontron Embedded Modules GmbH©.

1.3 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.
- Intel is a registered trademark of Intel Corp.
- All other products and trademarks mentioned in this manual are trademarks of their respective owners.

1.4 Standards

Kontron Embedded Modules is certified to ISO 9000 standards.

1.5 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.

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.

1.6 *Technical Support*

Technicians and engineers from Kontron Embedded Modules and/or its 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 telephone.

Asia	Europe	North/South America
Kontron Asia	Kontron Embedded Modules	Kontron Americas
5F-1, 341, Sec 4 Chung Hsiao E. Road Taipei, Taiwan	Brunnwiesenstr. 16 94469 Deggendorf – Germany	3988 Trust Way Hayward, CA 94545
Tel: +886 2 2751 7192	Tel: +49 (0) 991-37024-0	Tel: 510-732-6900
Fax: +886 2 2772 0314	Fax: +49 (0) 991-37024-109	Fax: 510-732-7655

2. INTRODUCTION

2.1 JFLEX-PCMCIA1

The JFLEX-PCMCIA1 module supports exchangeable mass storage devices, ATA hard disks, and 32-bit I/O PC cards. The module also supports Wireless LAN (WLAN) I/O cards.

2.2 JRex Concept

The JFLEX-PCMCIA1 is part of a family of I/O extensions for Kontron's JRex family. JRex is a 3.5" SBC family from Kontron Embedded Modules (formerly JUMPtec®). JRex interfaces for connectivity and expansion always are in the same position on the front side of unit and include reset, ATX feature, 2xUSB, LAN, keyboard/mouse socket, Compact Flash™, VGA, and COM1.

JFLEX is an add-on I/O extension module that you can firmly place on top of every JRex without affecting the JRex 3.5" SBC footprint. Because they are mostly cable free, the JFLEX modules enable low cost products while minimizing manual errors. The stackable JFLEX concept allows low-cost, customizable I/O extensions.

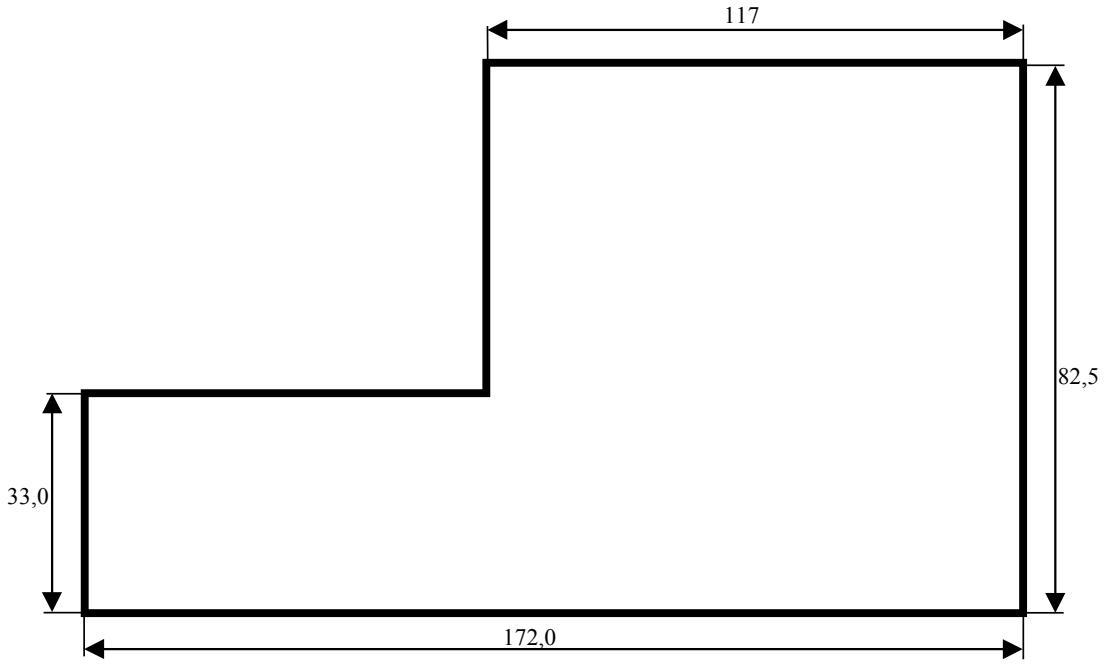
3. SPECIFICATIONS

3.1 *Functional Specifications*

- **Texas Instruments PCI 1520 Controller**
  - Two PC Card or CardBus slots with hot insertion removal
  - Mix-and-match 5V/3.3V, 16-bit PC Cards and 32-bit CardBus cards
  - Burst transfers to maximize data throughput with CardBus cards
  - Intel 82365SL-DF and 82365SL register compatible
  - Exchangeable Card Architecture (ExCA)
- **Drive**
  - PCMCIA device: Two Type I or Type II or one Type III mass storage device
- **Bus Types**
  - PC Card Standard 1997 16/32-bit 5V/3,3V
  - PCMCIA /PC Card R2 (16 bit)
  - Card Bus (32 bit)

3.2 *Mechanical Specifications*

- **82.55mm x 172mm (3.25" x 6.77")**



Note:
All dimensions are given in millimeters (mm).

3.3 *Electrical Specifications*

3.3.1. Supply Voltage

- 5V DC +/- 5%
- 3.3V DC +/- 5%

3.3.2. Supply Voltage Ripple

- 100 mV peak to peak 0 - 20 MHz

3.3.3. Supply Current

- (Without PC Cards) @3.3V (typ. 22mA)

Note:
To protect external power lines to peripheral devices, make sure that:
-- Wires to the external device have the right diameter to withstand the maximum available current
-- The housing of the external device fulfills fire protection requirements of the IEC/EN 60950 standard.

3.4 *Environmental Specifications*

3.4.1. Temperature

- **Operating: 0 to +60 C (*) (with appropriate airflow)**
- **Nonoperating: -10 to +85 °C (noncondensing)**

Note:
The maximum operating temperature is the maximum measurable temperature on any spot on the module's surface. You must maintain the temperature according to the above specification.

3.4.2. Humidity

- **Operating: 10% to 90% (noncondensing)**
- **Nonoperating: 5% to 95% (noncondensing)**

3.4.3. Thermal Gradient

- **Operating: 25 °C per hour**
- **Nonoperating: 40 °C per hour**

3.4.4. Altitude

- **Operating: 0 – 3000 m**
- **Nonoperating: 0 – 5000 m**

4. JFLEX-PCMCIA INTERFACE

4.1 *Controller*

The Texas Instruments PCI1520 controller features:

- Two PC Card or CardBus slots with hot insertion removal
- Mix-and-match 5V/3.3V, 16-bit PC Cards and 32-bit CardBus cards
- Burst transfers to maximize data throughput with CardBus cards
- Intel 82365SL-DF and 82365SL register compatible
- Exchangeable Card Architecture (ExCA)

5. BUS INTERFACES

The JFLEX-PCMCIA1 module offers the following bus types:

- PC Card Standard 1997 16/32-bit 5V/3.3V
- PCMCIA /PC Card R2 (16 bit)
- Card Bus (32 bit)

5.1 *PC Card Socket Power Interface*

The JFLEX-PCMCIA1 module offers the following power interface features for a PC Card socket:

- Texas Instruments TPS 2223
- +5V/3,3V 1A for each socket
- Short-circuit and thermal protection

5.2 *Interrupt Configurations*

CardBus Cards need a PCI interrupt, which is available on INTA# and INTB# on the PCI bus.

For many legacy 16-bit PC cards, a legacy ISA interrupt is required for the card to function properly. Kontron recommends reserving IRQ10 and IRQ11 in the following BIOS submenu of the JRex board. These interrupts are available for the JFlex connector on the JRex board.

Using the PhoenixBIOS, go to Setup Utility->PCI Configuration->PCI/PNP ISA IRQ Resource Exclusion Submenu. The submenu is shown below.

Feature	Option	Description
IRQ3	Available	Reserves specified IRQ for use by legacy ISA devices.
IRQ4	Available	Reserves specified IRQ for use by legacy ISA devices.
IRQ5	Available	Reserves specified IRQ for use by legacy ISA devices.
IRQ7	Available	Reserves specified IRQ for use by legacy ISA devices.
IRQ9	Available	Reserves specified IRQ for use by legacy ISA devices.
IRQ10	**Reserved**	Reserves specified IRQ for use by legacy ISA PCMCIA devices.
IRQ11	**Reserved**	Reserves specified IRQ for use by legacy ISA PCMCIA devices.
IRQ12	Available	Reserves specified IRQ for use by legacy ISA devices.
IRQ14	Available	Reserves specified IRQ for use by legacy ISA devices. (Visible if primary IDE disabled).
IRQ15	Available	Reserves specified IRQ for use by legacy ISA devices. (Visible if secondary IDE disabled).

5.3 *PCI Bus*

JFLEX-PCMCIA fully supports the PCI bus as defined in PCI Local Bus Specification Rev. 2.0.

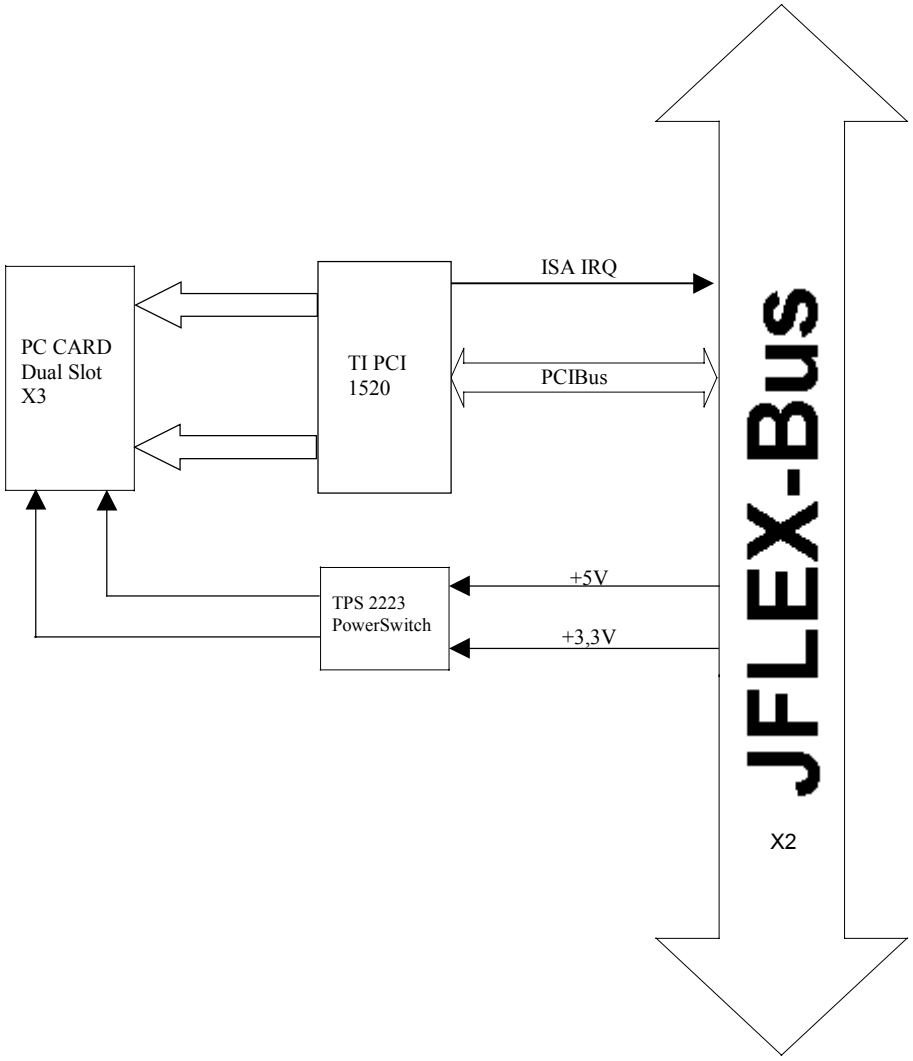
5.4 *Software Considerations*

Windows XP supports JFLEX-PCMCIA modules. Windows 2000, Windows ME and Windows 98SE will recognize the module as a generic CardBus controller. The device functions properly using these drivers. For many legacy 16-bit PC cards, it is necessary to assign a suitable ISA interrupt in the BIOS setup and the operating system.

Kontron does not support other operating systems. However, many non-Microsoft operating systems have generic CardBus device drivers, which are compatible with the Texas Instruments' PCI1520 cardbus controller or the Intel 82365SL controller.

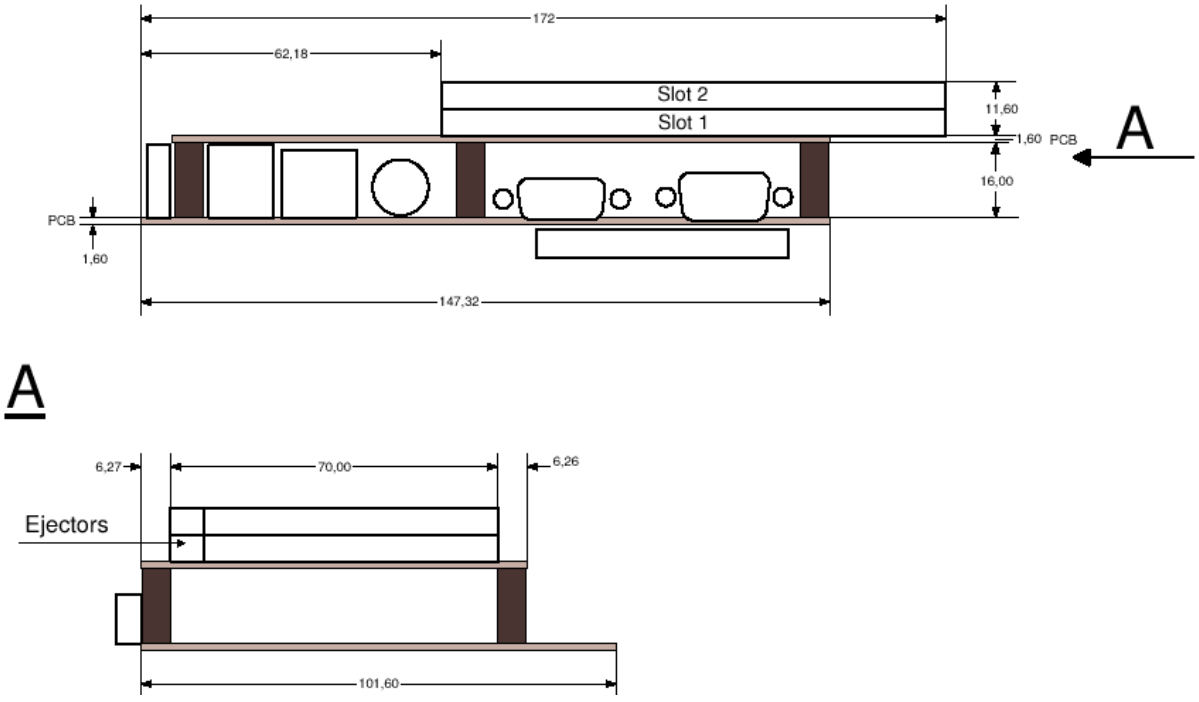
Note:
Windows NT 4.0 only supports 5V legacy 16-bit PC cards. Also, hot-swapping functions are not supported. To drive 3.3V legacy 16-bit PC cards and enable hot-swapping, please use the additional software CardWizardNT, released by SystemSoft. The software is not free.

6. APPENDIX A: BLOCK DIAGRAM



7. APPENDIX B: MECHANICAL DIMENSIONS AND CONNECTOR LAYOUT

The following illustration shows the mechanical dimensions and layout of the connectors for the JFLEX Communication1 module.



8. APPENDIX C: PC ARCHITECTURE INFORMATION

8.1 *Buses and USB Information*

8.1.1. PCI

- **PCI SIG**
  The PCI-SIG provides a forum for 900 companies that develop PCI products based on specifications 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.

8.1.2. PCMCIA

- Visit the PCMCIA.org Web site for more information.

9. APPENDIX D: DOCUMENT REVISION HISTORY

Version	Date	Edited by	Changes
JINDM110.PDF	27.06.03	TJO	Created manual.